1. What is a database? explain with an example on why should we need a database ?

Ans: Database is a collection of data and information in organized and structured way.

For example: consider a company that need to track records of employee like : Id, name salary, department, etc. without database these information might scatter.

Overall database are essential for business and organization to manage large amount of data.

1. Write a short note on file based storage system ? explain the major challenges of a file based storage System?

Ans: File based storage system is a way of storing and managing the data in a computer using files and each file contain information about particular topic.

Major challenges of file based storage system is given below:

1. Data redundancy: it can further cause: 1. Delete anomalies

2. update anomalies

3. Read anomalies

b. Security: file based system, the security patch of FBSS is not up to the mark as of now compare to DBMS.

c. It uses complex programming languages like Fortned, java, C++, etc.

1. What is DBMS? What as the need for DBMS?

Ans: DBMS stands for Database Management System which consists of storing of data and information surrounded by management layers. It is a application that facilitates creation, Manu plication, and management of data.

We need DBMS because of following reasons:

1. Data organization in a structured mannered.
2. DBMS provides a management layer which ensures data security.
3. It reduces data redundancy.
4. Do not requires complex programming languages unlike file based storage system.

1. Explain 5 challenges of file-based storage system which was tackled by DBMS?

Ans: a. Data redundancy: In file based systems, the same data could be duplicated across multiple files.

1. Limited security control: security measures are limited.
2. Isolation of data: limited excess to data sharing since it is isolated in separated files.
3. Duplication of data.
4. Limited query capabilities.

1. List Out the different types of classification in DBMS and explain?

Ans: a. relational database management system: uses table and relations to store data. Ex: MySql.

b. NoSql: do not uses traditional tabular storage of data. Ex: MongoDB.

c. Centralized: Data is stored in a single location and can be access from that central point.

d. Distributed: Data is stored in different location.

e. Document oriented Databases: Store data as documents.

f. Graph Databases: Focus on relationships between data entities.

1. What is the significance of Data Modeling and explain the types of Data Modeling?

Ans: the significance of data modeling is given below;

1. Normalization: it is a way of organizing data to reduce data redundancy.
2. Keys: primary and foreign keys.
3. Relationships: connection between entities.

Types of data modelling are given below:

1. Conceptual data modeling: focuses on high level business concepts and relation between them.
2. Logical data modeling: it involves translating the conceptual data model to more detail representation.
3. Physical data modelling: it involves designing the database schema based on logical data model taking into account specific DBMS.
4. Explain 3 schema architecture along with its advantages?

Ans: a. external schema: it represent how user view and interact with data.

b. conceptual schema: It represent overall logical structure of entire database.

c. internal schema: it represent physical storage and organization of data within the database system.

Advantages of 3 schema architecture are:

1. Security
2. Data independence
3. Flexibility
4. Simplification