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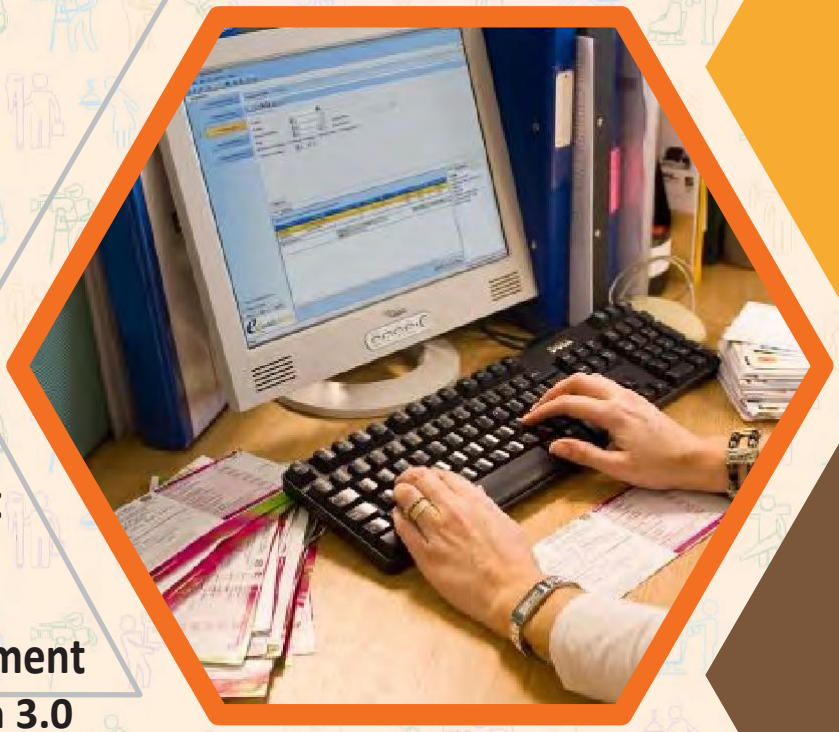
Participant Handbook



Sector

IT-ITeS

Sub - Sector

Business Process Management

Occupation

Customer Relationship Management

Reference ID: **SSC/Q2212, Version 3.0**
SCPwD Reference ID:**PWD/SSC/Q2212, Version 3.0**
NSQF Level 3

DataEntry Operator

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New Delhi – 110049
Website: www.sscnasscom.com
Phone: 0120 4990111 – 0120 4990172

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Note: SCPwD
SCPwD has borrowed the qualification of Data Entry Operator from Nasscom which is approved by NCVET in the 22nd meeting of NSQC on 25th August 2022 (Link of MOM https://ncvet.gov.in/sites/default/files/MoM%2022nd%20NSQC%20held%20on%2025%20August%202022.pdf
And uploaded on NQR WWW.nqr.gov.in
The book caters to the job role aligned to the following disabilities as per the NQR codes mentioned below.
For LD- 2022/PWD/SCPWD/06392
For SHI- 2022/PWD/SCPWD/06393
For LV- 2022/PWD/SCPWD/06394

> Skilling is building a better India. If we have to move India towards development then Skill Development should be our mission.

Shri Narendra Modi
Prime Minister of India


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Acknowledgments

This participant's handbook meant for Domestic Data Entry Operators is a sincere attempt to ensure the availability of all the relevant information to the existing and prospective job holders in this job role. We have compiled the content with inputs from the relevant Subject Matter Experts (SMEs) and industry members to ensure it is the latest and authentic. We express our sincere gratitude to all the SMEs and industry members who have made invaluable contributions to the completion of this participant's handbook. We would also like to thank all the experts and organizations who have helped us by reviewing the content and providing their feedback to improve its quality.

This handbook will help deliver skill-based training in the field of Domestic Data Entry. We hope that it will benefit all the stakeholders, such as participants, trainers, and evaluators. We have made all efforts to ensure the publication meets the current quality standards for the successful delivery of QP/NOS-based training programs. We welcome and appreciate any suggestions for future improvements to this handbook.

About this book

This participant handbook has been designed to serve as a guide for participants who aim to obtain the required knowledge and skills to undertake various activities in the role of a Domestic Data Entry Operator. Its content has been aligned with the latest Qualification Pack (QP) prepared for the job role. With a qualified trainer's guidance, the participants will be equipped with the following for working efficiently in the job role:

- Knowledge and Understanding: The relevant operational knowledge and understanding to perform the required tasks.
- Performance Criteria: The essential skills through hands-on training to perform the required operations to the applicable quality standards.
- Professional Skills: The Ability to make appropriate operational decisions about the field of work.

The handbook details the relevant activities to be carried out by a Domestic Data Entry Operator. After studying this handbook, job holders will be adequately skilled in carrying out their duties according to the applicable quality standards. The handbook is aligned with the following National Occupational Standards (NOS) detailed in the latest and approved version of Domestic Data Entry Operator QP:

- SSC/N3022: Undertake Data Entry Services
- DGT/VSQ/ N0102 - Practice Employability Skills

The handbook has been divided into an appropriate number of units and sub-units based on the content of the relevant QP. We hope it will facilitate easy and structured learning for the participants, allowing them to obtain enhanced knowledge and skills.

Symbols Used


Key Learning Outcomes


Exercise


Notes


Unit Objectives


Activitiy

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1. Introduction

Unit 1.1 - IT-Ites/BPM Industry – An Introduction

Unit 1.2 - Job Responsibilities and Career Opportunities for a Domestic Data Entry Operator

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Comprehend various delivery models used in the IT-BPM industry.
2. Examine the current growth and development standards of the IT-BPM industry.

UNIT 1.1: IT-ITeS/BPM Industry – An Introduction

Unit Objectives

By the end of this unit, participants will be able to:

1. Explain the relevance of the IT-ITeS sector.
2. Conduct internet browsing to collate information and articles regarding the IT- ITeS/BPM industry.
3. Identify the various sub-sectors of the IT-BPM industry from the gathered information.
4. Categorize the key emerging trends in the IT-BPM industry.

1.1.1 India's IT-ITeS/BPM Industry

- Information Technology (IT), Information Technology Enabled Services (ITes)/ Business Process Management (BPM) are vital to the Indian economy.
- The IT and BPM market accounts for 9.3% of India's GDP and 56% of the global outsourcing market.
- India's IT and business services market is projected to reach US$ 19.93 billion by 2025.
- According to an estimate, IT spending in India is forecasted to increase to US$ 101.8 billion in 2022 from US$ 81.89 billion in 2021.
- India's IT & BPM industry is well-diversified across verticals, such as Banking, Financial Services, and Insurance (BFSI) sector, telecom and retail.
- In FY21, India ranked third worldwide with 608,000 cloud experts across all verticals, including technology.
- The computer software and hardware sector in India attracted cumulative foreign direct investment (FDI) inflows worth US$ 81.31 billion between April 2000 and December 2021.
- IT companies are one of the top employers in the country's organized sector.

Source: www.ibef.org/industry/information-technology-india

Sector Composition

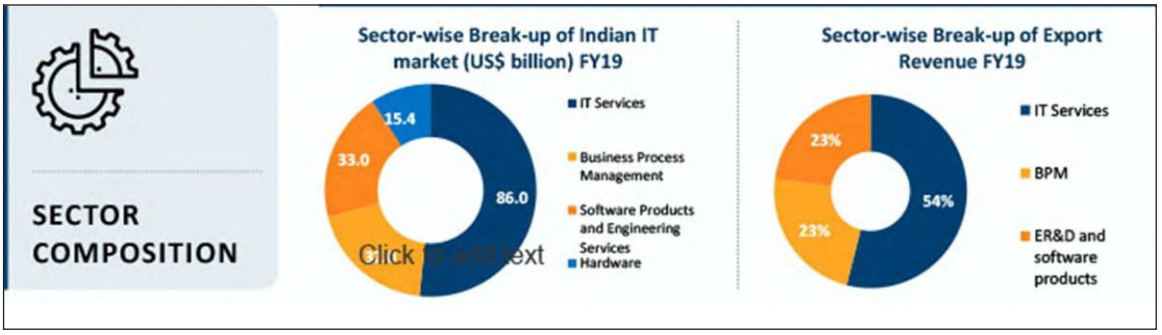

Fig. 1.1.1 Sector Composition of the Indian IT Market

Source: www.ibef.org/industry/information-technology-india/infographic

It has been noticed that the IT Services and ITeS-BPO industries have impacted the Indian economy's growth. The Indian IT/ITeS industry has become one of the country's greatest success stories, putting it on the worldwide map as a leader in Information Technology (IT) and Business Process Outsourcing (BPO). In every way, the Indian information technology (IT) and information technology-enabled services (ITeS) industries are intertwined. The industry has not only improved India's global image. However, it has also fueled economic progress and contributed significantly to social transformation. With its low cost, large resource pool, and competence, India has the opportunity to tap into a booming market.

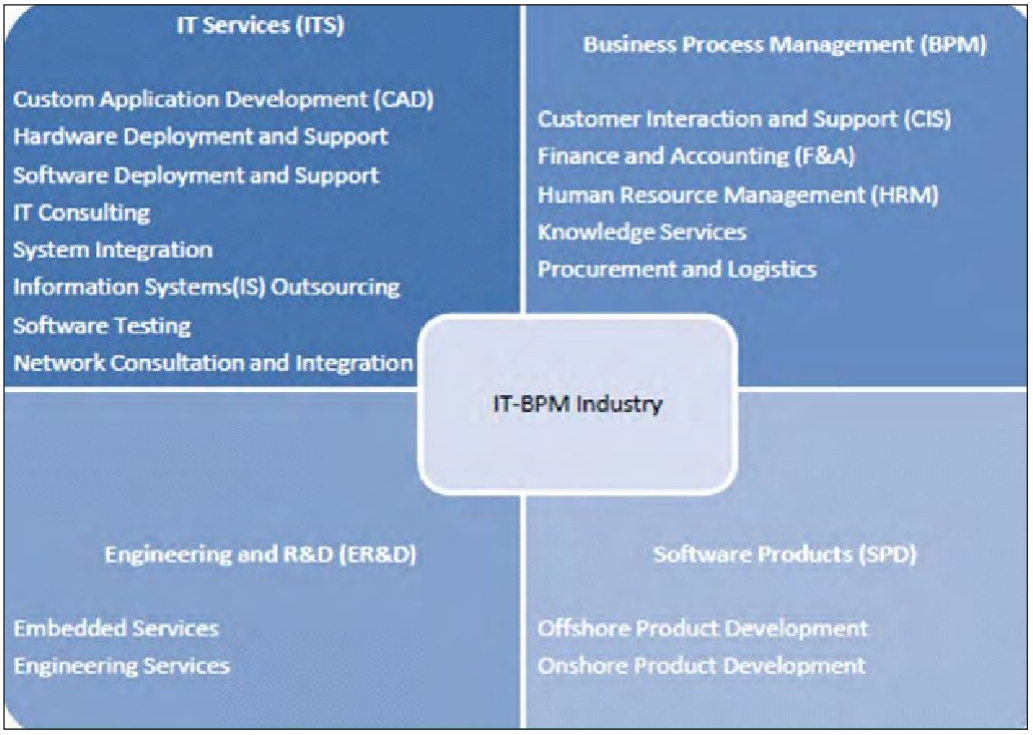

Fig. 1.1.2 Structure of the IT-BPM Industry

1.1.3 Key Trends in the IT-BPM Industry

- More and more organizations are embracing digital transformation, and BPM is taking a central role in the transformation. Driven by the need for speed and agility, in addition to the traditional needs for efficiency and optimization, organizations are now turning to BPM as a key driver of digital transformation. As a result, organizations are looking to work with partners that have innovative digital capabilities.
- The path of digital transformation is a technology-powered re-alignment of organizations – to move away from internally focused business processes and look towards customer-facing engagement. With rising customer demands, companies are deploying BPM with a cross-enterprise focus between front-end and back-end office processes in order to deliver end-to-end responsive customers interactions.

- Organizations are seeing the value of adopting new business intelligence platforms and advanced analytics options providing greater data visibility to employees. BPM solutions need to ensure that the information moves seamlessly between users, thus eliminating the need for extra emails and similar communications.
- Recent years have witnessed an increase in the collaboration of IT and BPM players on the supplier front. The BPM vendor landscape is moving toward integrated/combined solutions with vendors offering case management and BPM in the same products, while some vendors provide separate products for automation of different processes.
- Robotic Process Automation (RPA) has become the backbone of BPM. However, the industry further looks to embrace emerging technologies such as Artificial Intelligence (AI), Machine Learning and cognitive technologies. Capitalizing on new technologies and re-skilling the workforce will help IT and BPM companies to capture business, especially in technology-focused sectors like banking, insurance and financial services.

1.1.4 Search on the Internet About IT-ITeS/BPM Industry

1. Android/Tablet

- On the Android phone or tablet, open the Chrome app Chrome.
- In the address bar, type IT-ITeS/BPM industry and search.
- Tap the result, Go, or Continue Continue.

Tip: As one types, one may get suggestions based on the web and app activity. Users can delete individual suggestions from the search history or hide sections of suggestions based on the activity when they appear.

2. Computer

- On the computer, open Chrome application.
- In the address bar, enter **IT-ITeS/BPM** industry search.
- Select a result or press Enter.

Tip: As one types, one may get suggestions based on the web and app activity. Users can delete individual suggestions from the search history or hide sections of suggestions based on the activity when they appear.

Notes

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=VWbjrPE1Oyo

IT- ITeS /BPM Industry – An Introduction

UNIT 1.2: Job Responsibilities and Career Opportunities for a Domestic Data Entry Operator

Unit Objectives

By the end of this unit, participants will be able to:

1. Discuss the role and responsibilities of a Domestic Data Entry Operator.
2. Explain the personal attributes required in a Domestic Data Entry Operator.
3. Identify the career path for a Domestic Data Entry Operator.

1.2.1 Job Responsibilities of a Domestic Data Entry Operator

A Domestic Data Entry Operator has the following job responsibilities:

Undertaking data entry services, which includes the following activities:

- Collecting the customer information within the estimated timeframe.
- Identifying and resolving problems related to networking/connectivity/operating system/software installation/ configuration of computer/ hardware data entry.
- Identifying and resolving errors related to database management, database access management, service request delay, etc.
- Coordinating with the relevant appropriate, such as line manager/supervisor/ subject matter experts.

Managing own work to meet the applicable requirements, which includes the following activities:

- Utilizing the available resources efficiently.
- Ensuring compliance with the organizational guidelines and applicable quality standards.

Maintaining a healthy, safe and secure work environment, which includes the following activities:

- Complying with the organization's health, safety and security policies.
- Following the relevant safety procedure during emergencies.

1.2.2 Personal Atributes of a Domestic Data Entry Operator

A Domestic Data Entry Operator should have some essential personal attributes for performing various tasks effectively. The individual should be curious and willing to learn about new technologies to keep up with industry trends, e.g. innovations in database management systems and IT initiatives.

It is important for the individual to be comfortable with using the relevant IT systems. For example – the individual is required to perform data entry which requires one to be good at typing on a keyboard with a good speed and accuracy. The individual in this job role should be proficient in typing with the ability to type 50-80 words per minute. Some data entry positions may require a typing speed of over 80 words per minute. A Data Entry Operator should have attention to detail and the ability to work with concentration to avoid mistakes during data entry.

Another vital requirement is the ability to retrieve data from a computer.

The individual may have to work in a team environment that requires the individual to have coordination skills and amenable behaviour. Appropriate verbal and written communication skills are also necessary.

