DATA PROCESSING SUMMARY

DATA PROCESSING – Takes place when data is collected and translate into usable information.

SIX STAGES OF DATA PROCESSING

1. DATA COLLECTION – Data is collected from available sources.

2. DATA PREPARATION – Also known as **"PRE-PROCESSING".**

- Raw data is cleaned up and organized for the next stages of data processing.

3. DATA INPUT – Clean data is entered into its destination.

4. PROCESSING – Data is being processed for interpretation.

5. DATA OUTPUT - Data is finally usable to non-data scientists.

6. DATA STORAGE – Data is stored for future use.

DATA PROCESSING - Is the conversion of data into usable and desired form.

IMPORTANCE OF METHOD IN DATA PROCESSING – It will determine the response time to a query and how reliable the output is.

DATA PROCESSING VS DATA PROCESSING SYSTEM

DATA PROCESSING is the rules by which data is converted into useful information.

DATA PROCESSING SYSTEM is an application that is optimized for a certain type of data processing.

DATA PROCESSING PROCEDURE

Data Capture – Acquisition of data in some format

Data Conversion – Transforming data into digital format

Data Validation – Evaluation of data to ensure whether it is in the correct format

Sorting – Grouping similar data streams

Aggregation – Combining data streams

Data Analysis – Processing of the data using formulas and other transformative techniques

Reporting – Creation of human-readable reports

TYPES OF DATA PROCESSING

1. Transaction Processing - is deployed in mission-critical situations. These are situations, which, if disrupted, will adversely affect business operations.

- **Hardware:** Hardware redundancy allows for partial failures, since redundant components can be automated to take over and keep the system running.
- **Software:** Should be designed to recover quickly from a failure.

2. Distributed Processing - Distributed data processing breaks down large datasets and stores them across multiple machines or servers.

3. Real-time Processing - Computes incoming data as quickly as possible.

4. Batch Processing - Chunks of data, stored over a period of time, are analyzed together, or in batches.

5. Multiprocessing - Two or more than two processors work on the same dataset.

6. Online Processing - Data is automatically fed into the CPU as soon as it becomes available.

7. **Time-sharing** - Allocates computer resources and data in time slots to several users simultaneously.

THREE MAIN DATA PROCESSING METHODS:

1. Manual Data Processing - The entire process of data collection, are all done with human intervention without the use of any other electronic device or automation software. Probability of high errors, high labor costs and lots of time is expected.

2. Mechanical Data Processing - Data is processed mechanically through the use of devices and machines. Simple data processing operations can be achieved with this method

3. Electronic Data Processing - Data is processed with modern technologies using data processing software and programs. A set of instructions is given to the software to process the data and yield output. This method is the most expensive but provides the fastest processing speeds with the highest reliability and accuracy of output.

ADVANTAGES OF ELECTRONIC DATA PROCESSING

- Documents can be protected as an extreme data sensitive. Because of the documents should be treated as a primary asset.
- Management of document is costly. So, electronic data processing reduces the cost of the paperwork.
- There is a facility to search a document in the system, which will reduce the time loss.
- The EDP has the facility to reduce the duplication of effort and repeated entries.
- Has the ability to store the enormous amounts of data and this data can then be further utilized for data presentation and analysis.

DISADVANTAGES OF ELECTRONIC DATA PROCESSING

- Vulnerable to hackers. The fault in an equipment will harm all the equipment in the office.
- When a small number of digit codes are compared with a large number code then, it occupies the computer storage less. The alphabetic codes can be descriptive.

DIFFERENT TYPES OF OUTPUT FILES OBTAINED AS "PROCESSED" DATA

- **Plain text file** – Constitute the simplest form or processed data. Most of these files are user readable and easy to comprehend.
- **Table/ spreadsheet** – This file format is most suitable for numeric data. Having digits in rows and columns allows the user to perform various operations.
- **Charts & Graphs** – This option is beneficial when dealing with numerical values reflecting trends and growth/decline.
- **Maps/Vector or image file** – When dealing with spatial data the option to export the processed data into maps, vector and image files is of great use.
- **Other formats/ raw files** – These are the software specific file formats which can be used and processed by specialized software.

