Ques: what is Database?

→ What is Data - Data is a collection of distinct small unit of information. It can be used in a variety of forms like text, media, bytes etc. It can be stored in paper or electronic memory.

Word Data is originated from the word "Datum" that means single piece of information. Data is the plural of the Datum.

→ A Database is an organised collection of data so that it can be easily accessed and managed. It can also be called structured Data.

- It can be accessed or stored in a computer system. It can be managed through DBMS.

- The Data in common databases is modeled in tables, making querying and processing efficient. SQL is used for data querying.

Example → In the bank, in railway station, in school etc. where we need to store a large amount of data in one place & fetch these data easily.

- Main Purpose of database is to operate a large amount of information by storing, retreiving and managing data.

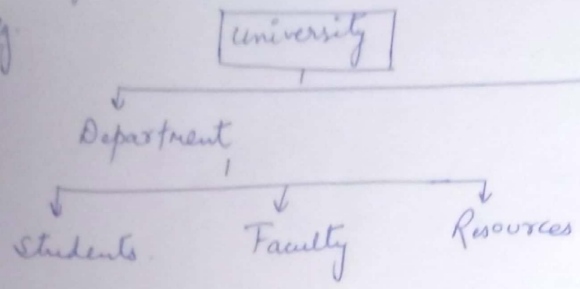
- There are many databases available like MYSQL, Sybase, Oracle, MongoDB, Postgre SQL, SQL server etc.

- Data is a dynamic entity, the way it stored varies a lot.

Ques - Type of Databases and why we use it ?

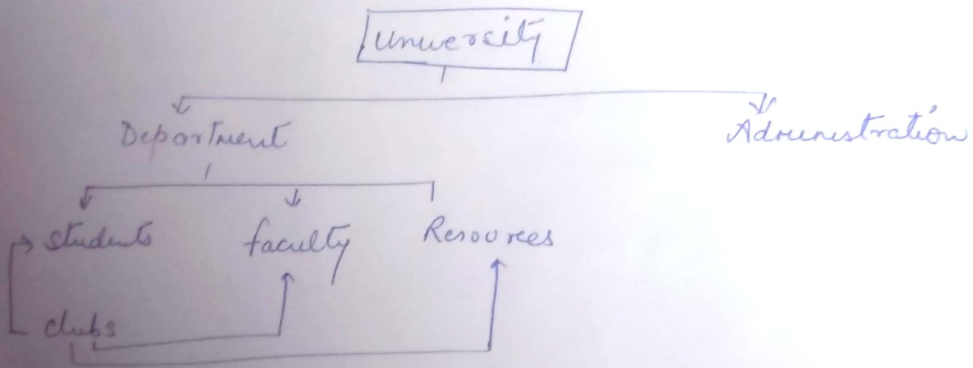
1) Hierarchical databases -

This database follows the progression of data being categorized in ranks or levels wherein data is categorized based on a common point of linkage.



2) Network Databases - It is a hierarchical database but with a major tweak. A network or set of database files linked with multiple thread is observed.

Network Databases are more capable of representing two directional relationship.



3) Object Oriented Database - The type of databases that uses the object based data model approach for storing data in the database system. The data is represented and stored as objects which are similar to the objects used in OOP language.

if we have python code for windows & if we

4) Centralized database -
It is a type of database that stores data at a centralized database system. It allows to access data from different location through several applications. These applications contain the authentication process to let users access data securely.

5) Distributed Database -
Unlike a centralized DBS, in distributed system data is distributed among different database system of an organisation. These database systems are connected via communication links. Such links helps the end users to access the data easily.

6) Relational Database
It is based on the relational data model, which stores the data in the form of rows (tuple) and columns (attributes). and together form a table (relation). A Relational database uses SQL for storing, manipulating as well as maintaining the data.
Each table in database carries a key that makes the data unique from others.

7) NO SQL Database -
It a type of database that is used for storing a wide range of data sets. It is not a relational database as it stores data not only in tabular form but in several different ways. It presented a wide range of database technologies in response to the demands.

) Cloud Database -
type of database where data is stored in a virtual environment and executes over the cloud computing system.

It provide users with various cloud computing services for accessing the database

9.) Personal Database -
collecting and storing data on the user's system defines a Personal database. This database is basically designed for a single user.

10) operational Database -
This type of database which creates and updates the datas are in real time. It is basically designed for creating and handling the daily data operations in several businesses.
Eg: An organization uses operational databases for managing data per day transactions.

Uses of Databases -
- Store and manage large amounts of data which is structured or unstructured data.
- Used to support wide range of activities like data storage, data analysis and data management.
- Efficient storage and retrieval is Easy.
- Protecting the confidential data is crucial.
- Railways station, Banking, Library, Education sector, Credit card exchange, social media, Accounting and finance, E Commerce websites, Human resource management, Manufacturing, Airline, Healthcare, Security, Telecommunication etc.

Ques: Difference between Database and DBMS?

	Database	DBMS
Definition	It is a collection of connected information about people, location or things.	It is a collection of programs that allow you to create, manage and operate a database.
Storage	Can be maintained in computers, physical ledgers, books or papers.	Can only stored in computer.
Data Retrieval	It can be done manually through queries or by using programs (C, C++ etc)	Can only retrieve data through queries written in SQL.
Speed	Very slow	Very fast.
Access	It is designed for very small number of people can access data at different times.	Designed for large number of people who can access the data at same time.
Data	Data stored in databases	DBMS manage & manipulates the data
Data Manipulation	Very less information can be modified at a time.	A lot of information can be changed at one time.
Backup & recovery	It does not ensure that the data will be available after failure arises.	It ensures that the data will always be available even after system failures.