1.2.3 Career Map for a Domestic Data Entry Operator

As a Domestic Data Entry Operator gains knowledge and experience, the individual may progress into different job roles. Please refer to the career map given below to learn about the career progression opportunities available to a Domestic Data Entry Operator:

Career Map for a Domestic Data Entry Opeator

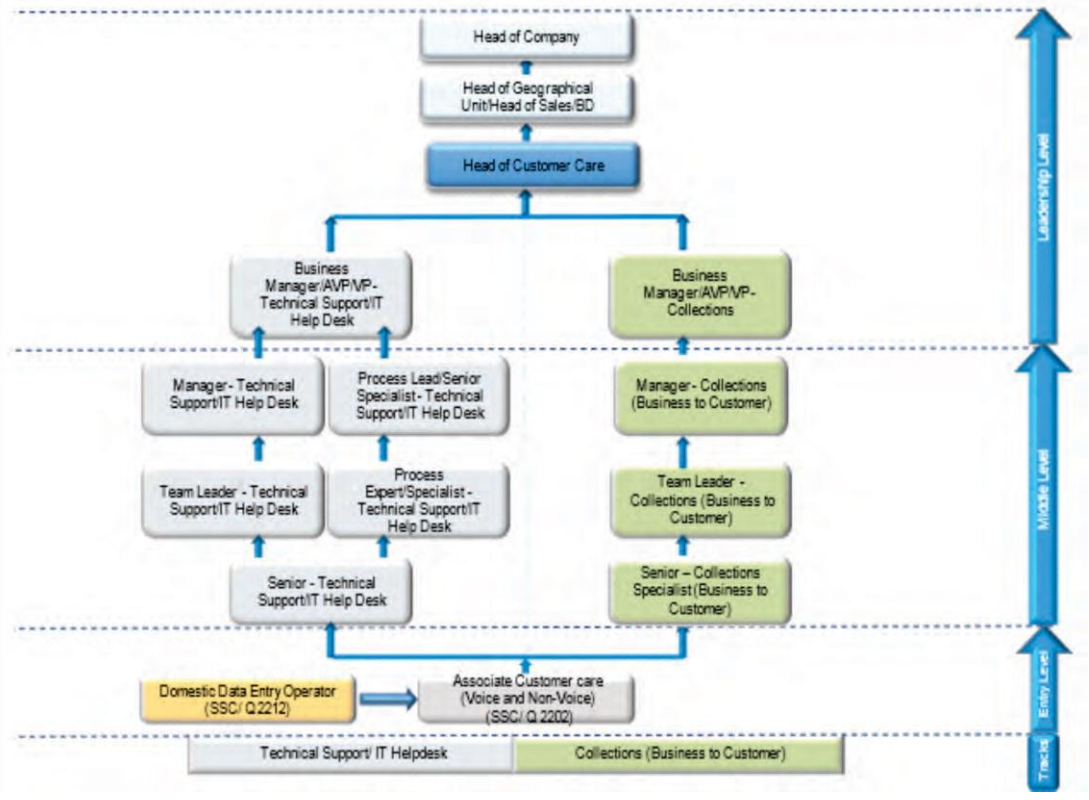

Fig. 1.2.1 Career Map for a Domestic Data Entry Operator

Exercise

1. Identify the two sectors of the Indian IT market.
2. Identify the middle-level technical support/IT helpdesk job role that a Domestic Data Entry Operator can move into for career progress.

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2. Concept of Data Entry

Unit 2.1 - Data Entry

SSC/N3022

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Explain data entry services, procedures, and the policies applicable.
2. Analyze the method of information gathering for date entry purposes.

UNIT 2.1: Data Entry

Unit Objectives

By the end of this unit, participants will be able to:

1. Identify the data entry procedures, tools, and techniques.
2. Explain the role and importance of the data entry operator in supporting business operations.
3. Design plans to collate specific information/data from customer/ client to be entered.
4. Examine standard policies to record and perform a service request.

2.1.1 Introduction to Data Entry

Data entry is a vast field that has differing data entry requirements depending on the industry and job role. Data entry is a technical skill that includes entering data and updating information into an electronic service or database. It's a systematic process that helps store correct information in an organized manner.

Data Entry Operators enter data or update the company database in a computer system with the help of dedicated software tools and computer hardware. Data entry is a valuable skill that helps reduce costs across organizations.

Data entry may also involve scanning documents using a scanner. With the advancement in technology, there even are specialized software available today that can turn an image of text into editable text. It helps convert printed text or handwritten notes into digital copies. Microsoft OneNote is a good example of such software. These are known as Optical Character Recognition (OCR) software. One can even use similar online tools for the purpose.

Data entry is primarily carried out on spreadsheets, and it is a tool that a data entry operator should be adept at using. It is used in multiple sectors such as IT businesses, banking, etc.

2.1.2 Importance of Data Entry Operators

With modern businesses generating an enormous amount of data, it is important for them to collect, organize and analyze data to gain insights into their operations, financial health, and what their customers/clients need or prefer. Data insights also help businesses make decisions regarding expansion or streamlining operations.

Data Entry Operators compile and organize a variety of data. While entering data, a Data Entry Operator also verifies it to ensure accuracy and then formats it appropriately as per the organizational guidelines. Verifying the data is critical to ensure its reliability for making relevant decisions.

In a large company, different departments may need access to different kinds of data. A Data Entry Operator plays a crucial role in ensuring the availability of data to various stakeholders as per their requirements.

2.1.3 Types of Data Entry Jobs

Depending on the industry, there are the following types of data entry jobs:

- Accounting Data Entry Clerk
- Human Resources Data Entry Clerk
- Insurance Data Entry Clerk
- Medical Records Data Entry Clerk
- Order Data Entry Clerk
- Personnel Records Data Entry Clerk
- Shipping and Receiving Data Entry Clerk

There can even be job roles that have data entry as a secondary function while the main functions are different.

Usually, data entry involves all kinds of data that is recorded and organized in a digital format. The source of data can be paper documents or some other means, such as computer files containing data in an unorganized state. Following are different types of data that a Data Entry Operator may deal with:

Manual Data Entry	Online Data Entry	Transcription	Data Entry Keyer
Plain Data Entry: This involves simply reading a PDF document and typing it into a Word document or entering data into a spreadsheet.	Online Form Filling: Online Form Filling requires tedious work as some would be given a huge amount of data and enter it in an online form. Sometimes, information is not given at all, and the Data Entry Specialist would have to find it, usually through surfing the internet.	Medical Transcription: Medical transcription is quite a common type of data entry. Familiarity with advanced medical terminology is a must, as well as great listening and shorthand writing skills. Medical Transcriptionist job is often paid better among different types of data entry jobs.	Product Catalogue Data Entry: Some companies need to keep a record of the details of their products. The products, along with their specifications, are listed in a format.
Word Processor or Typist: This requires skills such as letter, chart, graph and table creation, and mailing labels and reports. Since these are more on the technical side, most data entry specialists have undergone training to acquire the needed skills.	Online Survey: Online Survey Jobs are used by companies to get feedback for a particular product to help them improve or design the best products for their consumers.	Medical Coding: Medical coding is a rare job. This is transforming healthcare diagnosis, procedures, and medical services into alphanumeric codes.	Payroll Data Entry Operator: Payroll Data Entry Services help some companies recheck and record their accounting work in a systematic manner. It helps get all accounts cleared and ordered in any desired format.

Cleaning of Data: Data Entry Specialists may also be required to detect and remove or correct erroneous data from a database such as a Word file or an Excel spreadsheet.	Online Data Capturing and Entering: This is capturing data from various internet publications, such as eBooks and e-magazines, etc.	Legal Transcription: Legal firms employ transcriptionists to get audio interviews recorded in text form for legal purposes.	Entering Data into Web-Based System: In this data entry job, reading documents, usually pertaining to legal departments or insurance claims, is involved. One is required to write down the details in a word document or a spreadsheet. It could also be for the automobile registration number, owner's name, contact details, etc.
	Email Processing: Email processing is simply processing emails, going through thousands of emails in a day, reading, understanding the content and making a list or categorizing emails in a spreadsheet.		Hospitals: The task is entering details, such as patient notes, hospital records, accident reports and other records in a spreadsheet or particular software.
	Updating Database: These databases could be names, phone numbers, email IDs, addresses, etc. Data Entry Operators can help update existing records or create new ones online.		Municipal records: The task is to enter municipal records details like birth, legal documents, town records, etc.

Table 2.1.1 Types of Data Entry Jobs

Some large organizations may have extensive data entry requirements and outsource the data entry work to companies that work dedicatedly on data entry. They may offer the advantage of completing data entry promptly with the use of modern data management tools. Some companies may also offer data analysis services, helping save time and make effective business decisions.

2.1.4 Data Entry Tools and Procedures

There are different tools used for data entry these days. The popular ones are:

- Text or word processor
- Spreadsheet
- Database package
- Statistical package
- Dedicated data entry system
- Optical Mark Recognition (OMR)/ Optical Character Recognition (OCR) programs

Among these, word processors and spreadsheets are the most widely used tools as these are cost-effective and come pre-loaded on most computers, not requiring any additional costs. Word processor is preferred for textual data entry, while spreadsheet is preferred for numerical data entry.

2.1.5 Data Entry Process

- The data entry process starts with the Data Entry Operator receiving the data from their team leader or manager in the form of paper/ hard copy documents or digital/scanned documents containing raw data.
- In case a Data Entry Operator works independently (e.g. freelancer), the individual should prepare and follow a plan to collate specific information/data from customer/ client for data entry.
- On the other hand, while working with a company, one should follow the organizational policies to record service requests and work on them accordingly as per the applicable Turnaround Time (TAT).
- Appropriate precautions should be taken to ensure that two persons do not work on the same data. Solutions include the use of a central data file with data allocated to different Data Entry Operators and appropriate techniques, such as colour coding. Some organizations, depending on their budget, may use dedicated data management systems for efficient data management.
- Data allocation should be supervised by dedicated personnel to avoid any conflicts in its processing.
- Data entry is then carried out using the relevant tool used by the organization.
- Once the data is entered, it is important to follow the appropriate quality control mechanisms to ensure correct data entry. This involves matching the entered data randomly with the original data. In organizations with adequate personnel, this may be done by dedicated quality control personnel.
- Once it is determined that data has been entered correctly, the next step is proofreading the data to ensure clarity and accuracy with no typing and grammatical errors.
- After proofreading, the data should be formatted as per the applicable requirements.
- The final step is saving the data files at an appropriate location on the computer system (on the hard drive). One may be required to share the final data with the relevant personnel via email or by printing.
- In large organizations with strict quality control measures, data entry work may be subject to further verification and quality checks.
- Remote access to resources
- Web security.
- Entry devices for offices, buildings
- PDS (Public Distribution System)

Exercise

1. Identify two types of data entry jobs.
2. Give two examples of manual data entry.

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3. Software Requirement for Data Entry

Unit 3.1 - Data Entry Software

SSC/N3022

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Inspect the data being entered from multiple sources to check authenticity and remove errors.
2. Identify the software requirements to collate data in a systematic format.

Unit 3.1 - Data Entry Software

Unit Objectives

By the end of this unit, participants will be able to:

1. Identify different software needed for report writing, including MS office suite or Open Office.
2. Distinguish between various types of data through the use of database management software.
3. Verify data from multiple sources before entering the same.
4. Analyse the transcribed data with the source document for any corrections required like missing values, incorrect data types, etc.
5. Use the standard alphanumeric keyboard to perform data entry operations.
6. Comprehend technical aspects of various networking topologies like Mesh, Star, Tree, Full Mesh, etc.

3.1.1 Report Writing

A report is a concise document written for a specific purpose and audience. It usually records and analyses a situation/problem, often recommending future action. A report should be factual, precise and well-structured. It should present facts impartially.

The specific format and information in a report may vary between organizations and departments. To ensure consistency in report writing, one should determine if there are any specific structure or report writing guidelines at the organization level and follow them.

A report's goal is to provide the reader with an organised path through the material so they may quickly and easily locate what they're looking for.

For this reason, reports usually have numbered sections and sub-sections accompanied by a clear and full contents page listing each heading. Page numbering is also essential.

Reports may include any or all of the items listed below:

- A description of a situation or sequence of events
- Interpretations of the significance of the referred situation or events, either an individual's analysis or an analysis informed by the views of others, should have an accurate reference when citing other parties
- An assessment of the data or study findings
- An assessment of the data or study findings;
- Relevant recommendations concerning a course of action
- Conclusions

It is not necessary that all the elements should be covered in all reports. The usage vary from the genre and requirement of the report.

3.1.2 Report Writing Software

For writing reports, the word processor is a widely used program. Word processors, such as Microsoft (MS) Word, come with several features. A word processor can be used for various purposes, such as preparing reports, invoices, letters, contracts, resumes, etc. For the ease of making documents, most word processors come with loaded templates that users can utilize to prepare documents quickly in a presentable format. For example – one can use a variety of templates available in the program to prepare a resume quickly.

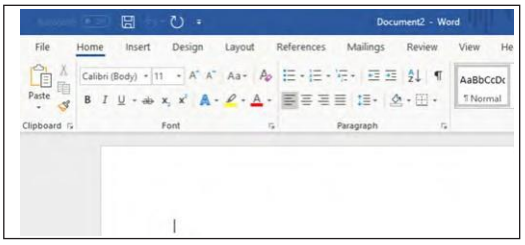

Fig. 3.1.1 MS Word

Following are some of the features available in word processors, making them useful for writing reports:

- One can change the font style, size and colour.
- It is easy to change the line spacing and alignment of text and images.
- One can even organize text in numbers and bullet points for easy reading.
- One can insert tables, charts, graphs, images, shapes, header, footer, etc. These make the report presentable and much easy to go through as compared to a plain text file.
- There are a number of templates or designs that one choose from to create a document. An appropriate template or design helps enhance the appearance of a document.
- One can change the page layout, including orientation, margins, indentation, columns, spacing, etc.
- While writing lengthy documents, such as a white paper, one may need to insert a table of contents, caption, bibliography, citations, footnotes, etc. One can find these features in most work processors.
- Once a document is prepared, it is critical to review it for accuracy. With the review feature available in a word processor, one can.
    - Conduct spelling and grammar checks using a specific language version, e.g. English India or English US
    - Use the thesaurus to substitute words
    - Check the word count
    - Insert comments, etc.

Apart from MS Word, one can prepare reports using PowerPoint also. However, PowerPoint presentations are suitable for preparing brief reports that highlight the key points.

For greater effectiveness, organizations may use both a word processor and PowerPoint, allowing the target audience to go through the summary in PowerPoint and read the details in MS Word.

Apart from Microsoft, one can use the Google software programs and similar other programs from other service providers that offer similar features; however, with some variations usually.

3.1.3 Database Management System

Databases are now used by businesses to store transactional data. Simply described, a database is a collection of structured data that has been kept on a certain computer system or server. Programmers and industry professionals have lauded the DMBS over the years for its well defined procedure for avoiding data redundancy and effectively storing data.

A Database Management System (DBMS) handles data creation and management. It also allows users to access and update data at any time. However, a corporation should select a database management software according to its unique requirements.

Using a DBMS, a company can update, create, define, and send queries to an administrative database instantly.

This can be transformative for companies that want to capitalize on various data formats and retrieval methods. With an attractive visual representation, a DBMS is ideal for small and large companies to manage precious data.

Types of Database Management Software

These can be broadly classified into four types. The most popular types of database management systems with examples include:

1. **Hierarchical**

   A hierarchical Data management solution stores data in a parent-children relationship node, each representing a particular entity. This type of database management software allows one-to-one and one-to-many relationships, i.e., a parent node can have one or multiple child nodes, whereas the children node can only have one parent node.

2. **Network**

   A network DBMS is a model that supports many-to-many relationships, which helps store real-life relationships between entities. It is an extension of the hierarchical data management soluution that allows modelers to design a more flexible model. In this type of DBMS model, the child nodes are represented by arrows.

3. **Relational**

   A relational DBMS is a model where relationships are based on the entities' data. Compared to hierarchical and network models, it offers greater flexibility and allows for more simplified relationships between entities, making it a popular choice among data modelers. Data stored in fixed structures can be organized efficiently using SQL.

4. **Object-Oriented**

   An Object-Oriented DBMS — as the name suggests — is based on object-oriented programming (OOP). It's a data management solution type where entities are represented in objects and stored in memory.

   It provides a unified programming environment and is compatible with various programming languages, including Java, C++, .Net, and Visual Basic, to name a few.

3.1.4 Data Entry Requirements

As data entry is performed on the computer system, a Data Entry Operator should be skilled in using the standard alphanumeric keyboard to perform data entry operations.

Data Entry Operators work in a variety of industries, such as healthcare, retail, finance, transportation, etc. The kind of data they deal with is unstructured that should be entered into the appropriate computer application and organized for analysis.

It is important for a Data Entry Operator to verify data from multiple sources, if feasible, before performing data entry. This helps ensure that data entry is being done correctly. Data entry carried out without verification which later turns out to be incorrect later may cause a Data Entry Operator's efforts to go waste.

Once data entry is completed, one should analyse the entered/transcribed data and match it with the source document to identify the requirement of any corrections, such as missing values, incorrect data types, etc.

Any such corrections should be done in a timely manner to ensure the data is finalized for the intended use.

3.1.5 Data Verification

The dependability of the data is increased by verifying or confirming the accuracy of the replies provided using the Data Entry window, such as filling paper surveys. To make sure the original operator did not make any mistakes, data can be double-entered to be validated. Though it might be a time-consuming procedure, this is a very effectiveapproachto ensurethat datais almost error-free.

Typically, a second person inputs some or all of the data submitted by the first person to double-check it. As operators frequently make the same mistakes, it is not advised for users to double-check their own information.

Any discrepancies between the first and second times of data entering are found during the verification phase. Data entering is interrupted and both sets of data are presented if any discrepancies are found, enabling the verifier to enterthe right valueagain.

Before the verification process can begin, the criteria must be defined.