IMPORTANT DATA PROCESSING TOOLS

1. **Surveying Tools** – Software tools which help us in easily organizing those elaborated surveys.
2. **Statistical Tools** – Are statistical calculation tools that help in plotting those big graphs and charts to help us study certain relevant pattern.
3. **Calculation and Analysis tools** – Are those mathematical software tools that help in applying relevant formulas to process the whole data.
4. **Database Management tools** – Are the tools that help us to manage a large amount of data that otherwise become too tedious to look after or refer to as and when we require to do so.

Management Information System Origin and Evolution
Represents electronic automation of different kinds of counting, record keeping and techniques of accounting like ledger, on which businessmen keep track of their business. The modern history of Management Information System can be segregated into 5 parts, as done by Jane Laudon and Kenneth Lauren in their book called Management information system.

First era – Mainframe and Mini compute - was ruled by IBM, in this era, they supplied the hardware and software. But the computers were so huge.
Second era –personal computers –in the second era, minicomputers were introduced, therefore
Third era –client and server networks –during the third era with client and server networks rose, as technological complexities increased and costs were further reduced.
Fourth era –enterprise software–with high speed network, original department specific software's were consolidated into integrated software's, tying all aspects of the business together
Fifth era – also known as cloud computing– Employs networking technology to deliver applications and data storage independent of location, configuration, and nature of hardware.

CHARACTERISTICS OF A GOOD MANAGEMENT INFORMATION SYSTEM
Its main function is to help organization executive's make decisions that will advance organizational goals.

Relevance– information received from a Management Information System is related to the decisions a manger will make
Accuracy – The key measure of the effectiveness of a Management Information System is how accurate and reliable the information a system provides.
Usefulness –the information received by the manager may be relevant and accurate, but is of use only if it's helpful in taking the decision that the person has to take.
Timeliness –The output has to be current or on time.
Completeness – Presents all relevant and useful information for taking a particular decision.

ADVANTAGES OF MANAGEMENT INFORMATION SYSTEM
1. Organizations easily identify their weaknesses and strengths with the help of employee performance record and revenue reportns.
2. It acts as a perfect tool for planning and communication with in the organization.

COMPONENTS OF AN INFORMATION SYSTEM

- **People** – These are the end users and IS specialists
- **Hardware** – This consist of machines and media
- **Software** – specialised set of instructions which are encoded in form of programs and procedures
- **Data** – data and knowledge basis
- **Networks** – communications media and network support

Most widely used Management Information System Types

Management Reporting System –it's a database designed to report on all the finances and operations of all management levels.
Process Control Systems –this monitors physical and industrial processes of a business-like petroleum processing, metal fabrication or automobile assembly. This information helps to track the overall efficiency of production and safety of its employees and machinery.
Sales and marketing system – Supports Management to execute and track effectiveness of Organizations sales and marketing functions. With the help of these reports, the managers are able to find out which products are selling and which aren't, also how well each product is selling at each retail location.
Inventory control system – Tracks everything that has to do with inventory, including theft, spoilage, and inventory in hand, thereby allowing management to determine which items are selling out more and need to be re-stocking, either in individual retail outlets or in the company warehouse
Accounting and Finance systems – Tracks organizations assets and investment and combines all data related to financial reports as needed by law for functions such as payroll, local taxes, federal, state and pension funds.
Human resources– office automation and enterprise collaboration information system help management in controlling the flow of information all throughout the organization
Decision support system – these are used by middle and higher level management to help make decisions and solve problems of the company.
Executive information system – it's a reporting tool for providing easy and quick access to company's reports from all level's and departments such as human resources, accounting, and operations, etc.
Marketing information systems – these are information systems to help with marketing aspects of the business.
Office automation system – for supporting communication and productivity in an enterprise by eliminating bottlenecks and even automating workflow in all levels of management.
School Information management system – Used in schools, for helping in school administration, this includes teaching and learning material.
Enterprise resource planning – facilitating the flow of information in between all functions of business, inside the organization boundary and helps manage connections with stakeholders outside.