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ASSINGNMENT

1. Describe the other types of databases with example

Ans: :Relational Databases (RDBMS)

Meaning: Data is stored in tables (rows + columns).

Examples:

MySQL

PostgreSQL

Oracle Database

SQL Serve

b. In-Memory Databases

Store data directly in RAM (very fast).

Examples:

Redis (also a key-value store)

Memcached

c. Time-Series Databases

Store date + time–based data.

Good for sensors, finance, monitoring.

Examples:

Influx DB

Timescale DB

d. Object-Oriented Databases

Store data as objects (like in programming).

Examples:

db4o

Object DB

e. Hierarchical Databases

Data stored like a tree (parent → child).

Used in older systems and government.

Examples:

IBM Information Management System (IMS)

f. Network Databases

Data stored in a network structure (many-to-many).

Older database model.

Examples:

IDMS

Raimi Database Manager

2. Describe the different methods of collecting data and tools used.

Ans:

a. Primary Data Collection

Observation

You watch people, objects, or events to gather data.

Tools used:

Camera

CCTV

Observation checklist

Mobile phone

Notebook and pen

b. interviews

You ask questions directly to people.

Tools used:

Voice recorder

Zoom / Google Meet

Structured interview form

Questionnaire

Pen and paper

c. Questionnaires / Surveys

You give people questions to answer.

Tools used:

Google Forms

Microsoft Forms

SurveyMonkey

Paper forms

Ballot boxes

d. Focus Group Discussion

A small group of people sit together to discuss a topic.

Tools used:

Audio recorder

Video camera

Meeting room

Discussion guide

Moderator notes

e. Experiments

You test something and record the result.

Tools used:

Lab equipment

Measuring tools

Sensors

Computers

SECONDARY DATA COLLECTION METHODS

a. You collect data from existing documents.

Tools used:

Filing systems

Databases

Excel/Google Sheets

Archival documents

b. Internet / Online Sources

Getting data from websites or digital platforms.

Tools used:

Google Search

Online journals

Databases (e.g., JSTOR)

PDF readers

c. Books, Magazines, and Newspapers

Data collected from printed sources.

Tools used:

Libraries

Book catalogues

Newspaper archives

3.Difference between Data analysis, Data Science and Data Engineering

Ans:

DATA ANALYSIS

Data Analysis is about looking at data, cleaning it, and finding useful information.

What they do:

Clean data (remove errors)

Create charts and tables

Answer business questions

Find trends and patterns

Make reports for decision-making

b. DATA SCIENCE

Data Science is about using advanced methods like statistics, machine learning, and programming to make predictions and build smart systems.

What they do:

Build machine learning models

Predict future outcomes

Create AI systems

Do statistical analysis

Handle large, complex data

c. Data Engineering

Data Engineering is about building the systems and pipelines that store, move, and organize data so that analysts and scientists can use it.

What they do:

Build databases

Create data pipelines

Handle big data storage

Maintain data warehouses

Make sure data is clean and accessible

4. Difference and similarities between Data analysis and Business intelligence Analysis

Ans:

DIFFERENCE BETWEEN DATA ANALYSIS AND BUSINESS INTELLIGENCE

a. Purpose

Data Analysis tries to explain why something happened and helps find deep insights.

Business Intelligence (BI) focuses on what is happening in the business by showing dashboards, reports, and KPIs.

b. Focus

Data Analysis goes deeper into patterns, trends, and even predictions.

BI focuses more on monitoring business performance (like sales, revenue, targets).

SIMILARITIES BETWEEN DATA ANALYSIS AND BUSINESS INTELLIGENCE

a. Both use data

They both work with data to help organizations understand information and make better decisions.

b. Both require clean data

They both depend on accurate, well-organized, and reliable data.

c. Both produce reports and visuals

They both use charts, graphs, and summaries to show results clearly.

d. Both help in decision-making

Their main purpose is to help companies understand their performance and plan better.

e. Overlapping tools

Both can use common tools such as Excel, SQL, and data visualization platforms.

5. Applications of Data Analysis in Different Industries

Ans: Healthcare

Monitoring patient health records

Predicting disease outbreaks
Improving hospital operations

Detecting fraudulent medical claims

Personalizing treatment plans