One of the Key Result Areas for an Operator is how much time it takes to enrol a Enrolee/ Enrolee. The Operator needs to balance speed of entering data with the quality of information that is fed into the system. Atno instancecan speed be moreimportant than quality.

However, the Operator can do few things that can reduce the processing time for each individual. For example, Operators can enter demographic details of Enrolees during off hours. They usually capture the demographic details when the devices are connected to the enrolment station. This reduces the life of the devices. A domino impact of entering data in off hours is that it speeds up enrolment process, reduces device waiting time and also reduces the waiting time for Enrolees, thus impacting crowd management.

Another approach is to ask the Supervisor to load up pre-enrolled data on his or her laptop/ desktop. Pre enrolment data helps in reducing the cycle time for enrolment at centre significantly.

3.1.6 Data Analysis

The process of cleansing, converting, and modelling data in order to find relevant information for corporate decision-making is known as data analysis. Extracting usable information from data and making decisions based on that analysis are the goals of data analysis.

Tools for data analysis make it simpler for users to handle and edit data, examine the connections and correlations between different data sets, and find patterns and trends that may be interpreted.

SQL, JAVA, MATLAB, SAS, PYTHON, are some widely used data analysis tools.

A data analysis process is nothing more than gathering data using the right software or tool that enables you to study the data and identify patterns in it. You can get to final conclusions or make judgments based on such knowledge and facts.

Data Analysis consists of the following phases:

- Data Requirement Gathering
- Data Collection
- Data Cleaning
- Data Analysis
- Data Interpretation
- Data Visualization

3.1.7 Alphanumeric Data Entry

Entering data onto a computer using only letters and numbers is known as alphanumeric data entry. Usually, they are putting this data into spreadsheets or databases. A secretary may enter a person's address, which has both numbers and letters, into their database as an example.

Here are some samples addresses that contain alphanumeric characters:

- 701 Market Dr.
- 396 Data Ave.
- 1149 Entry St.

Alphanumeric data input frequently involves sensitive information such addresses, emails, identification numbers, and passwords; as a result, high-level typing skills are required of the individual entering it to avoid mistakes.

3.1.8 Networking Topologies

Geometric representation of how computers are connected to each other is known as topology. There are five types of topology – Mesh, Star, Bus, Ring and Hybrid.

Types of Topology

There are five types of topology in computer networks:

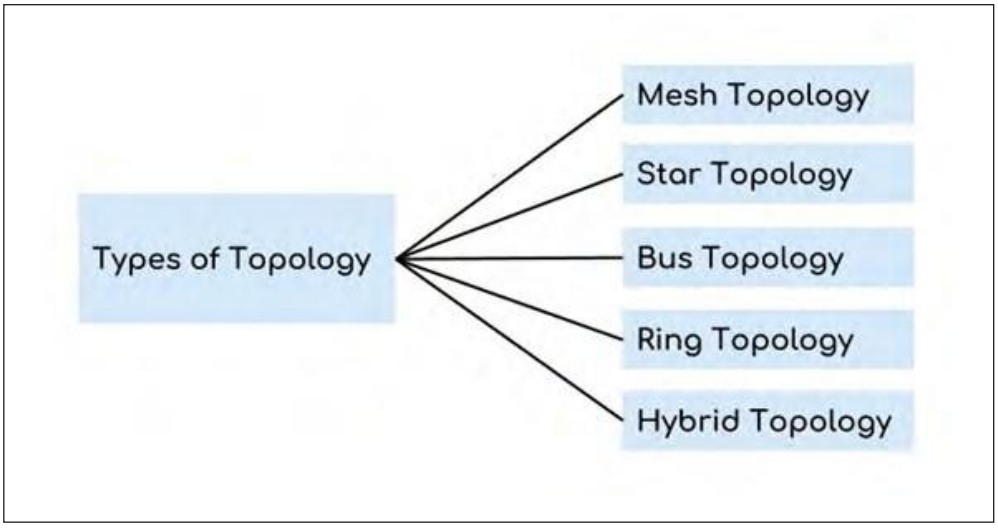

Fig. 3.1.2 Types of Topology

1. Mesh Topology

In the mesh topology, each device is connected to every other device on the network through a dedicated point-to-point link. It means that the link only carries data for the two connected devices only.

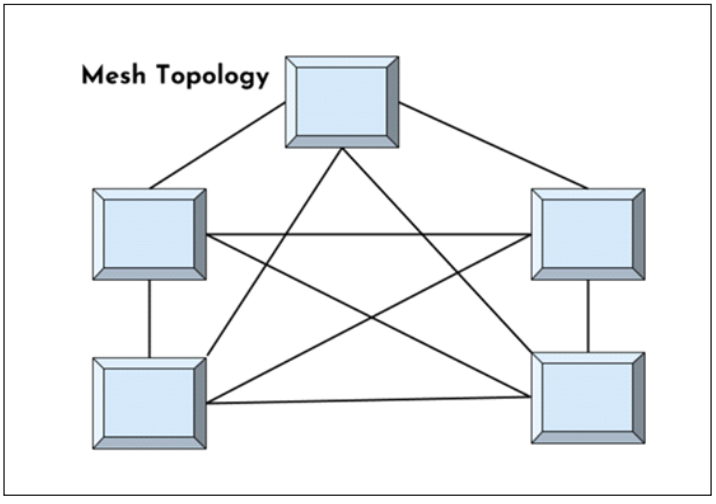

Fig. 3.1.3 Mesh Topology

2. Star Topology

In the star topology, each device in the network is connected to a central device called the hub. Unlike Mesh topology, star topology doesn't allow direct communication between devices. A device must have to communicate through the hub. If one device wants to send data to the other device, it has to first send the data to the hub, and then the hub transmits that data to the designated device.

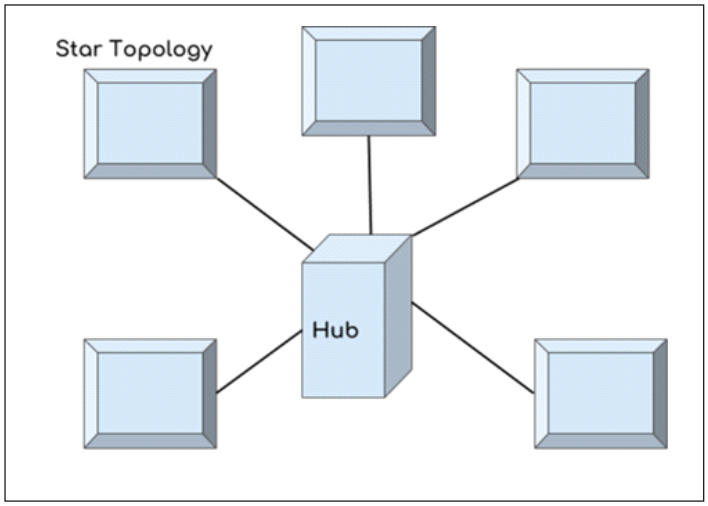

Fig. 3.1.4 Star Topology

3. Bus Topology

In the bus topology, there is the main cable, and all the devices are connected to this main cable through drop lines. There is a device called a tap that connects the drop line to the main cable. Since all the data is transmitted over the main cable, there is a limit on drop lines and the distance the main cable can have.

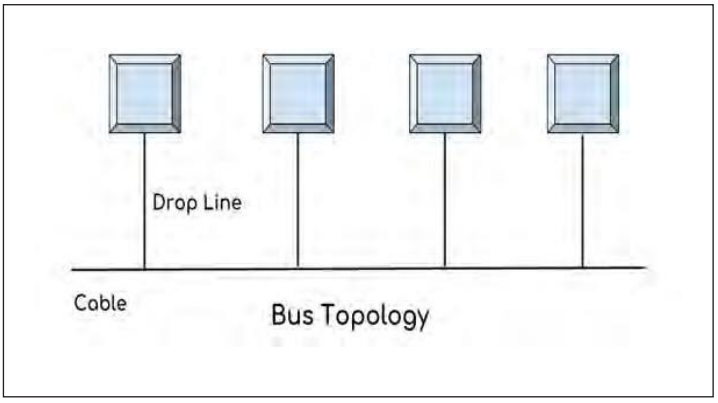

Fig. 3.1.5 Bus Topology

4. Ring Topology

In the ring topology, each device is connected with the two devices on either side of it. There are two dedicated point-to-point links a device has with the devices on either side of it. This structure forms a ring. Thus, it is known as a ring topology. If a device wants to send data to another device, then it sends the data in one direction. Each device in the ring topology has a repeater. If the received data is intended for another device, then the repeater forwards this data until the intended device receives it.

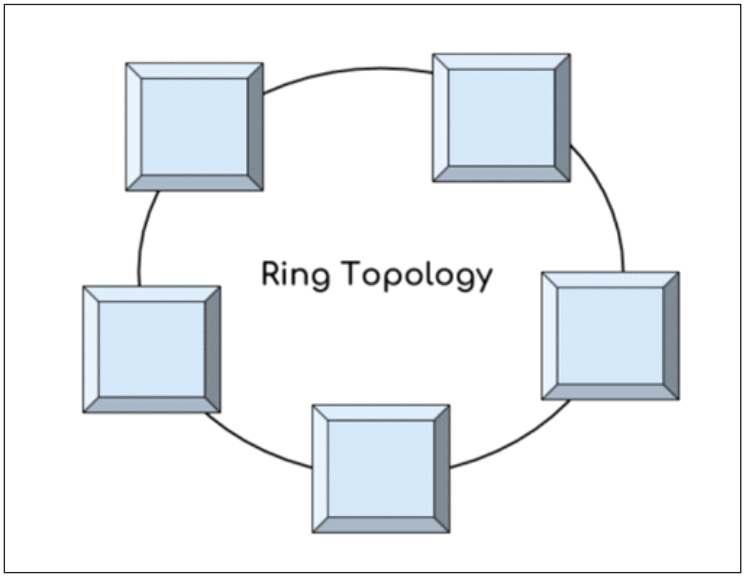

Fig. 3.1.6 Ring Topology

5. Hybrid Topology

A combination of two or more topologies is known as hybrid topology. For example, a combination of star and mesh topology is known as hybrid topology.

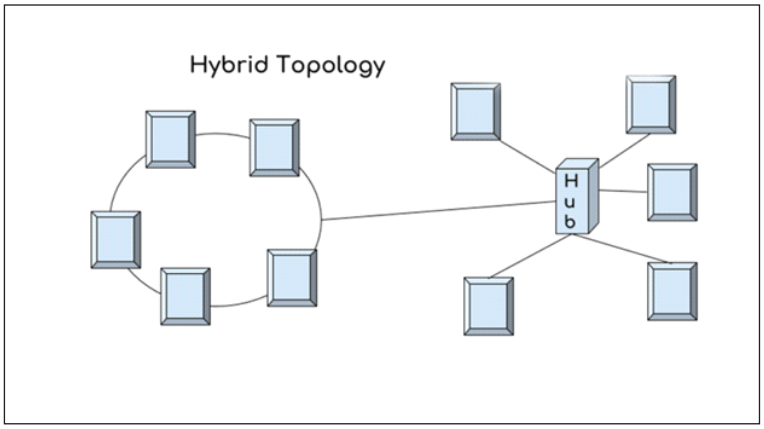

Fig. 3.1.7 Ring Topology

Exercise

1. Explain briefly what report writing is.
2. Explain the purpose of a data management system.

Notes

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=WdftZZ4G0Vg

Data Entry Software

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4. Data Entry Process

Unit 4.1 - Data Entry Process

SSC/N3022

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Evaluate the helpdesk feedback system and its importance.
2. Design a suitable and reasonable timeframe for the entry to be processed and revert to the customer on the same.

UNIT 4.1: Data Entry Process

Unit Objectives

By the end of this unit, participants will be able to:

1. Discuss the adequacy of existing helpdesk feedback systems.
2. Discuss methods of the data entry process.
3. Organize source documents and files relative to the data entered.
4. Maintain proper security, storage and backup of data files.
5. Analyse the purpose of the rule-based decision-making process in data entry operations.
6. Evaluate the process of scanning documents and transcription of data into the system.
7. Estimate a suitable timeline for completing a service request.

4.1.1 Customer Feedback

Taking customer feedback and applying it to improve a business is a great method to expand and produce more revenues. A business must learn how to collect, organise, and analyse customer feedback to better align with market realities and the demands of customers.

Customer feedback is information offered verbally or in writing by customers about their interactions with a product, service, company personnel, or other brand assets that comprise the overall experience. Customer feedback can take several forms, depending on the customer's interests, habits, and dispositions. Customer satisfaction and sentiments toward an organisation are revealed through all types of reviews, complaints, appreciations, insights, and other data.

Customer feedback is a reliable source of information regarding the state of a company and its services. It assists a business in determining what needs to be improved and what works. As a result, one may assess customer feedback and create an amazing customer experience that will generate positive change in the organisation.

Customer feedback is critical as it costs much higher to attract new customers than it does to retain the existing ones. That is why one should keep their customers satisfied and happy.

Importance of Customer Feedback

- **Helps identify customer preferences -** Customer feedback is critical for evaluating a customer's requirements and preferences, especially when a company launches new items. Focus groups, in-person research, and customer phone surveys are examples of customer feedback strategies used to identify which product features, flavours, or styles consumers like.

- **Assists in determining what is important to customers -** Without customer feedback, a business would be unable to match the consumer's product needs. As a result, its items would most likely fail in the market.
- **Allows for comparisons to competitors -** Customer feedback also allows businesses to better understand how customers rank and use their products in comparison to competitors' products. It is critical to understand where a company's products and services thrive or fall short in comparison to market alternatives.
- **It can help improve customer service -** Customer feedback can be used to evaluate how the staff at a firm handle customer queries. A typical sort of marketing research is customer service satisfaction surveys. Surveys can help businesses understand whether customers are getting their inquiries answered and their problems resolved.

  Furthermore, a business can detect if some customer care representatives are being disrespectful to clients, particularly if the topic of rudeness comes up frequently during the surveys.
- **Helps identify necessary changes -** Customer feedback is especially significant when a company surveys lost customers to identify why customers are no longer purchasing its products or taking its services. The survey's goal is to determine whether there is anything the company can do to reclaim a customer's business.
- **Assists in spoEng market trends -** Customer feedback is also useful in detecting specific technical trends among customers. For example, a new market competitor may provide new and improved technology that could threaten the current technology sold by a corporation. If clients demonstrate a preference for and purchase this technology, the corporation must consider transitioning to the new technology.

4.1.2 Methods of GeEng Customer Feedback

The method used to collect customer feedback is determined not only by the primary goal but also by the consumer's perspective. One should consider how experienced customers are with a technology, which devices they use most frequently, how much time they have, how long they've been a customer with the business, and whether they've previously provided feedback.

Consider the time and human resources as well. One should keep in mind that, depending on the quality and quantity of customer feedback, an appropriate amount of time and effort will need to be invested in drawing conclusions.

Following are the methods for taking customer feedback. It's important to implement customer feedback as early as possible to keep their business. Taking customer feedback, in general, doesn't require the use of complicated tools or processes.

- Customer feedback survey
- Customer interview
- Customer feedback email
- Customer feedback on social media
- Paper feedback forms
- Survey kiosks
- Phone calls conducted by sales, marketing, or customer support
- SMS surveys
- Live chat with customer support agents
- Online community and forums
- Net Promoter Score (NPS) surveys
- Customer Effort Score (CES) surveys
- Customer Satisfaction (CSAT) surveys
- Comment and feedback section on the website
- Post-purchase feedback forms
- In-App feedback
- Review platforms and websites

4.1.3 Data Entry Methods

There are numerous effective data entry techniques, and which one to employ depends on a variety of factors, including the need for speed, accuracy, and user training; the cost of the data entry technique and the techniques currently in use in the organisation.

1. **Keyboard -** Since keyboarding is the first form of data entry, most people are likely to be familiar with it. Over the years, some keyboard advancements have been implemented. Features include dedicated program-opening keys, scrolling and web-browsing keys, and keys that may be programmed with macros to minimise the number of keystrokes needed. Keyboards and mouse with infrared or Bluetooth connectivity are also significant advancements.

2. **Optical Character Recognition (OCR) -** OCR enables users to read input from a source document with an optical scanner. OCR systems can speed up data entry by 60 to 90% compared to some keying techniques.

   OCR operates more quickly since there is no need to encode or manually enter data from source documents. It does away with a lot of the labour-intensive and error-prone processes of traditional input devices. As a result, OCR requires less employee skills and correspondingly less training, which reduces errors and the amount of time employees spend making unnecessary efforts. Additionally, it transfers the responsibility of data quality control directly to the unit producing it. OCR, which is now widely accessible, has one more really useful application: turning faxes into editable documents.

