Importance Of Data

16 August 2024 23:07

Python → DA → Database

↓

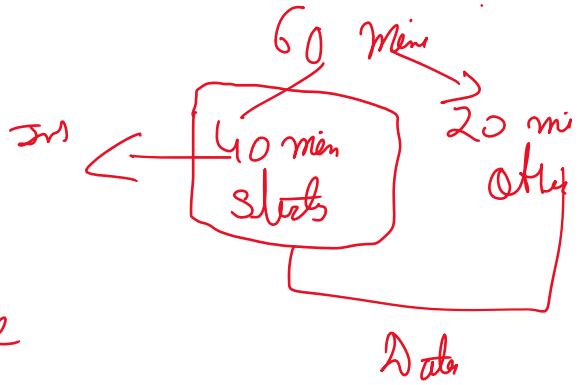
SQL

↓

database

↓

data



{Computer, Internet, AI} Data → Database

↓

Data - collection Raw facts

Ex- Age of student of class = {16, 19, 24, 14, 18}

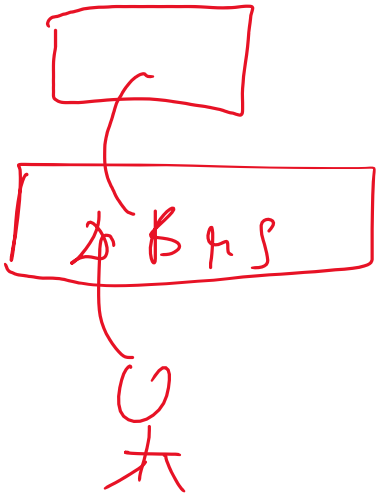
Information → Useful data {Insights}

Ex- Student who eligible to vote = {18, 19, 24}

What are Databases?

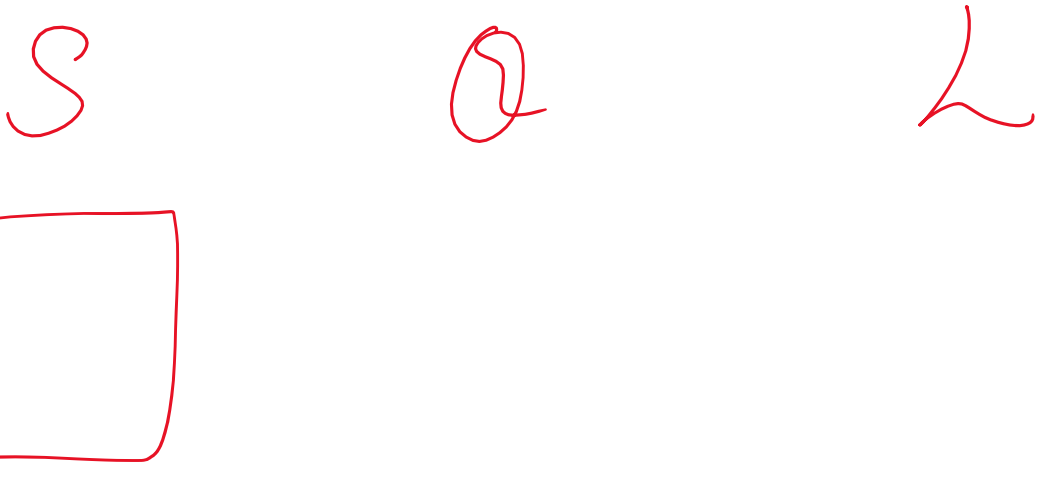
16 August 2024 23:09

Database is an organised colletion of data for easy access, storing, retrieval, and managing of data. This is also known as structural form of data



DBMS (Data Base Management System) it is a system software which is used to store data retrieve and run queries on data. DBMS serves as an interface between an end-user and a database that allows user to create , read, update, & delete data in the database.

SQL(Structured Query language) which is used to communicate with the database. It's like giving instructions to a database, telling it what information you want to add, find, update, or delete.