Other Methods of Data Entry

There is also widely increasing adoption of other data entering techniques. The majority of these techniques lower labour costs, requiring minimal operator expertise or training, moving data entry closer to the data source, and doing away with the requirement for a source document. As a result, they have developed into quick and extremely trustworthy data entry techniques. These techniques include - bar codes, mark-sense forms, data strips, and magnetic ink character recognition.

- **Magnetic Ink Character Recognition –** On the bottom of some credit card bills as well as bank checks, magnetic ink characters can be seen. The method is similar to OCR, in which special characters are read using this technique, although their application is restricted. Through the use of a machine that scans and decodes a single line of material encoded with magnetic particle-filled ink, data is entered using magnetic ink character recognition (MICR). MICR is a high-speed and reliable method that is not susceptible to accepting stray marks (for not being encoded magnetically). It also serves as a security measure against bad checks, and Data Entry Operators can see the numbers making up the code to verify it.

- **Mark-Sense Forms -** Mark-sense forms use a scanner that detects where marks have been made on particular forms. It allows for easy and efficient data entry. Its typical use includes scoring answer sheets for survey questionnaires. The data entry staff needs minimal training to use this technology, allowing a large number of forms to be handled.

  Mark-sense forms have the disadvantage that, while readers can tell if a mark has been made, they are unable to interpret the mark in the same way as optical character readers can. As a result, incomplete data can be entered using stray marks on forms.

- **Bar Codes -** Bar codes are commonly found on product labels, but they can also be found on hospital patient identification bracelets and in virtually any situation where an item or person needs to be checked in and out of an inventory system. Because they appear as a sequence of narrow and wide bands on a label and encode numbers or letters, bar codes might be thought of as metacodes or codes encoding codes. In turn, these symbols have access to product data in the computer memory. To validate or record information about the product being scanned, bands on the label are drawn in the light of a scanner or lightpen.

The manufacturer identification number, the product identification number, a code to check the accuracy of the scan, and codes to mark the start and finish of the scan are all included on a bar-coded label.

For data entry, bar coding offers an incredibly high level of precision. Because each item does not need to be individually price-marked, businesses can save labour costs.

- **RFID -** Radio Frequency Identification, also referred to as RFID, enables the automatic data collection using RFID tags or transponders that come equipped with a chip and an antenna. It's possible for an RFID tag to have its own power supply. If it lacks the power of its own, the antenna draws just enough energy from an incoming signal to give power to the chip and send out a response. Animals, persons, products, and packages can all have RFID tags affixed to them so that they can be identified via radio frequency.

  RFID tags can be passive or active. Due to their short range, they are also known as proximity cards. Active tags have their own power source, making them much more reliable. Unlike active tags, passive RFID tags don't contain an internal power source. The average size of passive tags is that of a postage stamp, and they are low-priced. Large retail establishments use them to enhance their supply chain and inventory management procedures.

  A reader is needed to read the data from an RFID tag. The tag is turned on by the reader so that it may be read. The reader reads the information from the chip inside the tag, decodes the data, and then sends it to a host computer for processing.

  Vehicles using an electronic toll pass to cross a toll road is an example. Every time such a vehicle passes a toll booth, an RFID transponder can be connected to the windshield and read. The RFID reader at the toll booth can also function as a writer, allowing for the storage of a balance on the RFID chip.

4.1.4 Data Entry Process

The process of entering values into computer software in a systematic way is known as data entry. It can be manual or automated, i.e. handled by a person or a machine. Data entry by an operator is known as manual data entry, and if done by a machine, it is known as automated electronic data entry. Data entry is a part of a larger data management process, which aids decision-making. Once data entry is completed, data is analysed, and relevant conclusions are drawn. This helps an organization in making appropriate decisions concerning its business activities.

- A Data Entry Operator is required to methods to collate the appropriate information from the customer or the relevant personnel for the data entry process. This includes the source documents. The individual organizes the source documents and files for data entry.
- One may be required to configure his/her computer for data entry, including changing settings the relevant software settings according to the type of data to be entered. It also includes setting up a network and internet connection.

- As we have discussed already in the module, there are different technologies that allow a Data Entry Operator to scan documents to extract data/information/transcription of data on a computer in the electronic form. These include simple scanning using a scanner or the use of OCR, MICR and other more efficient technologies.
- A Data Entry Operator scans the documents to access them on a computer. The individual may be required to convert the scanned documents to an editable format. One can use dedicated free and premium software for the purpose.
- One should estimate an appropriate timeline for completing data entry service requests. This depends on the amount of data to be entered and the efforts required. For example – if the source documents contain information/data in a disorganized state, it will likely take more time for data entry in comparison to entering data from documents containing well-organized data. Going through hand-written data may prove to be extra time-consuming in comparison to typed data.

Once the above preparatory steps are taken, the steps given below are followed, which are part of the core data entry process:

- **Data capturing and entering -** This type of data entry operation focuses on collecting data from different sources – offline or online. The employer often provides this information.
- **Data cleansing -** Data cleansing is a type of operation during which information is filtered to remove duplicates or inaccurate data. This type of data entry operation makes sure that information stored in the database is not only up-to-date but free of errors.
- **Data processing -** Data processing's main focus is not only to store and filter information but to edit information in a way that fulfils its particular purpose. In this way, data processing is also helpful in analyzing information stored so that it can be used later. Some notable tasks of data processing include accounting and photo editing.
- **Data classification -** For the organization of information, data classification is required. This operation is about categorizing data under their appropriate attributes—hence 'classification'. Organizing business cards, for example, is part of this data entry operation type.
- **Data conversion -** Data conversion is about converting one format to another. This means, for instance, changing a word file into PDF format. Typing on a word file coming from a handwritten document is also another illustration of how data conversion operation works.
- **FormaEng and editing operations -** Data formatting operations use the operator's English grammar skills in order to correct grammatical errors and spelling mistakes in the database. This also means this type of operation combines the knowledge in English with that of software such as MS Word in order to correctly format the data to the needs of a company.

It is important to follow the applicable data security processes, including safe storage and maintaining the backup of data files to protect against accidental loss.

4.1.5 Data Organization

The process of categorising and classifying data to improve its usability is known as data organisation. You'll need to organise your data in the most logical and orderly way possible, similar to how we organise critical papers in file folders, so you and anybody else who accesses it can quickly find what they're searching for.

Tips for ensuring the best possible data organisation

Create naming conventions that are precise and consistent. Give the files meaningful and understandable names. One may use a file renaming programme to automatically rename many files if needed.

Keep file names simple. Don't use symbols. If dates are used, utilise a standard format.

Manage all file versions properly. Instead of saving over the existing file, one must create a new one with an altered name. Another name for this is "file versioning."

To standardise categories and define each one's function, create and use a data dictionary. This will enable all parties involved in the firm to get the most from the datasets that have gathered.

4.1.6 Guidelines for Data Security and Backup

Security

All copies of your data, including your working data set, backup copies, and archived copies, need to be taken into account in terms of security.

- Network security
  - Avoid posting private information online.
  - Store private information on a computer not linked to the internet
- Physical Security
  - Only allow authorized personnel to solve computer issues
  - Only allow authorized personnel to solve computer issues
- Computer Systems & Files
  - Update your virus protection.
  - If you must transfer secret material through email or FTP, encrypt it beforehand.
  - On computers and data, use secure passwords.

Storage & Backup

The maintenance of backup copies of your data is among the most crucial data management jobs. Data loss due to hard disc failure or unintentional deletion is a serious possibility.

- Remember to use the Backup 3-2-1 Rule
  - Make 3 copies of your data—2 copies are insufficient!
  - Two distinct formats, such as an internal hard drive with a backup cassette or a DVD (short-term) plus a flash drive
  - 2 physical backups and 1 cloud backup are kept off-site.
- Backup options
  - Departmental or institution server
  - Tape backups
  - University archives
  - Cloud storage
  - External hard drives
  - Discipline-specific repositories
  - Hard drives - personal or work computer

4.1.7 Data Mining - Rule Based Classification

IF-THEN Rules

Rule-based classifier makes use of a set of IF-THEN rules for classification. We can express a rule in the following from:

- IF condition THEN conclusion
- Let us consider a rule R1,

  R1: IF age = youth AND student = yes

  THEN buy_computer = yes

Points to remember:

- The IF part of the rule is called rule antecedent or precondition.
- The THEN part of the rule is called rule consequent.
- The antecedent part the condition consist of one or more attribute tests and these tests are logically ANDed.
- The consequent part consists of class prediction.

4.1.8 Scanner

A device that captures images from photographs, posters, magazine pages, and similar sources, etc is known as Scanner. The captured image can be displayed and edited. Scanners can be used to scan black-and white and color documents.

Types of Scanner

- Drum Scanner
- Flatbed Scanner
- Film Scanner
- Hand Scanner
- Document Scanner

Fig. 4.1.1 Scanner

4.1.9 Time Estimation

One of the most important skills for a data entry operator is accurate time estimation. Without it, it would be difficult to provide better services to the customers or estimate how long the service request completion will take.

Even more crucially for the professional future, sponsors frequently determine a service request success or failure based on whether it was completed on time and under budget. One must be able to bargain for reasonable spending limits and realistic completion dates if they want to provide better services to customers.

Exercise

1. State two benefits of taking customer feedback.
2. Identify two methods of taking customer feedback.

Notes

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5. Troubleshooting in Data Entry Process

Unit 5.1 – Data Entry Problems and Solutions

Unit 5.2 – Data Entry Automation

SSC/N3022

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Categorize and examine the essential steps required to analyse data.
2. Examine common errors and plan to mitigate them.

UNIT 5.1: Data Entry Problems and Solutions

Unit Objectives

By the end of this unit, participants will be able to:

1. Deliberate typical problems raised by customers and their solutions.
2. Understand why manual data entry errors happen and learn ways to avoid them.
3. Examine progress/delay in the process and update the technical team and/or customers.
4. Examine the common errors in data entry, including transcription and transposition errors.
5. Plan an error mitigation program, including double-checking all completed work as a standard operating procedure.

5.1.1 Common Data Entry Issues

Data entry is vital for every business looking to manage data and keep track of everything, e.g. invoices, product lists, employee paychecks, etc. It includes all kinds of businesses, i.e. service-based industries, retail companies, government-based businesses, etc. Effective data management is critical to the smooth functioning of a business organization. Data entry is a vital part of the overall data management process. Data entry may experience different types of issues, causing setbacks. Following are some of the primary issues experienced with data entry:

- **Errors in the input Process -** Most typical data entry errors occur while inputting data. A little typo can result in erroneous records and misinformation, affecting the reliability of data records. This is particularly common when data is entered manually. Even the finest data entry operators may make mistakes, which can potentially cause financial losses to a business or embarrassment in front of a client. When a data entry operator mistypes information into a field during data entry, and it goes unnoticed, the error may impact the accuracy of all the related information. For example – multiple incorrect calculations based on the incorrect information in the product catalogue.
- **Data configuration -** Even the most comprehensive data entry programs may create problems for a business. One common issue is incorrect formatting, resulting in the correct data being entered into the wrong fields. Large businesses with a large clientele maintain a database of their clients to be able to contact them for different purposes. They may use a software program with several fields for phone numbers and mailing addresses. This may cause disorganization, leading to duplication of information. In certain instances, the software program may be unable to sort out the excess information. Also, incomplete data is one of the major drawbacks of manual data entry, which considerably impacts work quality.
- **Human error -** Many problems revolve around simple human error, just like the data input issues. Human issues, such as weariness, speed of data entry input, interruptions/distractions, emotional components, and inadequate time can all negatively impact data management. People can also misinterpret data, e.g. making mistakes while reading numbers from a spreadsheet.

Human error is often a factor in data management. Therefore businesses must consider this when addressing potential concerns. Modern software programs can be adjusted to specific requirements, assisting in effective and error-free data management. For example – an efficient software program should be able to identify common typing errors and rectify them automatically – a feature already found in word processors. Apart from that, Data Entry Operators should be provided with a conducive environment in which they can work without distractions. They should also take regular breaks to maintain their concentration levels.

- **Skills of Data Entry Operators -** Data Entry Operators need speed and accuracy. They should also be knowledgeable and competent enough to face the relevant challenges confidently. For example – comprehending handwritten data can be challenging and requires one to follow stringent quality measures to ensure the quality of data being extracted from such documents. In contrast, poor attention to detail or ineffective quality checks will affect the quality of data being recorded.

  Many data entry operators are assigned time-consuming and redundant data entry duties that do not make the best use of their abilities. Data Entry Operators should be assigned an appropriate amount of work to ensure they do not make errors while trying to meet the daily targets.

  Moreover, these staffs aren't often adequately trained to enter data efficiently. Therefore, Data Entry Operators should be appropriately trained for effective data entry. Also, the quality of raw data should be ensured.

  When one comes across issues during data entry that impacts the progress and is likely to cause delay, one should coordinate with the technical team to resolve any technical issues promptly. It is important to update the client/customer about the progress and any issues experienced. One should be able to set the right expectations with the client/customer so that they are aware of when they can expect data entry to be completed.

  As discussed above, one may come across issues errors in data entry, including transcription and transposition errors. Such issues may often be common, while some issues may be rare and complex. It's critical for a Data Entry Operator to learn the solutions or fixes for common issues so that they can be resolved without impacting the timelines committed to the client/customer. On the other hand, one should know whom to approach for the solution of complex issues with a focus on ensuring minimum impact on productivity and data entry operations. Such focus on completing work as per the agreed timelines helps an organization earn a good reputation and consequently more business.

  As one gains experience working in a certain profile and on the relevant systems, one understands the typical issues. For efficient work, one should prepare an error mitigation plan and implement it to ensure it doesn't impact work and work quality.

  For example – data entry is still performed manually to a great extent, which means it is prone to manual errors. To overcome this issue, an effective quality control process is required, such as double-checking the work. This is an example of a Standard Operating Procedure (SOP) and underlines the importance of preparing and following SOPs.

5.1.2 Manual Data Entry Errors

The manual data entries are caused due to the errors in their calibration. The manual data entry falls victim to human error. That could be a spelling, grammar or punctuation mistake, either through a rushed typo or just incorrect usage.

Then there are the occasions when people enter data incorrectly. A erroneous number, data unintentionally placed into the incorrect spreadsheet field, or an incorrect email entered into a CRM record are just a few examples. If not caught right away, the employee finds it frustrating to have to go back and amend the incorrect entry. The records are messed up, but more significantly, if the problem is not fixed, it may result in embarrassing errors.

5.1.3 Ways to Minimize Data Entry Errors

Firstly, one should ensure that the data entry software has descriptive information for each field so that the data entry operators know what type of information should be input and exactly where. It helps avoid confusion and achieve consistency when more than one data entry operator works on data entry. There should be unique fields for each type of information, with no ambiguity. Fields that look similar or require similar types of information may increase the chances of error.

All fields should be labelled or described appropriately, such as phone number, mobile number, email address, mailing address, monetary value, etc. One should not rely on free-form text fields that don't have fields marked clearly.

Appropriate training of the data entry operators in the use of data entry software is also vital so that they can effectively and accurately manage the relevant data. The cost of rectifying errors in a database can be huge. Therefore, the focus should be on getting the data input correctly the first time. That becomes achievable with an efficient system and workforce.

A business needs to identify potential issues, such as software configuration or input errors. Appropriate preventive measures or checks should be implemented to minimize any errors. A small correction, such as using descriptive text for each data field, may save a business significantly on time, money and effort. Investment in efficient software and skilled data entry operators can significantly help a business reduce data entry issues. Data entry problems may sometimes be too many and subtle to handle. In such a case, a business may outsource the data entry tasks to a specialist firm, provided the budget allows.

5.1.4 Customer Service Delays

If there are any delays in customer service, they can be handled by the following steps:

- Don't Make Excuses.
- Be Honest and forthcoming.
- Don't make promises you can't keep.
- Apologize.
- Offer potential solutions.
- Follow up once the problem is resolved.
- Thank the customer for their patience.

5.1.5 Mitigation Plan

Mitigation is the process of taking steps to lessen the effects of an unfavourable occurrence or danger that is produced by nature, technology, or people. While crucial components of the overall emergency management cycle, mitigation and a mitigation strategy are mandated by many new standards and recommendations. The dangers must be located before a mitigation strategy can be created. A sound foundation for mitigation planning will be established by looking at historical records and occurrences, conducting hazard identification inspections, and analysing processes in addition to being aware of potential risks, outcomes, and delivery methods. Systems are kept in a ready state and cost-effective plans are devised and submitted to management for financing and approval.

The actions performed in advance to better position the organisation to react to and carry out its operations in the event of a catastrophic occurrence are known as preparation. Examples of preparedness activities include training, communications systems, resource procurement and administration, and drills and exercises. These initiatives ought to incorporate the staff members' homes and families in addition to the company as a whole.

Notes

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=A75SOVIZ18k

Data Entry Problems and Solutions

UNIT 5.2: Data Entry Automation

Unit Objectives

By the end of this unit, participants will be able to:

1. Discuss a framework that can be created to Automate the Data Entry Process.

5.2.1 Benefits Of Data Entry Automation

The data entry process is mainly manual and takes a great deal of time for this reason. If it can be automated, it has many benefits to offer. Automation often brings value to a business. The same applies to data entry.

Following are the key benefits of data entry automation.

- **Reduction in errors** - The reduction in human errors is one of the most significant benefits of automation. When humans perform a task, they tend to make errors for several reasons, e.g. lack of motivation, being tired, distractions, etc. Human beings are prone to making errors.

  In contrast, automation or software that can provide a consistent output with constant input can help reduce errors significantly. With machine learning and Artificial Intelligence (AI), machines can now be taught to work as humans, but much more efficiently and consistently.

- **Quicker processing** - Different Data Entry Operators work at varying speeds. Some may be quick, while others may take extra time to complete the same amount of work. Extra work may cause humans to make more errors. On the other hand, automation helps get data entry done at consistent speeds and quicker than humans. With defined rules for data entry programmed in software, a much greater volume can be processed in a much shorter period. Machines do not need rest as humans do. They, however, need regular maintenance to avoid any disruptions in work.

- **Beter utilization of workforce -** Data entry is monotonous, dull and repetitive. It offers little to no scope for creativity. Moreover, it may cause mental fatigue and burnout in humans. With automation and data entry handled by machines, human resources can be deployed elsewhere, giving them the chance to face challenges and show creativity in overcoming them.

- **Lower costs and more value -** Automation is an investment that takes time and money. It also takes time for the investment made in automation to be recovered. However, once it is recovered, it becomes much more economical to carry out data entry than paying Data Entry Operators monthly.

  Thus, each day or hour that automated data entry is done will save money compared to the workforce-driven model.

5.2.2 Data Entry Automation Solutions

It is clear that automation in data entry has substantial benefits to offer. Let us now explore the possibilities for automation in the field. Following are some of the emerging and promising technologies that can revolutionize the data entry processes.

- **Optical Character Recognition (OCR) -** Optical Character Recognition is a technology that helps digitally convert information that isn't readable for machines into a format that machines can read and comprehend, e.g. handwritten and typed documents. This is the primary objective of most manual data entry. The technology has been in use for sometime now and has undergone development, becoming more accurate.

  Banks were the institutions that adopted the technology during the early years. They utilized the technology to sort cheques and saved a considerable amount of time that otherwise would have been spent by bank staff on manually sorting cheques.

  However, that early use of OCR relied on characters being formed and arranged in a specific manner. Data entry largely involves documents that have characters in any shape or form. Therefore, the OCR technology needs to be enhanced further before it can be adopted at a full scale in data entry.

  OCR has been helpful in converting historical data, such as old newspapers, into formats that can be conveniently saved, searched, and accessed.

- **Natural Language Processing (NLP) -** The field of Natural Language Processing (NLP) integrates linguistics, computer science, and artificial intelligence. The human language is decrypted and decoded through NLP. The goal of NLP is to comprehend and make sense of human language, most commonly spoken words or phrases. Using NLP, machines can even interact with humans. NLP is predicted to be one of the first steps toward automating data entry.

- **Robotic Process Automation (RPA) -** RPA is a type of automation in which a computer or a robot with an appropriate software program learns to replicate human behaviour. Appropriately trained or programmed robots can complete tasks much more quickly and accurately than humans. In terms of data entry, human beings at a time can usually read only a few words on a page and transfer them to digital media in a matter of seconds. On the other hand, a robot may be able to do it much faster, though reading only one character at a time. They will be much more consistent also, while humans tend to make mistakes. However, robots should be programmed in such a manner that they can handle any deviations or anomalies. This requires extensive research and testing.

- **Data entry automation with Artificial Intelligence (AI) -** AI is a technology that aims to make a machine or a software programme embedded in a machine behave like a human and respond appropriately to inputs. To machines, the formatted text has been intelligible for as long as software programmes have existed. However, unformatted text, such as a doctor's handwritten prescription, or audio, video, and images are beyond the capabilities of machines.

  With the help of AI in integration with Machine Learning (ML), machines are learning to understand and process unformatted information as well. Many algorithms permit software programs to continue learning as they keep receiving additional information and adjust their output accordingly.

Exercise

1. List down two problems experienced with data entry.
2. Identify a solution for minimizing data entry errors.
3. List down two benefits of data entry automation.
4. Identify two data entry automation solutions.

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6. Assisting Data Entry Process

Unit 6.1 - Customer Data Management

Unit 6.2 - Network Administration

Unit 6.3 - Data Backup

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Key Learning Outcomes

By the end of this module, participants will be able to:

1. Summarize various backup duties required for the data entry process.

UNIT 6.1: Customer Data Management

Unit Objectives

By the end of this unit, participants will be able to:

1. Plan methods to collate the right information from the customer to enable the data entry process.
2. Summarize the importance of documenting, classifying, and prioritizing service requests and crowd management.

6.1.1 Customer Data Management (CDM)

CDM is the process of collecting, organising, and analysing customer data. It is an important mechanism to consider while making changes to:

- Rates of customer acquisition, satisfaction, and retention.
- Strategies for customer visibility and communication.
- Enhanced data quality and revenue.

6.1.2 Collection of Customer Data

Every organization needs to collect customer data and create an effective database. It is also necessary to follow the rules and regulations of the customer's country and location while collecting and storing data about the customers.

The following methods can be used to collect compelling data:

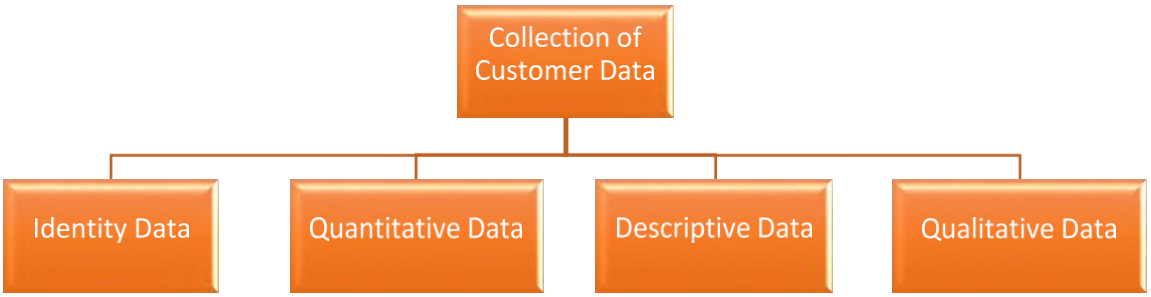

Fig. 6.1.1 Methods for Collecting Customer Data

1. **Identity Data:** Identity data is the collection of information about a particular person. This data can create a relationship and accessible communication with the customer. The collected data includes their name, address, date of birth, region, gender, contact number, social media, banking details, email, etc.

   This type of information can be collected when consumers submit their payment information during the checkout process, sign up for the newsletter, or voluntarily hand it over to obtain a product, service, or reward.

   The following can be used for attaining the data:

   a. Tailored sign-up forms

   b. Discount vouchers for first purchases

   c. Providing pre-order opportunities

   d. Tailored e-Commerce checkout process

   e. Warranty cards

   f. Loyalty/rewards programs

2. **Quantitative Data:** To understand the customer on an individual level, it is necessary to use measurable operational data, or quantitative data, to understand how the consumer interacts with the business.

   Quantitative data is information gathered along the customer journey, including discovery details, channel interactions, and conversion-specific processes that lead to the purchase. Quantitative data examples include:

   a. Online/Offline Transactions: Product Purchased, Time of Purchase, Amount of Purchases, Order/Subscription Value, Order/Renewal Dates, Cart Abandonment, Product Returns, etc.

   b. Customer Service: Complaint Details, Call Center Communication, Customer Query Details, etc.

   c. Inbound/Outbound Communication: Date, Time, etc.

   d. Online Activity: Website Visits, Online Registration, Product Views, etc.

   e. Social Network: Social Handles, Interactions, Interests, Groups, etc.

Channel-specific technologies are available throughout the customer's lifetime and should be adjusted to assess marketing goals and strategy.

To begin gathering quantitative data on customers are:

a. Google Analytics and other web analytics tools

b. Heatmaps based on website cookies and mouse tracking on landing pages.

c. Pixel tracking in emails/newsletters

d. Keeping track of previous purchasing transactions

e. Keeping track of past-customer support communications

3. **Descriptive Data:** A step up from identification data, descriptive data includes additional demographic information that correctly defines the customer. To incorporate optimal timing in the marketing activities, use predictive analysis. Descriptive data examples include:

   - Marital Status, Relationships, Number of Children, and so forth.
   - Property type, car ownership, pet ownership, hobbies, collections, interests, etc.
   - High school, college, further education, and so forth.
   - Job Title, Job Description, Income, Professional Background, and so forth.

   Obtaining high-quality descriptive data is a difficult task that necessitates more creativity. Companies generally use in-depth surveys to collect data, delving into seasonal growth and decrease, purchasing patterns, and the longevity of the customer cycle.

   Here are several approaches for gathering descriptive data:

   a. Questions for an open-ended interview
   b. Comprehensive questionnaires and surveys
   c. Target behaviour observations
   d. Focus group discussions
   e. Forms of advanced leads

4. **Qualitative Data:** The qualitative data describe the reasoning behind the choices customers make. Questions will often begin with the words "How, Why, and How," such as "how ideas and attitudes are formed.

   - **AEtudinal:** Perceived value, rating, feedback, the likelihood of repurchase, and so on.
   - **Motivational:** Purchase Reason, Customer Needs, etc.
   - Likes/Dislikes, Preferences, and soon.

   The following methods can be used to collect qualitative data:

   a. Industry-related websites rating
   b. Social media monitoring tools for customer engagement
   c. Customized newsletter sign-up procedure
   d. Making use of a favourite, save, or rating system
   e. Questions about deep listening and feedback form

6.1.3 Service Request

The tool for tracking initial service contacts is a service request record. In order to resolve a service request, necessary information must be obtained from the person making the request, and then it must be decided whether any additional action is required. One can generate an issue, problem, or work order right from the service request if addressing it necessitates doing so. Additionally, the service request and existing records can be connected.

To record a service requirement, one can create a service request record.

Priortizing Service Request

The service requests can be documented and classified on a priority basis:

- **Low Priority:** Visitors who are not active consumers often make low priority requests. Inquiries such as general product enquiries, sponsorship requests, and so on may fall into this category. They do not necessitate a prompt reaction.
- **Medium Priority:** Medium priority requests include product use and troubleshooting inquiries that do not interfere with the customer's ability to utilise the product; also, they may be casual users or have subscribed to the free version of the product. While they may not necessitate an instant reaction, they should be addressed soon.
- **High Priority:** Customers with high priority requests are those whose product usage is being hampered or impeded by the issue at hand. These queries require a prompt response.
- **First Priority:** Customers who are unable to use the product due to an issue make the highest priority requests. They demand quick attention and should be immediate at the front of the line.

Notes

UNIT 6.2: Network Administration

Unit Objectives

By the end of this unit, participants will be able to:

1. Manage PC configuration, networking, network admin, layers of networking, etc.
2. Explain the OSI model of networking.

6.2.1 Network Administration

Network administration entails a variety of operational duties that aid in the smooth and effective running of a network. Except for the smallest networks, maintaining network operations would be impossible without network administration.

The following are the most important network management tasks:

- Network design, implementation, and assessment
- Regular backups are conducted and managed.
- Network diagrams, network cabling manuals, and other technical documentation are created.
- Access to network resources requires proper authentication.
- Assistance with troubleshooting is available.
- Network security administration, including intrusion detection.

6.2.2 Components of Network Administration

There are three main components:

1. **Network Monitoring**

   Network monitoring is required to keep track of unusual traffic patterns, network infrastructure health, and network-connected devices. It aids in the early detection of aberrant behaviour, network difficulties, or excessive bandwidth usage, as well as the prevention and remediation of network quality and security concerns.

2. Network Management

Network management includes network planning, installation, and configuration, among other administrative tasks. It entails:

- Replanning the network in response to changing organisational needs.
- Putting the network in place for optimal efficiency.
- Setting different networking and security protocols, installing security updates, and upgrading networking infrastructure firmware, such as routers, hubs, switches, and firewalls.
- Examining the network for flaws.
- Assessing quality and capacity in order to expand or reduce network capacity and control resource waste.

3. Network Security

Network security employs various techniques to ensure a network is secure. To prevent or identify unwanted behaviour in the network, it employs a variety of techniques, including firewalls, intrusion detection and prevention systems, and anti-malware software.

6.2.3 Open Systems Interconnection (OSI) Model

Open Systems Interconnection Model (OSI Model) is a conceptual framework for describing the operations of a networking system. The OSI model describes computer functions into a common set of rules and standards in order to facilitate interoperability across various devices and applications. The OSI reference model divides computer system communications into seven abstraction layers: physical, data link, network, transport, session, presentation, and application.

6.2.4 Functional Layers of OSI Model

The seven abstraction layers are:

1. **Physical Layer:** Open Systems Interconnection Model's lowest level is concerned with electrically or optically passing raw unstructured data bits over the network from the physical layer of the sending device to the physical layer of the receiving device. It may include parameters like voltages, pin layout, cabling, and radio frequencies. One may encounter "physical" resources such as network hubs, cabling, repeaters, network adapters, or modems at the physical layer.
2. **Data Link Layer:** At the data connection layer, directly linked nodes carry out node-to-node data transfer, where data is packaged into frames. The data connection layer corrects any errors that may have occurred at the physical layer.

There are two sub-layers in the data connection layer. The first is media access control (MAC), which rules and multiplexes device communications over a network. The second, logical link control (LLC), controls traffic and errors on the physical media and defines line protocols.

3. **Network Layer:** The network layer is in charge of accepting frames from the data link layer and routing them to their respective destinations depending on the addresses contained inside the frame. The network layer locates the destination using logical IP addresses (internet protocol). Routers are an essential component at this tier because they route information across networks.
4. **Transport Layer:** The transport layer is in charge of data packet delivery and error checking. It governs the size, sequencing, and, ultimately, data flow between systems and hosts. TCP, or Transmission Control Protocol, is a well-known transport layer example.
5. **Session Layer:** The session layer manages communications between machines. At layer 5, a session or connection between devices is established, organised, and terminated. Authentication and reconnections are also session layer services.
6. **Presentation Layer:** The presentation layer prepares or transforms data for the application layer based on the syntax or semantics that the application accepts. As a result, it's sometimes called the syntactic layer. The application layer's encryption and decryption can be controlled by this layer.
7. **Application Layer:** The layer interacts directly with the software application at this tier. This layer provides network services to end-user programmes like a web browser or Office 365. The application layer determines communication partners, resource availability, and communication synchronisation.

Notes

UNIT 6.3: Data Backup

Unit Objectives

By the end of this unit, participants will be able to:

1. Undertake various backup activities of data entered.

6.3.1 Data Backup

Data backup is the process of replicating data from one place. It can be required another in the event of a tragedy, accident, or malicious attack. Data is the lifeblood of modern organisations, and losing it may have disastrous effects and cause operations to be disrupted.

6.3.2 Types of Data Backup

There are three kinds of data backup:

1. **Full Backup**

   A full backup is when all files and folders are copied thoroughly. This is the most time-consuming of all backup techniques, and it may strain the network if the backup is performed over it. It is, however, the easiest to recover from because all of the data required are in the same backup set. Regularly scheduled full backups demand the greatest storage of any option.

2. **Incremental Backup**

   Incremental backup is a backup method that supports only the data that has changed since the previous complete backup. The disadvantage is that if an incremental-based data backup copy is utilised for recovery, a complete restoration takes longer.

3. **Differential Backup**

   Differential backups are a compromise between executing complete backups and incremental backups on a regular basis.

   One full backup is required for incremental backups. Only the files that have changed since the previous complete backup are backed up after that. To restore, all that is required is the most recent complete backup set and the most recent differential backup set.

6.2.3 Data Backup Concept

Data backup includes several important concepts:

- **Backup solutions and tools—**while it is feasible to back up data manually, most companies rely on a technological solution to back up their data regularly and consistently.
- **Backup administrator—**every company should appoint someone to be in charge of backups. That individual should verify that backup solutions are properly configured and tested regularly, and that vital data is backed up.
- **Backup scope and schedule—**a company must establish a backup strategy that specifies which files and systems should be backed up and how often data should be backed up.
- **RPO (Recovery Point Objective)—**The amount of data a company is willing to lose in the event of a disaster is decided by backup frequency. The RPO is 24 hours if systems are backed up once a day. The lower the RPO, the more data storage, computing, and network resources are required to accomplish frequent backups.
- **Recovery time objective (RTM)—**The time it takes for an organisation to restore data or systems from backup and resume regular operations is known as the recovery time objective (RTO). Copying data and fixing systems for significant data volumes and/or backups kept off-premises might take time, and robust technological solutions are required to assure a low RTO.