Usage of Databases

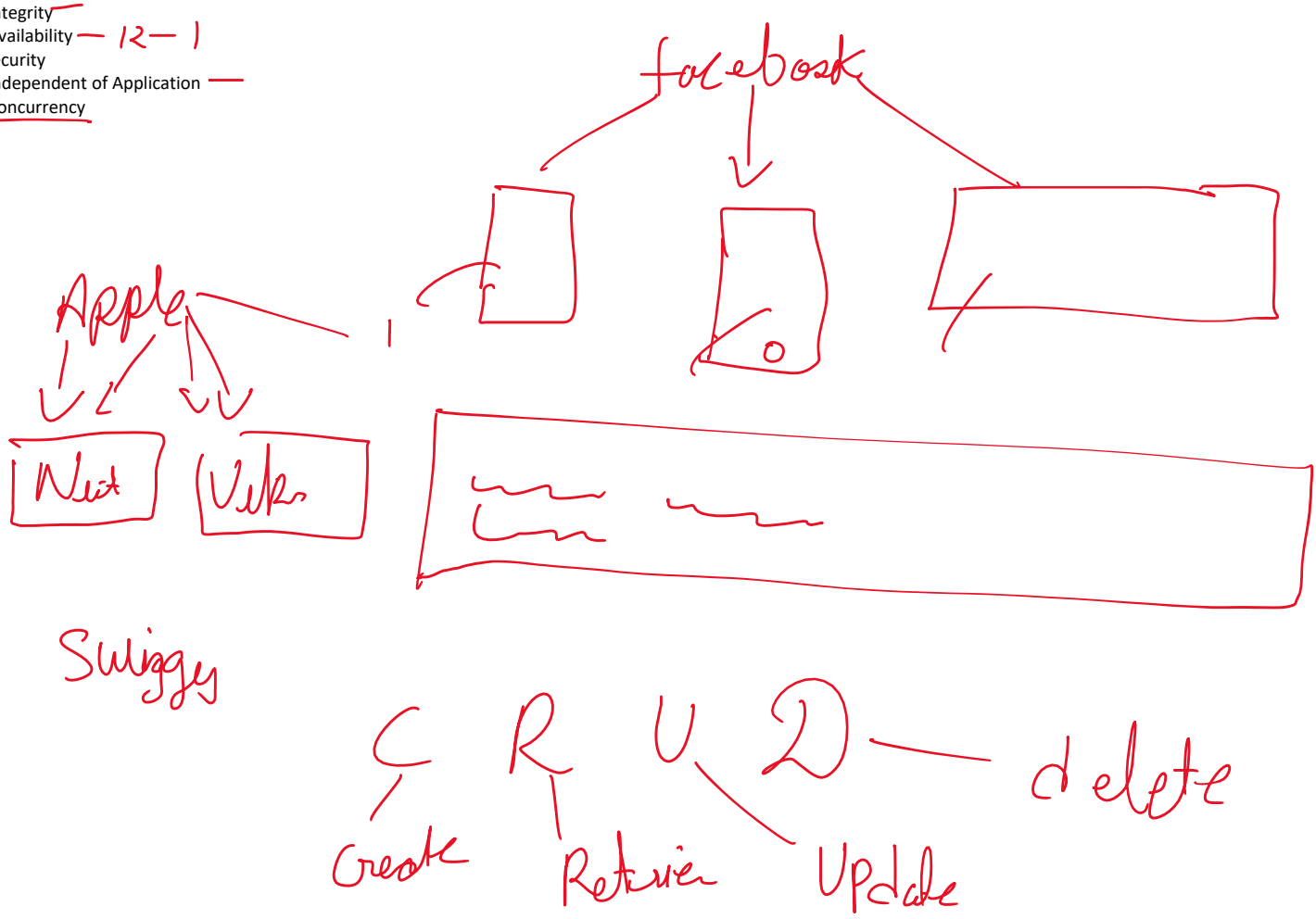
16 August 2024 23:18

1. **Data Storage -** A database is used to store large amounts of structured data,making it easily accessible, searchable, and retrievable.
2. **Data Analysis -** A database can be used to perform complex data analysis, generate reports, and provide insights into the data.
3. **Record Keeping -** A database is often used to keep track of important records, such as financial transactions, customer information, and inventory levels.
4. **Web Applications -** Databases are an essential component of many web applications, providing dynamic content and user management.