6.3.4 Data Backup Option

The following are the backup options available:

1. **Removable Media:** Backing up files using removable media like CDs, DVDs, newer Blu-Ray discs, or USB flash drives is a straightforward solution. This is feasible for smaller environments, but one needs to back up to many drives for more significant data volumes, complicating recovery. One should also keep backups in a different location, as they may be lost in the event of a disaster. Tape backups are also included in this category.
2. **Redaduncy:** An extra hard drive, or a completely redundant system, can be put up as a duplicate of a sensitive system's campaign at a given point in time. Another email server, for example, serves as a backup to the primary email server. Redundancy is a strong strategy, but it isn't easy to implement. It necessitates regular replication across cloned systems and is only beneficial in the event of a single system failure unless the redundant systems are located at a remote location.
3. **External Hard Drive:** A high-capacity external hard drive may be installed in the network, and archive software can be used to store changes to local files on that hard drive. With archive software, one may recover files from external storage with an RPO of just a few minutes. However, one external drive will no longer be enough when data quantities expand and the RPO skyrocket. Using an external drive means deploying it on the local network, which is dangerous.

4. **Hardware Appliances:** Many suppliers provide entire backup appliances commonly installed in a 19" rack. Backup appliances come with plenty of storage and backup software already installed. Install backup agents on the systems that need to be backed up, set up a backup schedule and policy, and the data will begin to flow to the backup device. Try to isolate the backup device from the local network and, if feasible, at a remote location, as with previous solutions.
5. **Software Appliances:** Software-based backup solutions are more difficult to set up and operate than hardware backup appliances, but they provide more flexibility. They enable users to specify the systems and data they want to back up, assign backups to the storage device of their choosing, and manage the backup process automatically.

Exercise

1. Fill in the Blanks:

   Identity Data, Data Backup, Service Request Management, Open System Interconnection.

   a. _____is the process of replicating data from one place.

   b. _____is the collection of information about a particular person.

   c. _____is a conceptual framework for describing the operations of a networking system.

   d. _____is the procedures and technologies that enable various departments within an organization.

2. Explain a few backup options available.

3. Explain in brief about CDM.

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7. Skillsets of Data Entry Services

Unit 7.1 - Questioning Techniques

Unit 7.2 - Data Entry and Software

Unit 7.3 - Data Extraction

Unit 7.4 - Data Validation and Error Detection

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Key Learning Outcomes

By the end of this module, participants will be able to:

1. Illustrate proper ways of upskilling the data entry process through the use of advanced software.
2. Demonstrate application of various IT components that assists in the quick data entry process.

UNIT 7.1: Questioning Techniques

Unit Objectives

By the end of this unit, participants will be able to:

1. Identify various questioning techniques for a better understanding of an issue.
2. Create a Frequently Asked Questions - FAQ for customer-facing issues.

7.1.1 Questioning Techniques

Questioning techniques are to know the appropriate questions to ask to gain the information one needs in customer service and distinguish between an adequate and an outstanding customer service experience.

Questioning techniques refer to the many different types of queries we question customers or clients. Using a range of inquiries will help in identifying valuable data.

7.1.2 Types of Questioning Techniques

Asking the appropriate questions can provide the knowledge one requires when one requires it. As a result, it is a vital talent for customer service representatives.

Fortunately, advisers may utilize various questioning approaches to improve this competence. The following is the list:

1. Open and Close Questions

Open questions most often start with what, why and how. They cannot be replied to with a simple yes or no answer. Open questions are utilized to gain a deeper understanding of the consumer and the call's purpose. Customers' feelings, ideas, and views regarding a product or service can be revealed with their cooperation. This data may then be utilized to assist fix and improving the situation.

Open questions are more likely to be used when:

- Assisting the consumer in changing their mindset.
- To learn more about the consumer.
- Listening and caring about what the consumer has to say.

Closed questions begin with where, what, when, or who but can only be replied to with a single word. Both questions have a function and can help get vital information from customers. Closed questions can assist in establishing the fundamentals. It comprises information such as the customer's name, important dates, and other relevant details. Closed questions are also helpful in verifying that a consumer has been comprehended.

2. Funnel Questions

The Funnel Effect is what gives rise to funnel questions. The Funnel Effect comprises three stages, as seen in the figure below:

Fig 7.1.1 Funnel Effect

Step 1: Ask Open Questions: Begin by asking open questions regarding the topic since this will provide all the information required to continue the conversation.

Step 2: Asking Probing Questions: These are the types of questions that will help in exploring further the reasoning and emotions behind the customer's responses to the open questions.

These are some examples of funnel questions to probe for information:

- Could you elaborate on what you mean by...?
- How long have you been dealing with this problem?
- Can you tell me anything about how it looks or sounds?
- When you attempted to..., what happened?
- When this started, what were you doing?

Step 3: Asking Closing Questions: By asking closing questions, one can ensure that the service provider and the customer understand what has been covered in that particular line of questioning.

The term "funnel questions" refers to how to string these questions together.

3. TED Questions

Tell, Explain, Describe. TED questions can help in asking better probing questions in customer service.

Examples of TED Questioning Include:

- Tell me, how did that make you feel?
- Tell me, how did this affect you?
- Explain to me how did this happen?
- Explain to me what difficulties have you faced?
- Describe how that felt
- Describe how that looked
- Describe your ideal resolution

TED questions are great to use when more information is required.

4. Leading Questions

Leading questions, often known as loaded questions, are inquiries that imply a specific answer. Customers are "led" to the answer, hence the term. As a type of persuasion, they are a successful questioning method in customer service and sales.

5. Signposting

Signposting is an excellent customer service practice that helps conversations, including queries, flow more easily. As the names suggest, signposting involves using statements to indicate the coming question. The signposting technique allows customers to prepare and makes calls more organized.

Some examples of signposting statements include:

- "In a minute, I'll ask you for your account number."
- "In a moment, you'll need a pen and paper."
- "In a minute, I'll transfer you to the relevant department."

6. Validating Customers

Validating customers by questioning them can improve customer service and create an atmosphere of attention and caring. Customers may be more willing to give information in this setting.

Examples of customer validation statements could include, "I understand why you feel like that" or "I think that is a great choice". Statements like these can reassure and support customers.

7. **Understanding Customer**

   Different people communicate in different ways. Therefore, customers will respond better to the questioning if communicated with them in the method that suits them best.

   Customers will typically prefer one of two kinds of communication:

   - Push Communication – This is to ask lots of questions of the customer.
   - Pull Communication – This is to share lots of information with the customer.

7.1.2 Frequently Asked Question (FAQ)

The most common question asked by customers has answers on the FAQ page of the website. However, customers frequently ask the same few issues, and responding to all of their concerns via customer service or e-mails can raise costs and reduce productivity.

For running a successful business, the customers should have all the information about the products and services. Therefore, a well-maintained FAQ page is vital for any business as it reduces the need for constant online customer support.

The following steps are used for creating an FAQ page:

1. **Use the service data to identify the standard questions:** It is important to include questions representing current client problems when creating a responsive FAQ page. It may also gather common inquiries from support e-mails and previous customer care call logs.
2. **For each FAQ, provide concise and accurate solutions:** Customers go to FAQ sites to get answers to their questions. A well-written answer to a frequently asked issue may save numerous support tickets, phone calls, and chat answers. In addition, when a company can help clients with their FAQs, it may simply acquire their trust and urge them to place orders immediately.
3. **Over time, update content and add new solutions:** It is essential to keep up with business developments and changes by updating the FAQs regularly. Customers may quickly lose interest in an outdated and incorrect FAQ page, affecting the company's image.
4. **Add a Quick Search box:** The search tool is helpful on a FAQ page. It helps customers find information on a large website easily. As a result, including a search box on the FAQ page speeds up the process of finding relevant information and improves the user experience.
5. **Structure the FAQ section:** There are several options based on the type of queries the company receives over time when creating a FAQ website.

   To assist visitors in finding appropriate answers to their inquiries, categorize the questions into topics or service areas. It can help in eliminating the need to navigate through queries that are not relevant.

   The FAQ page can be structured in the following:

   - **Descriptive subheads:** guide customers to the answers to their inquiries.
   - **Featured questions:** provide customers with quick access to the most frequently asked questions.

6. **Add the FAQ page to the website:** It is beneficial to build the website in such a manner that the FAQ page is noticeable and easy to find. An FAQ page should be integrated into the general design of a website rather than being an afterthought.

7. **Monitor the FAQ page performance:** Regularly monitoring the performance of the FAQ page is a smart technique for a positive client experience. Consider and address the following elements to determine the effectiveness of the page:

   - Is the page adequately addressing customers' needs?
   - Is the page up-to-date & does it reflect the latest changes and updates in the business?
   - Does the page bring new customers to the site?
   - Does the FAQ page direct customers to other sections of the website?
   - Do the customers' responses to the site reflect trust, satisfaction, and engagement?

8. **Include space for live-support options:** While having a FAQ and an up-to-date knowledge base is essential for rapidly answering client questions, using a Live Chat to provide faster replies is even more beneficial. In addition, many clients prefer live chat to e-mail, phone support, and other customer care options because live chat assistance is quick and convenient.

   Customers may interact with the business regarding the answers they need via live chat. Compared to e-mails, live support works significantly better. However, it is not easy to estimate when customers will receive an e-mail reply.

Notes

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=W-Kq5RZuyww

Questioning Techniques

UNIT 7.2: Data Entry and Software

Unit Objectives

By the end of this unit, participants will be able to:

1. Discuss various work methodologies to expedite data entry.
2. Evaluate the purpose of the software, including Ninox, Piesync, AutoEntry, etc., in the data entry process.

7.2.1 Data Entry

Data entry includes entering and updating data into an electronic service or database. An individual who enters data does so by directly inputting data into a company database with a computer, mouse, keyboard, scanner or other data entry tool.

There are several methods to enhance data entry skills, with the assistance of a computer system or through structured training. The data entry skills can be improved by:

- **Enhancing current typing skills:** Take note of the present body position and typing structure. Double-check the hand posture's accuracy and comfort for maximum accuracy and comfort.
- **Desk space should be comfortable:** Data entry requires long durations of sitting and typing on a computer. A comfy chair with back support and height adjustment capabilities is one of the most effective methods to increase comfort when working at a desk. Place the computer monitors at eye level as well. Fact-checking, data input speed, efficiency, and productivity may all benefit from dual displays.
- **Use the online typing tools:** Several online programmes helps in evaluating the present typing abilities and identifying areas where to improve. Practising with these typing tools may enhance typing speed and efficiency. In addition, consider viewing online videos that demonstrate data input in the basic computer software to improve fundamental computer and software skills.
- **Master data entry shortcuts:** Use shortcuts with specific software products to save time. For example, use the TAB and ENTER keys in spreadsheet software to insert previously typed information. One may find many spreadsheets and keyboard shortcuts online or ask the supervisor for suggestions.
- **Allow time to proofread:** Mistakes can happen in any work done, so it is essential to examine the work before submitting it. If no editor or proofreader is available, it may be beneficial to take a break from a project. Then, when one returns to it, one may proofread it themselves.

7.2.2 Data Entry Software

Data entry software provides the automation and replacement of costly and inefficient paper and manual data input operations with robust programmes that may be utilized on computers, cellphones, and tablets. Data entry software may either create electronic forms to replace paper forms or entirely automate categorization and data extraction from incoming documents, depending on the user's needs.

7.2.3 Importance of Data Entry Software

The following are the advantages of using data entry software:

- **Reduces Errors:** The automated data input system may reduce errors significantly. It has the potential to save the company much money. The data input tool acts as a dependable technique for preventing data entry errors.
- **Saves time:** With the help of data entry software, a company may handle data more effectively and streamline the entire data management process. The data input tools can extract information from any business document in seconds. For example, the data entry system may handle e-mails, PDFs, faxed order forms, hard-copy invoices, and receipts. In addition, the data entry tool takes the data from each document immediately after it arrives, so there are no human delays in the business process.
- **Increases accuracy:** Data entry software validates data before importing it into the main company applications, such as an ERP system (Enterprise resource planning system). The automatic method will ensure that data is free of errors and missing information.
- Saves Money: Money is saved since the data input software streamlines corporate processes. It becomes much easier to save money on regular tasks this way. Organizations are not required to spend money on inefficient operations.
- **Reduces paperwork and expenses:** Maintaining and organizing the enormous amounts of paperwork completed every day costs a lot of money. The company must spend on file cabinets, ink, printers, and staff to put the papers together. In addition, rental offices are responsible for paying for the office space needed to hold all files. With a data entry system, all of these problems can be solved.
- **Enhances clarity and efficiency:** Organizations may decrease workplace clutter by replacing physical papers with digital counterparts, which improves clarity and productivity. All records may be accessed by authorized personnel and any internet-connected device using data input tools. In addition, users can avoid searching for misfiled papers by using data input software.

Notes

UNIT 7.3: Data Extraction

Unit Objectives

By the end of this unit, participants will be able to:

1. Demonstrate effective use of information technology to input/extract data results.

7.3.1 Data Extraction

Data extraction is gathering or obtaining various data types from several sources, many of which are unstructured or poorly organized. Data extraction allows data to be consolidated, processed and refined before being stored in a centralized location and changed. These sites might be on-premises, cloud-based, or a combination of both.

Data extraction is the first step in ETL (extract, transform, load) and ELT (extract, load, transform) processes. ETL/ELT are themselves part of a complete data integration strategy.

The ETL procedure is divided into three steps:

- **Extraction:** Data is extracted from various sources or systems. The extraction process locates and identifies important data before processing or transformation. Many different data types may be integrated and processed for business insight via extraction.
- **Transformation:** The data may now be refined after being adequately extracted. Data is sorted, structured, and sanitized during the transformation stage. Duplicate entries will be eliminated, missing information will be removed or supplemented, and audits will be conducted to provide trustworthy, consistent, and useable data.
- **Loading:** For storage and analysis, the converted, high-quality data is supplied to a single, unified destination location.

7.3.2 Types of Data Extraction

Data extraction is a flexible and powerful procedure that may help businesses collect various business-related data. Identifying the data needed is the first step in putting data extraction to work. The following are examples of data that are frequently extracted:

- Customer data is the type of information that businesses and organizations use to understand their customers and supporters better. Names, phone numbers, e-mail addresses, unique identification numbers, transaction history, social media activity, and online searches, to mention a few, are all examples of personal information.

- Financial data includes sales figures, purchase expenses, operational margins, and even the competitors' pricing. Companies may use this information to track performance, enhance efficiency, and plan strategically.
- Performance Data by Use, Task, or Process: This broad data category contains information about individual tasks or processes. A retailer, for example, would want to know about its shipping operations, while a hospital might want to track post-surgical results or patient comments.

Effective use of information technology enables one to extract useful data results, for this, one should use the appropriate software tool, e.g. Fivetran.

In this direction, it is also critical to have effective data validation and error detection mechanisms. This helps ensure the quality and integrity of final data, which is used to make crucial business decisions. Without data validation and error detection mechanisms, a business may make decisions relying on faulty data, thus incurring losses.

7.3.3 Importance of Data Extraction

The following are some of the advantages of employing a data extraction tool:

- **More Control:** Companies can use data extraction to import data from other sources into their systems. Consequently, businesses can keep their data from being segregated by out-of-date programmes or software licencing. It is their information, and extraction offers the ability to do anything visitors want with it.
- **Increased Speed:** Companies typically work with multiple sorts of data in different systems as they develop. Data extraction helps to integrate multiple data sets by consolidating that information into a unified system.
- **Simplified Sharing:** Data extraction may be a simple approach for companies to give beneficial but restricted data access to external partners that wish to share some but not all of their data. Extraction also makes it possible to exchange standardized and useable data.
- **Precision and accuracy:** The need to enter, amend, and re-enter massive amounts of data takes its toll on data integrity, and manual processes and hand-coding increase the chances of mistakes. Data extraction automates operations to reduce mistakes and save time fixing them.

Notes

UNIT 7.4: Data Validation and Error Detection

Unit Objectives

By the end of this unit, participants will be able to:

1. Use proper data validation and error detection mechanisms.

7.4.1 Data Validation

Data validation is the process of validating the accuracy and quality of data. It is accomplished by including various checks into a system or report to guarantee that input and stored data are logically consistent. Data is input into automated systems with little or no human intervention. As a result, it is critical to make sure that the data that goes into the system is valid and fulfils the quality requirements that have been set. If the data is incorrectly recorded, it will be of little utility and may result in more serious downstream reporting issues. Even if unstructured data is submitted accurately, cleaning, converting, and storing it will entail expenses.

7.4.2 Types of Data Validation

Data validation can take numerous forms. Before saving data in a database, most data validation methods will execute one or more tests to confirm that the data is accurate. The following are examples of data validation checks:

1. **Verify the data type**

   A data type check verifies that the entered information is the right type. A field, for example, could only take numeric input. If this is the case, the system should reject any data that contains additional characters such as letters or special symbols.

2. **Code Verification**

   A code check verifies that a field is chosen from a legitimate set of options or that it adheres to specific formatting constraints. For example, checking a postal code against a list of valid codes makes it easy to verify if it is legitimate. Other elements, such as country codes and NAICS industry codes, can be treated in the same way.

3. **Range Verification**

   A range check will see if the input data is inside a specific range. Latitude and longitude, for example, are frequently employed in geographic data. The latitude should be between -90 and 90 degrees, and the longitude should be between -180 and 180 degrees any values outside of this range are regarded as invalid.

4. **Format Check**

   Many data types have a predetermined format. Date columns with a set format, such as "YYYY-MM-DD" or "DD-MM-YYYY," are famous use cases. Data validation that ensures dates are formatted correctly helps preserve consistency across data and throughout time.

5. **Consistency Check**

   A consistency check is a logical check that ensures data is entered in a logically consistent manner. For example, checking whether the delivery date for an item is later than the shipping date.

6. **Uniqueness Check**

   Some data like IDs or e-mail addresses are unique by nature. Therefore, these fields in a database should almost certainly contain unique entries. A uniqueness check guarantees that an item is not put into a database numerous times.

7.4.3 Steps for Data Validation

The steps are:

Step 1: Determine Data Sample

Select the data to be sampled. If the amount of data is large, one should usually validate a portion of it rather than the whole data. It is important to select how much data to sample and what kind of error rate is acceptable to ensure the project's success.

Step 2: Validate the Database

Before moving the data, make sure that all necessary information is available in the current database. Compare the source and target data fields to determine the number of records and unique Ids

Step 3: Validate the Data Format

Determine the data's overall health and the changes that will be necessary to bring the source data into compliance with the direct instruction. Then search for incongruent or incomplete counts, duplicate data, incorrect formats, and null field values.

7.4.4 Error Detection

The techniques used to identify noise or other impairments introduced into data as it is being transferred from source to destination are referred to as error detection in networking. Error detection ensures that data transmission over susceptible networks is dependable.

Error detection reduces the chance of sending wrong frames to the destination, referred to as undetected error probability.

The techniques are:

1. Simple Parity Check:

- In even parity, the extra bit is sent in addition to the original bits, and in odd parity, the extra bit is sent in place of the original bit.
- A frame is created by counting the number of 1s in each frame. In even parity, a bit with the value 0 is added if the number of 1s is even. In this way, the number of 1s remains even. A value of 1 is added to an odd number of 1s to make it even.
- The receiver simply counts how many 1s are in the frame. The frame is considered uncorrupted and approved if the number of 1s is even and even parity is used. There will be no damage to the frame if the number of 1s is odd and odd parity is used.
- Counting the number of 1s can identify a single bit flip in transit. In cases where more than one bit is incorrect, it is extremely difficult for the receiver to identify the problem.

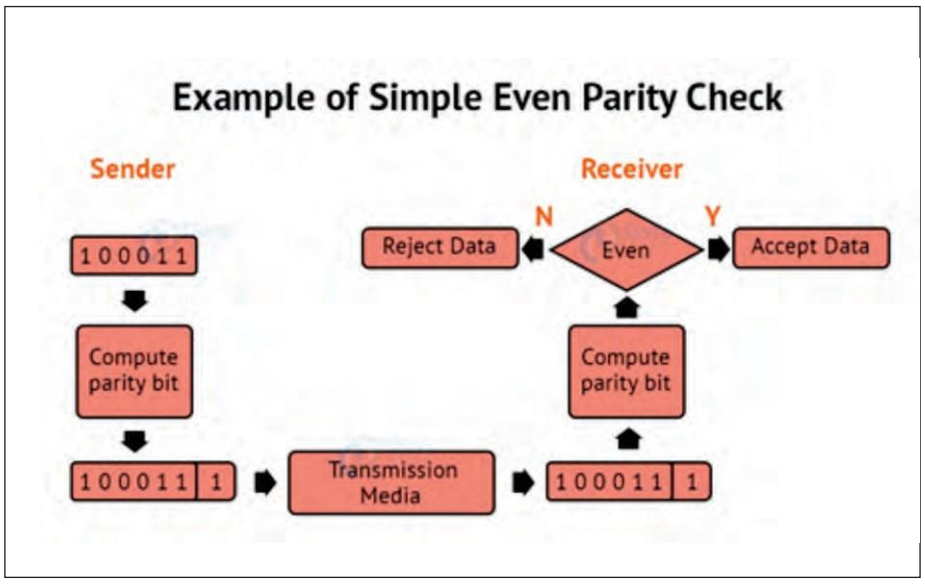

Fig. 7.4.1 Simple Parity Check

2. Two-Dimensional Parity Check:

Parity check bits, which are similar to a basic parity check bit, are computed for each row. Parity check bits are calculated for each column and sent along with the data. At the receiving end, they are compared to the parity bits calculated on the received data.

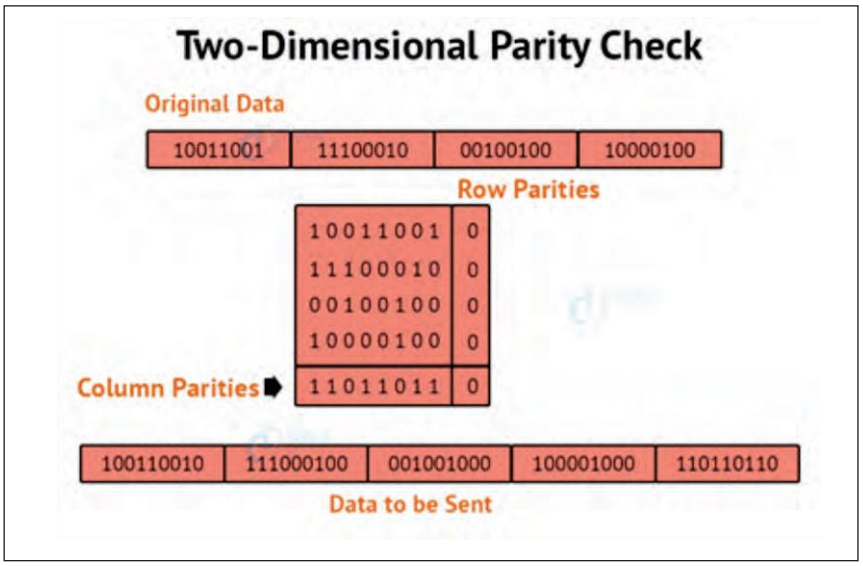

Fig. 7.4.2 Two-Dimensional Parity Check

3. Checksum:

- The data is split into k segments of m bits each in the checksum error detection technique.
- To get the total, the segments are summed at the sender's end using 1's complement arithmetic. To obtain the checksum, a complement of the sum is taken.
- The checksum segment is sent with the data segments.
- To obtain the total, all received segments are summed using 1's complement arithmetic at the receiver's end. The sum is then calculated.
- If the result is 0, the data is accepted; otherwise, it is rejected.

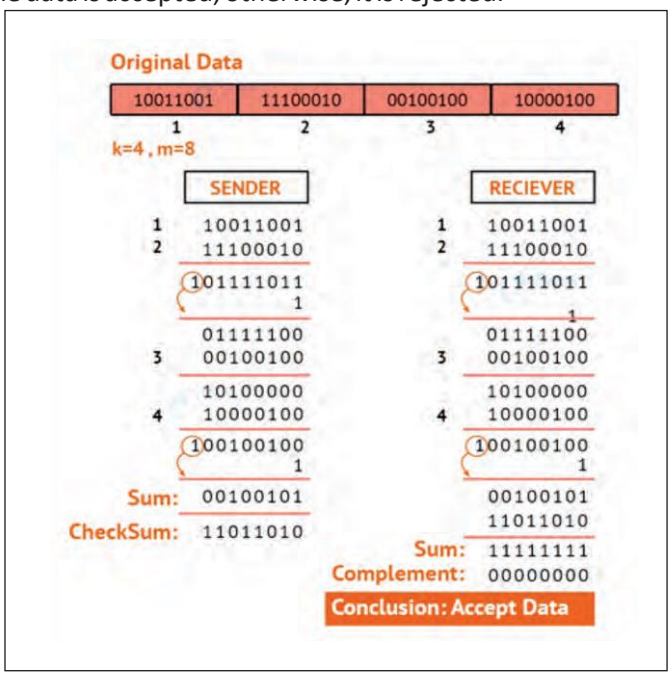

Fig. 7.4.3 Checksum

4. Cyclic Redundancy Check:

CRC is an alternative method for determining whether or not a received frame includes valid data. The binary division of the data bits being delivered is used in this approach. Polynomials are used to generate the divisor.

The sender divides the bits that are being transferred and calculate the remainder. The sender inserts the remainder at the end of the original bits before sending the actual bits. A codeword is made up of the actual data bits plus the remainder. The transmitter sends data bits in the form of codewords.

The receiver, on the other hand, divides the codewords using the same CRC divisor. If the remainder consists entirely of zeros, the data bits are validated; otherwise, it is assumed that some data corruption happened during transmission.

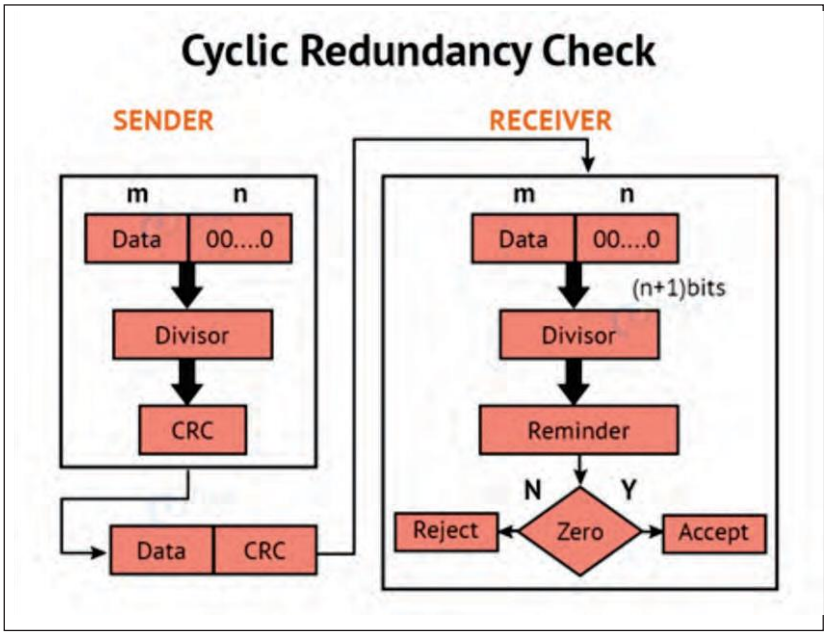

Fig. 7.4.4 Cyclic Redundancy Check

Exercise

1. Write the full form of the following acronyms.

   a. FAQ

   b. ETL

   c. TED

2. Fill in the Blanks

   Error Detection, Data Validation, Data Extraction, Data Entry Software

   a. _____provides the automation and replacement of costly and inefficient paper and manual data input operations with robust programmes that may be utilized on computers, cellphones, and tablets.

   b. _____is gathering or obtaining various data types from several sources, many of which are unstructured or poorly organized.

   c. The techniques used to identify noise or other impairments introduced into data as it is being transferred from source to destination are referred to as_____in networking.

   d. _____is the process of validating the accuracy and quality of data.

3. Explain the steps in the funnel question technique.

Notes

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=eAYBH3lIK8o

Data Validation and Error Detection

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8. Incident Management in Data Entry Services

Unit 8.1 - Introduction to Incident Management

Unit 8.2 - Incident Management Tools

SSC/N3022

Key Learning Outcomes

By the end of this module, participants will be able to:

1. Illustrate proper ways of maintaining the confidentiality of storing security and backup files for future use.
2. Demonstrate application of various solutions for different types of incidents/service requests.

UNIT 8.1: Introduction to Incident Management

Unit Objectives

By the end of this unit, participants will be able to:

1. Discuss and identify the various types of incidents during process flow, including storage, applications, and security.
2. Use Error cluster analysis and data event analysis to minimize incidents via analysis of the targeted data.
3. Design frameworks to operate with both internal and external specialists for support to perform correct incident management.
4. Analyse probable solutions for database error management and database access management.

8.1.1 Incident

Any disruption to an organization's operations, whether it impacts a single user or the entire business, is known as an incident. In a nutshell, an incident is anything that disrupts corporate operations.

The situation needs to be handled promptly, or it might turn into an emergency, crisis, or tragedy. An incident can impact corporate operations, services, security, and other critical business processes if it is not managed effectively.

8.1.2 Type of Incidents

Any disruption to an organization's operations, whether it impacts a single user or the entire business, is known as an incident. In a nutshell, an incident is anything that disrupts corporate operations.

The situation needs to be handled promptly, or it might turn into an emergency, crisis, or tragedy. An incident can impact corporate operations, services, security, and other critical business processes if it is not managed effectively.

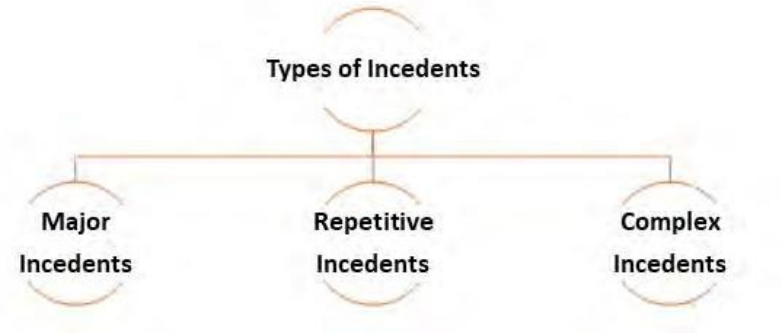

Fig. 8.1.1 Types of Incidents

Mainly there are three types of incidents:

1. **Major Incidents:** These are large-scale incidents that occur suddenly. Every organization need to be prepared to deal with them quickly and efficiently.

   For example, an overnight server restart that causes app login issues for hundreds of users might significantly impact the business. Employees cannot complete their work the next day because they wait for the help desk crew to reset login credentials and distribute updates to users. At the same time, the help desk employees arrive to discover a slew of related support tickets waiting for them, putting them in a position where they must deal with a mountain of paperwork to get started fixing issues.

   In this circumstance, the organization needs an incident management system to handle many support tickets while also recognizing and consolidating similar requests. It can also allow support staff to automatically deliver form messages to end-users and exchange resolutions across the support team to speed up answers. Large-scale difficulties can result in long-term productivity losses; thus, using incident management to deal with these significant issues swiftly and effectively is crucial. It is critical to respond swiftly to these occurrences.

2. **Repetitive Incidents:** Some situations do not go away; no matter what, the organization try to fix them. In many situations, these occurrences indicate underlying issues with the IT setup. If one is not in a position where problem management will help the organization, they have to rely on incident management to resolve these difficulties. Without incident management, the support team would be stuck dealing with these events every time they arise, hoping to remember what they did the last time so they can swiftly resolve the issue.

   A knowledge management system may be integrated with an incident management platform to identify repeated events and provide users with the information they need to address them rapidly. The organization may also write scripts to automatically fix primary, repeatable occurrences, ensuring that the help desk staff is not spending time on frequently occurring issues.

3. **Complex Incidents:** Most events that come into the support desk are pretty straightforward. As a result, the level 1 engineer may enter the ticket, resolve the issue, and tell the user. However, a complicated incident might cause considerable delays in this process. The level 1 technician will open and examine the support case, and if the issue is too complicated, the user will need to escalate the ticket to a level 2 engineer. If using a homegrown system in the organization, these shifts might cause problems to fall between the cracks or take an excessively long time to address.

   A dedicated incident management platform has the feature of workflow optimization, alerting, and incident tracking tools one needs to handle complicated situations without getting into difficulty.

8.1.3 Error Cluster Analysis and Data

Event Analysis

Error Cluster Analysis: As the term suggests, it is about clustering similar or standard errors and analysing them together to determine the causes and appropriate solutions for them.

Data Event Analysis - Data event analysis is the evaluation of a business-related event that the company needs to be aware of, and that needs to be documented in the company files.

A data event may be generated internally or externally as a result of an action being taken or merely the result of the passage of time. The information that must be recorded so that the event may be recalled and acted upon is determined by data event analysis. It must also establish how the company learned about the event or what triggered the company's awareness of the event.

These two types of analysis of the targeted data help in minimizing the identified and common incidents.