Properties Of an Ideal Database

16 August 2024 23:27

1. Integrity
2. Availability — 12 — 1
3. Security
4. Independent of Application —
5. Concurrency



C R U D — delete

Create Retrieve Update

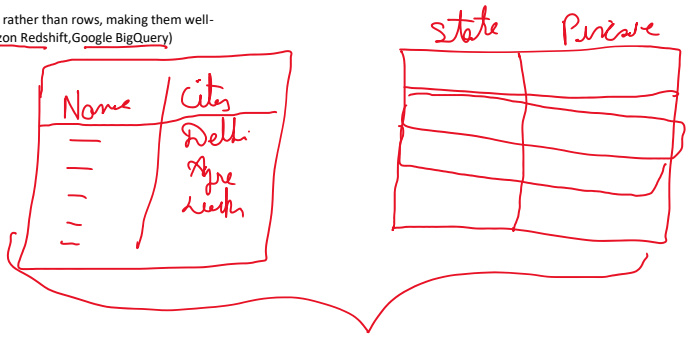
Types Of Databases

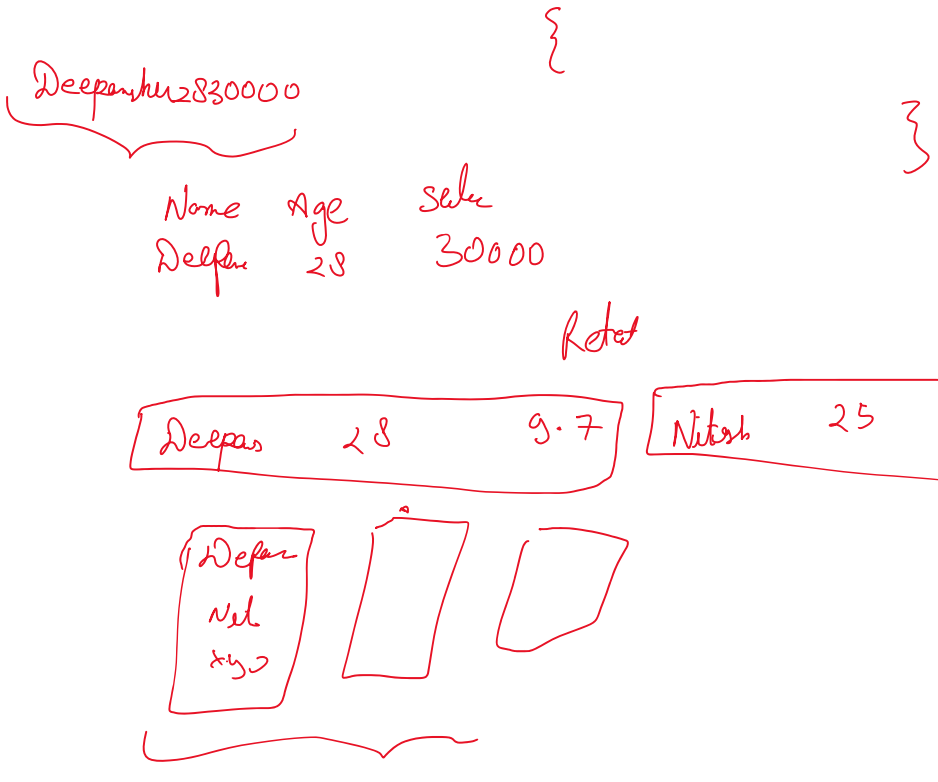
17 August 2024 00:05

1. **Relational Databases** - Also known as SQL databases, these databases use a relational model to organize data into tables with rows and columns.

2. **NoSQL Databases** - These databases are designed to handle large amounts of unstructured or semi-structured data, such as documents, images, or videos. (MongoDB)

3. **Column Databases** - These databases store data in columns rather than rows, making them well-suited for data warehousing and analytical applications. (Amazon Redshift,Google BigQuery)