8.1.4 Incident Management

An incident management process is a collection of processes and activities used to respond to and address important occurrences, including identifying and reporting incidents, who is accountable, what tools are utilized, and how the problem is resolved.

Many sectors employ incident management processes, and incidents can range from IT system failure to situations needing the attention of healthcare experts to vital infrastructure maintenance.

It covers every aspect of an incident across its life cycle. It facilitates ticket resolution and makes ticket administration more open. Ticket administration might be complex without incident management. Some of the most common issues that may arise are:

- End users have little visibility into ticket progress or predicted timescales.
- There is no reliable documentation of previous events.
- Unable to document solutions to difficulties that occur frequently.
- Business outages are higher, mainly when large disasters occur.
- Longer resolution times
- Lack of ability to report.
- Customer satisfaction has dropped.

8.1.5 Incident Response Framework

The phrase "incident response" refers to the procedures and policies followed by a company in the event of a cyber-attack or data breach. The purpose of incident response is to lessen the impact of an attack, which means reducing the time, effort, expenses, and reputational harm connected with a cyber assault or data breach. Aside from minimizing the many impacts of a cyber assault, the Incident Response process may assist businesses in preventing future attacks that compromise their information security.

Every organization should have a plan to assist them in recognizing, controlling, and removing cyberattacks. IR strategies define what constitutes an attack and provide organizations with a clear roadmap for what to do in these incidents.

An incident response framework's objective is to assist organizations in developing standardized response strategies. Large businesses with extensive security knowledge and experience are frequently the developers of these frameworks.

The incident management framework is of the following:

Prepare, Respond, Review

Fig. 8.1.2 Incident Management Framework

Prepare (Pre-Incident Paterns)

- Make incidents visible and part of daily work
- Well defined incident roles
- Well defined incident response triggers
- Well defined on-call rotation & schedule
- On-call onboarding and training
- Incident command training & certification
- Well defined communication plan
- Well defined behaviour protocols

Respond (Incident Response Paterns)

- Periodic CAN reporting (Conditions, Actions, Needs)
- Shared incident state document
- Incident call recording
- Incident swarming

Review (Post-Incident Response Paterns)

- Localized incident reviews
- Global incident reviews
- Post review improvement items
- Incident review template
- Incident impact assessment

Effective incident management requires the designing of appropriate frameworks to operate with the support of internal and external specialists. One should apply the direct and recommended solutions to resolve typical customer problems. If that doesn't work, an appropriate workaround should be tried.

One should track the typical response times and service times for problems through an incident management tool to identify the scope of improvement and make appropriate improvements. This includes analysing probable solutions for database error management and database access management.

8.1.6 Incident Management Process

The methods and activities used to respond to and resolve incidents are called incident management processes. Who is accountable for reporting, how incidents are detected and informed to IT teams, and the technologies used are all covered.

When well-designed, incident management methods guarantee that all events are immediately addressed, maintaining a high-quality level. Processes may also aid teams in improving existing operations and avoiding future issues.

Any incident resolution procedure follows a set of five steps. These procedures help teams respond to incidents successfully by ensuring that no component of the issue is neglected.

Fig. 8.1.3 Incident Management Process

1. **Incident Identification, Logging, and Categorization:** User reports, solution analysis, and manual identification are all used to identify incidents. The incident is recorded, and the inquiry and classification process may begin. It is critical to categorize occurrences to determine how they should be handled and prioritize response resources.

2. **Incident Notification and Escalation:** This stage includes event alerting, though the time may vary depending on how incidents are identified or classified. In addition, if the incident is minimal, facts may be recorded or alert conveyed without the need for an official notice. Escalation is determined by the incident's categorization and who is in charge of response processes. Escalation can happen unnoticed if events can be controlled automatically.

3. **Diagnosis and investigation:** Staff can begin examining the kind, cause, and potential remedies for an issue after assigned incident duties. One can select the relevant remedial procedures when an event has been diagnosed. It involves informing affected employees, customers, or authorities about the situation and any anticipated service disruptions.

4. **Resolution and Recovery:** Eliminating threats or fundamental causes of difficulties and returning systems to full functionality is part of resolution and recovery. Additional phases may be necessary depending on the kind and severity of the incident.

   For example, when a virus infection occurs, one cannot simply erase the infected files and resume operations. Instead, to prevent the infection from spreading, make a clean duplicate of afflicted systems, isolate the harmful components, and completely replace the systems.

5. **Incident Closure:** Closing incidents usually entails completing paperwork and analyzing the response procedures. This assessment assists teams in identifying areas for improvement and proactive ways to help prevent future accidents.

   Providing a report or retrospective to administrative staff, board members or consumers may also be part of incident closure. This information can help regain any lost trust and openness in business processes.

   The following are some best practices for the incident management process:

   - Detecting issues early—before they have an impact on customers
   - Quickly responding to and resolving incidents Communication, collaboration, and measurement of incident response need central management of event information.
   - Responsibility for incident response and coordination
   - All aspects of incident management are being continually improved.

Notes

UNIT 8.2: Incident Management Tools

Unit Objectives

By the end of this unit, participants will be able to:

1. Examine typical response times and service times for problems through the incident management tool.

8.2.1 Incident Management Tools

IT teams may categorize, organize, and resolve significant incidents that cause downtime or service outages using an incident management tool. When an incident is detected, it remains at the centre of an IT organization's ecosystem, sending real-time warnings to the relevant teams' phones.

8.2.2 Benefits of Incident Management Tools

The benefits of using incident management tools in the workplace are:

- **Increased communication:** Incident management systems like Slack and Zoom allow employees and management to communicate instantly, which would generally take longer or get unorganized if done by email, text, or in-person talks. It can help in reducing the time it takes to respond to employee queries or concerns and make it easier for employees and managers to handle situations.
- **Quicker response time:** Incident management software may significantly minimize time spent recognizing and responding to workplace issues. An employee, for example, may report a technological issue at their workstation in minutes using an incident management application, with management receiving prompt notification of the occurrence and being able to respond just as swiftly.
- **Detailed records:** Incident management software is also helpful for keeping detailed records of the many occurrences that occur in the workplace over time. For example, a virtual service desk solution may keep track of the many events and reports that employees submit, with management and IT having access to that reported history as needed.
- **Reduced workload:** Incident management software can help create a more efficient workplace by minimizing the workload that would otherwise be spent keeping track of various issues. Employees, particularly those in human resources, might profit from the reduced burden by focusing their energies on more vital responsibilities at work.

8.2.3 Criteria for Selecting Incident Management Tools

The following steps would assist in selecting incident management tools that are compatible with the company's practices:

1. **Evaluate the company's needs**

   The first step in determining which incident management tool is best for the company is to assess its objectives and needs. Next, make a report outlining some of the company's most frequent problems, and think about how alternative management tools may help relieve or handle those situations. Next, consider getting input from employees on what they feel are the most prevalent issues in the company and how they presently handle them. It may be accomplished by sending out a survey or questionnaire to employees to learn about the most critical matters in the company.

2. **Evaluate the options**

   The next step is to undertake extensive research to get completely aware of the market's various incident management tools. Then, make a spreadsheet where one may take notes on different tools and categorize them depending on their purpose, features, price, and any other significant criteria that might influence the ultimate pick. It might help limit the selections and focus on products that will impact the company's incident management strategy.

3. **Consider compatible tools**

   After narrowing down the list of viable event management systems, it is required to assess their software compatibility. To further improve the incident management process, several management technologies may collaborate and extract information and resources from one another. Consider comparing the top tools to evaluate their cohesion and determine which is most consistent with the workplace's goal, duties, and occurrences before making a final decision.

8.2.4 Commonly Used Incident Management Tools

The most commonly used incident management tools are:

1. **Resolver**

   Resolver is an incident management tool that investigates security issues that could disrupt an organization's operations. Employees may utilise Resolver to report problems, which management can address in minutes. Resolver simplifies incident management activities like record-keeping while also providing other benefits like effective data quality and the ability to quickly translate languages using artificial intelligence.

2. **Splunk Enterprise**

Splunk Enterprise is a tool that gives extensive data reports to managers and IT professionals so they can make key technical and business choices while dealing with problems. The package includes email and help desk assistance, in-person and live online training, anti-spam and virus protection, archiving, and interoperability with many common software programmes. Splunk, as an incident management tool, may help speed up problem resolution by alerting IT teams to potential issues in real-time.

3. **Fresh service**

Fresh service, as an IT service management system, allows customers to submit tickets via a number of channels, including email, chat, and even its own support site, which serves as a service desk. Fresh service evaluates tickets using intelligence technology and provides related articles to the reporter that may assist them in fixing their reported trouble. This tool is most advantageous to a company's IT department since it allows them to send automatic answers to tickets, which may aid in the incident management process.

4. **Pager Duty**

Pager Duty is a tool that allows businesses to notice problems and respond to them in real-time. It allows customers to report and handle issues, while managers may reply right away with a swipe on their mobile app. Pager Duty also integrates with other incident management applications, such as Slack, and allows management to schedule on-calls from their mobile device, potentially increasing scheduling efficiency.

5. **Manage Engine Service Desk Plus**

Manage Engine Service Desk Plus is an incident management tool that works in a service desk structure, allowing employees to create tickets, make purchases, manage contracts, and track assets. Manage Engine provides an Integrated Package that combines the software with additional management solutions to improve productivity and optimise the issue management process. In comparison to other prominent incident management products on the market, this management tool has a comparatively modest pricing point.

6. **Ops Genie**

Ops Genie is an incident management tool which provides a fresh approach to dealing with unexpected technical and operational issues at work. When an employee reports an event or another concern emerges, the programme focuses on giving workers immediate notifications and alerts. It's connected with more than 200 IT service management solutions, allowing customers to make use of the most valuable resources available across several programmes to handle their specific corporate issues.

7. JIRA Service Management

JIRA Service Management is among the most widely used incident management tools, providing staff with a variety of choices for reporting, monitoring, and responding to unexpected events. It employs a collaborative platform to expedite incident management procedures, such as its self-service site, where employees may discover answers to problems without the intervention of management or supervisors. In addition, the JIRA application focuses on improving communication across many departments within a company, such as IT, development, and business operations.

8. iAuditor

iAuditor software is a common incident management tool that inspects and monitors numerous systems for possible dangers to a company's security, quality control, and general business operations. The programme provides users with in-person and online training, as well as extra educational tools such as webinars and videos. It also employs collaboration technologies to make it easier for staff to work together on audits, financial report investigations, and other safety and quality assurance inspections.

9. xMaters

As an incident management tool, xMatters provides businesses with a simplified platform for preventing, monitoring, and resolving technical catastrophes like software problems or internet outages. The xMatters program's major purpose is to prevent and resolve technical issues before they disrupt company operations. Therefore it takes a proactive approach to incident management. Furthermore, the application links its own systems with standard management tools like JIRA, Splunk, and Slack, making it a viable alternative for managers looking for solutions that are compatible with other incident management programmes.

10. Slack

Slack is a collaborative work hub that allows employees to connect in real-time across several channels. Users can contribute images and documents, share links, and vote in surveys to assist management in making organisational choices. Slack simplifies employee communication by allowing managers to build channels for individual departments, projects, and subjects. Employees may also promptly report issues on Slack and share them with colleagues who can take fast action.

Exercise

1. Fill in the Blanks

   Complex, Incident Management Process, Respond

   a. An_____is a collection of processes and activities used to respond to and address important occurrences, including identifying and reporting incidents, who is accountable, what tools are utilized, and how the problem is resolved.

   b. The incident management framework consists of Prepare,_____, and Review.

   c. The three major incidents are: Major, Repetitive, and_____.

2. Name any three commonly used incident management tools.

3. Explain the incident management process.

Notes

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9. Employability Skills

DGT/VSQ/N0102

Employability skills can be defined as those soft skills which employers look for in a potential employee. These skills equip the employees to carry out their role to the best of their ability and client satisfaction. For example, the ability to explain what you mean in a clear and concise way through written and spoken means, helps to build a better relationship with the client or the customer. Similarly, handling stress that comes with deadlines for finishing work and ensuring that you meet the deadlines can be done through effective self-management training. It can also be done by working well with other people from different disciplines, backgrounds, and expertise to accomplish a task or goal. In today's digital age, employers expect that the employees should be able to make use of elementary functions of information and communication technology to retrieve, access, store, produce, present and exchange information in collaborative networks via the Internet. Students need to develop entrepreneurial skills, so that they can develop necessary knowledge and skills to start their own business, thus becoming job creators rather than job seekers. Potential employees need to develop green skills, which are the technical skills, knowledge, values and attitudes needed in the workforce to develop and support sustainable social, economic and environmental outcomes in business, industry and the community. Thus, students are expected to acquire a range of skills so that you can meet the skill demands of the organisation that you would work for or to set up and run your own business.

This chapter is about employability skills, Constitutional values, becoming a professional in the 21st Century, digital, financial, and legal literacy, diversity and Inclusion, English and communication skills, customer service, entrepreneurship, and apprenticeship, getting ready for jobs and career development.

The scope covers the following :

- Introduction to Employability Skills
- Constitutional values – Citizenship
- Becoming a Professional in the 21st Century
- Basic English Skills
- Career Development & Goal Setting
- Communication Skills
- Diversity & Inclusion
- Financial and Legal Literacy
- Essential Digital Skills
- Entrepreneurship
- Customer Service
- Getting ready for Apprenticeship & Jobs

The details of Employability module is available on eskill India. Please find below the link.

https://eskillindia.org/NewEmployability

Scan the QR Code to watch the related videos

https://www.youtube.com/watch?v=PI8U2W2pnHQ

Work ethics to Follow

https://www.youtube.com/watch?v=fWLZj4ufMRE

Work Effectively with Colleagues

https://www.youtube.com/watch?v=1Rfrgd-eyhU

Evacuation Procedures

https://www.youtube.com/watch?v=N4kgu1qi9_A

Health Safety and Accident Reporting

https://www.youtube.com/watch?v=Vk5vbZXT-U4

Workplace Data Management

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10. Annexure

Chapter No.	Unit No.	Topic	Page No.	QR Code Links	QR Code (s)	Video Duration
Chapter 1: Introduction	Unit 1.1 - IT-ITeS/BPM Industry – An Introduction	1.1.1 India's IT-ITeS/BPM Industry 1.1.3 Key Trends in the IT-BPM Industry 1.1.4 Search on the Internet About IT-ITeS/BPM Industry	6	https://www.youtube.com/watch?v=VWbjrPE1Oyo	IT- ITeS /BPM Industry – An Introduction	00:02:51
Chapter 3: Software Requirement for Data Entry	Unit 3.1 - Data Entry Software	3.1.1 Report Writing 3.1.2 Report Writing Software 3.1.3 Database Management System 3.1.4 Data Entry Requirement 3.1.5 Data Verification 3.1.7 Alphanumeric Data Entry 3.1.8 Networking Topologies	32	https://www.youtube.com/watch?v=WdftZZ4G0Vg	Data Entry Software	00:02:07
Chapter 5: Troubleshooting in Data Entry Process	Unit 5.1 - Data Entry Problems and Solutions	5.1.1 Common Data Entry Issues 5.1.2 Manual Data Entry Errors 5.1.3 Ways to Minimize Data Entry Errors 5.1.4 Customer Service Delays 5.1.5 Mitigation Plan	54	https://www.youtube.com/watch?v=A75SOVIZ18k	Data Entry Problems and Solutions	00:02:22
Chapter 7: Skillsets of Data Entry Services	Unit 7.1 - Questioning Techniques	7.1.1 Questioning Techniques 7.1.2 Types of Questioning Techniques	84	https://www.youtube.com/watch?v=W-Kq5RZuyww	Questioning Techniques	00:02:44

Chapter No.	Unit No.	Topic	Page No.	QR Code Links	QR Code (s)	Video Duration
	Unit 7.4 - Data Validation and Error Detection	7.4.1 Data Validation	97	https://www.youtube.com/watch?v=eAYBH3lIK8o	Data Validation and Error Detection	00:02:08
		7.4.2 Types of Data Validation				
		7.4.3 Steps for Data Validation				
		7.4.4 Error Detection				
Chapter 9: Practice Employability Skills	Employability Skills	Work ethics to Follow	117	https://www.youtube.com/watch?v=PI8U2W2pnHQ	Work ethics to Follow	00:01:50
		Work Effectively with Colleagues		https://www.youtube.com/watch?v=fWLZj4ufMRE	Work Effectively with Colleagues	00:02:36
		Evacuation Procedures		https://www.youtube.com/watch?v=1Rfrgd-eyhU	Evacuation Procedures	00:02:03
		Health Safety and Accident Reporting		https://www.youtube.com/watch?v=N4kgu1qi9_A	Health Safety and Accident Reporting	00:02:03
		Workplace Data Management		https://www.youtube.com/watch?v=Vk5vbZXT-U4	Workplace Data Management	00:02:15

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