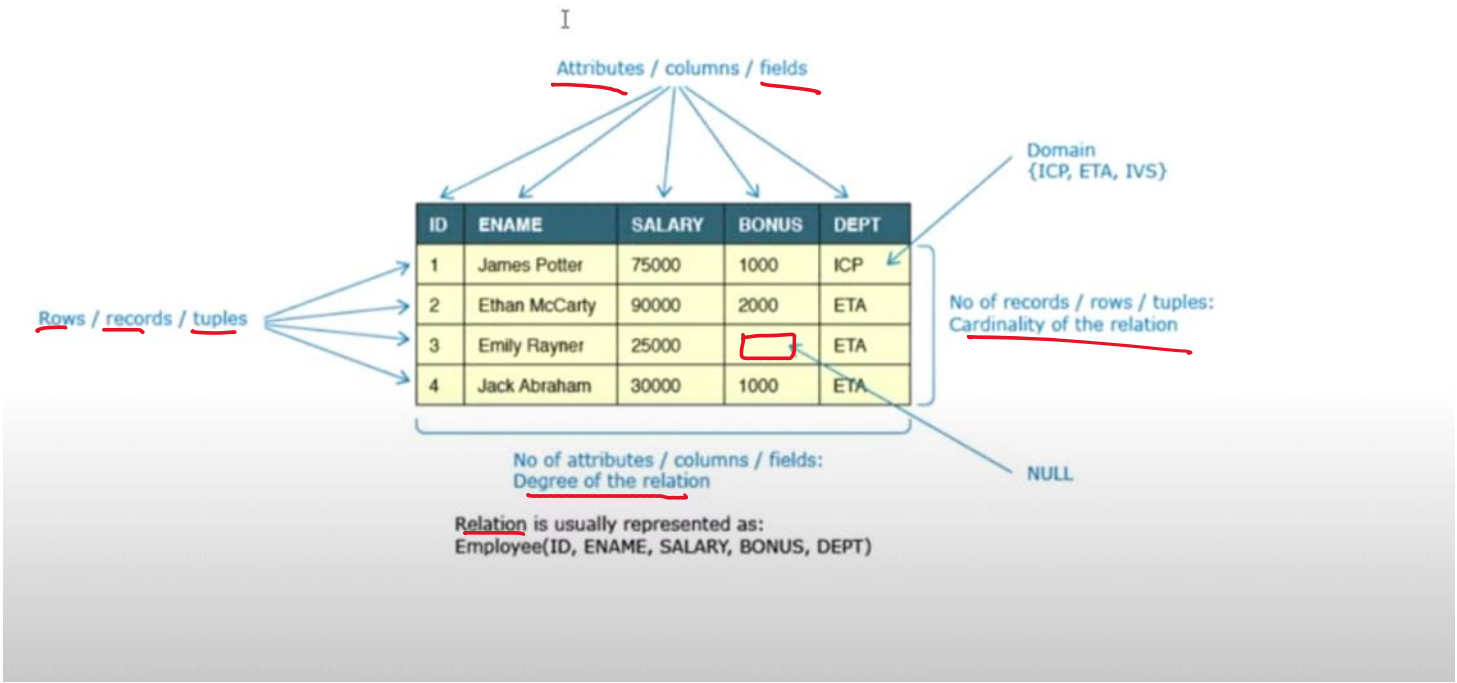




Relational Databases

17 August 2024 00:12

Also known as SQL databases, these databases use a relational model to organize data into tables with rows and columns.

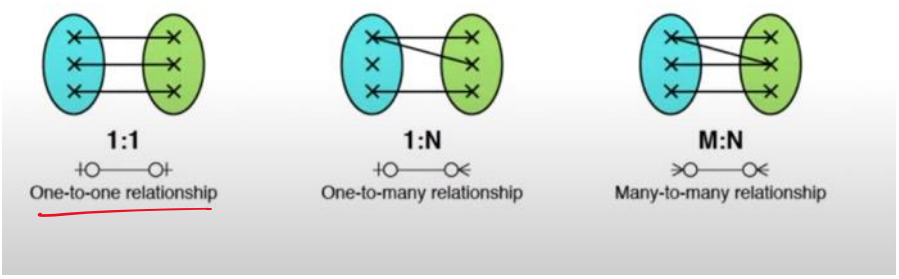


ID	ENAME	SALARY	BONUS	DEPT
1	James Potter	75000	1000	ICP
2	Ethan McCarty	90000	2000	ETA
3	Emily Rayner	25000		ETA
4	Jack Abraham	30000	1000	ETA

Cardinality of Relationships

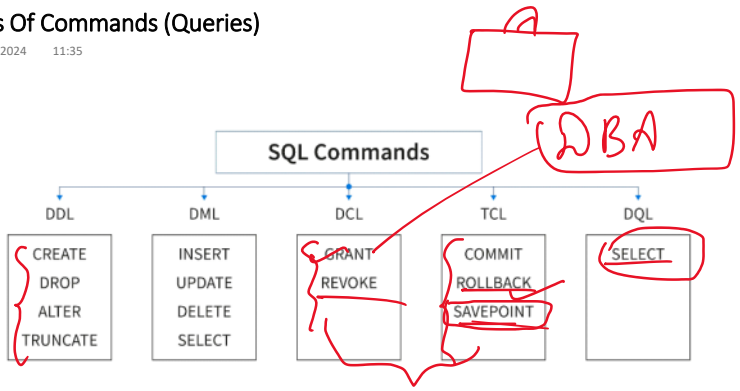
17 August 2024 00:27

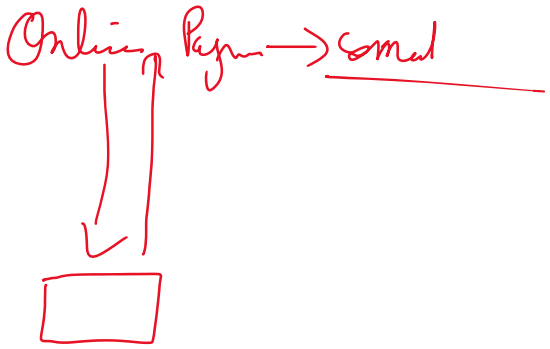
Cardinality in database relationships refers to the number of occurrences of an entity in a relationship with another entity. Cardinality defines the number of instances of one entity that can be associated with a single instance of the related entity.



Types Of Commands (Queries)

17 August 2024 11:35





1. **Data Definition Language(DDL)-** DDL chnages the sturcture of the table like creating a table, deleting a table, altering a table, etc.
2. **Data Manipulation Language (DML) -** DML command are used to modify the database. It is responsible for all form of changes in the database.
3. **Data Control Language(DCL) -** DCL command are used to grant and take authority from any database user.
4. **Transaction Control Language(TCL) -** TCL command can only use with DML commands like, INSERT, UPDATE, & DELETE only. These operations are automatically committed in the database that's why they cannot be used while creating tables or dropping them