Databases Management System---

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* **DBMS :—**

It is a ~~system~~ software system designed to manage and organize data in a structured manner. It is a collection of software programs that provides an interface b/w users and the databases, allowing users to store, retrieve, update and delete data in a structured and efficient manner.

* **Data :—**

Some important useful ~~an~~ piece of information that gives some collective analysis about any particular fields.

Example :—

- Data of how many people are affected by COVID ?
- Data of what is the population of India ?
- Data about particular students of University
- Data about users transaction.

* **File based system :→**

It is something like storing our data inside word file, text file, excel file.

All these are file based system

From these file based system, where we have soft copies data stored in files, these files also are stored in harddisk or hard drive.

* Problems with file based system :—

→ Data Redundency :—

It refers to the dublication of data within a database. This can occur when the same data is stored in multiples tables or when the same data is stored in the same table multiples times.

This "data redundancy can lead to a number of problems "data inconsistency."

→ Data inconsistency :—

It is a state in which the some data is stored in different locations within a database but has different values or meanings in those locations. This can occur due to data redundency or when the data is not properly updated or maintained.

→ Difficult Data Access :—

Difficult data access refers to the challenge of retrieving or manipulating data within a database due to its complexity or lack of organization. This can occur when the database schema is poorly designed or when the data is not properly indexed which can lead to slow query performance and difficulty in finding the required data.

* Databases

It is a collection of related data

↳ helps to solve problem of redundency inconsistency

↳ Easy app integration

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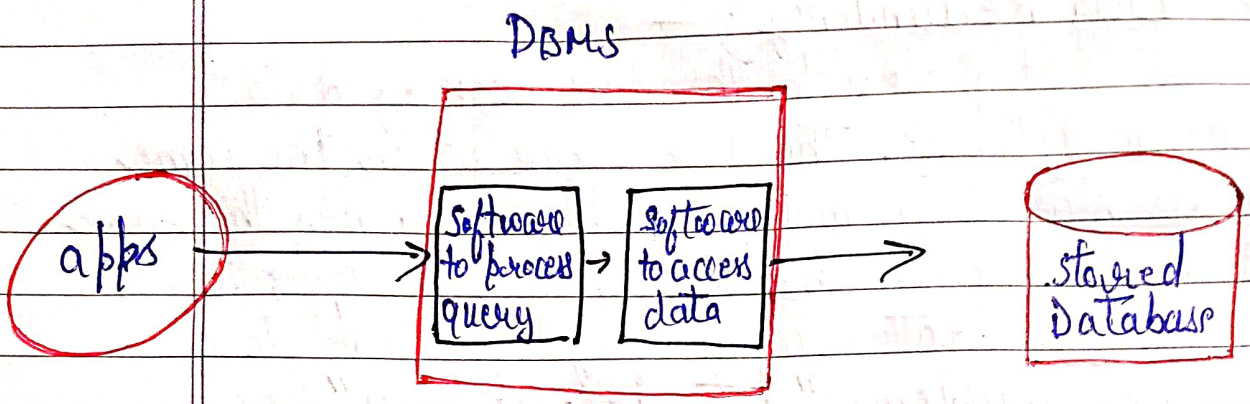
* DBMS



DBMS is a management system. It manages the database. It is kind like a software which gives the functionality from which we can easily query some data, access some data, process some data, add some data, update some data. All this functionality DBMS gives us.

So the goal of DBMS is to make sure that the retrieval and the storage of the information from user to the database as smooth as possible.

Example of DBMS :- MySQL, PgSQL, SqLite

All these database management system softwares understands one common language that is SQL

- SQL :- Structured Query Language. It is kind like of a programming language.

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→ There are dif types of database management system. Means dif databases store data in different forms.

For example:—

→ There are some databases that will store our data in Tabular form, in the form of tables.

→ some databases will store in key-value pairs

→ Some databases will store in the form of documents.

• One of the most important database management system that actually exist is **RDBMS.**

Relational Database Management System.

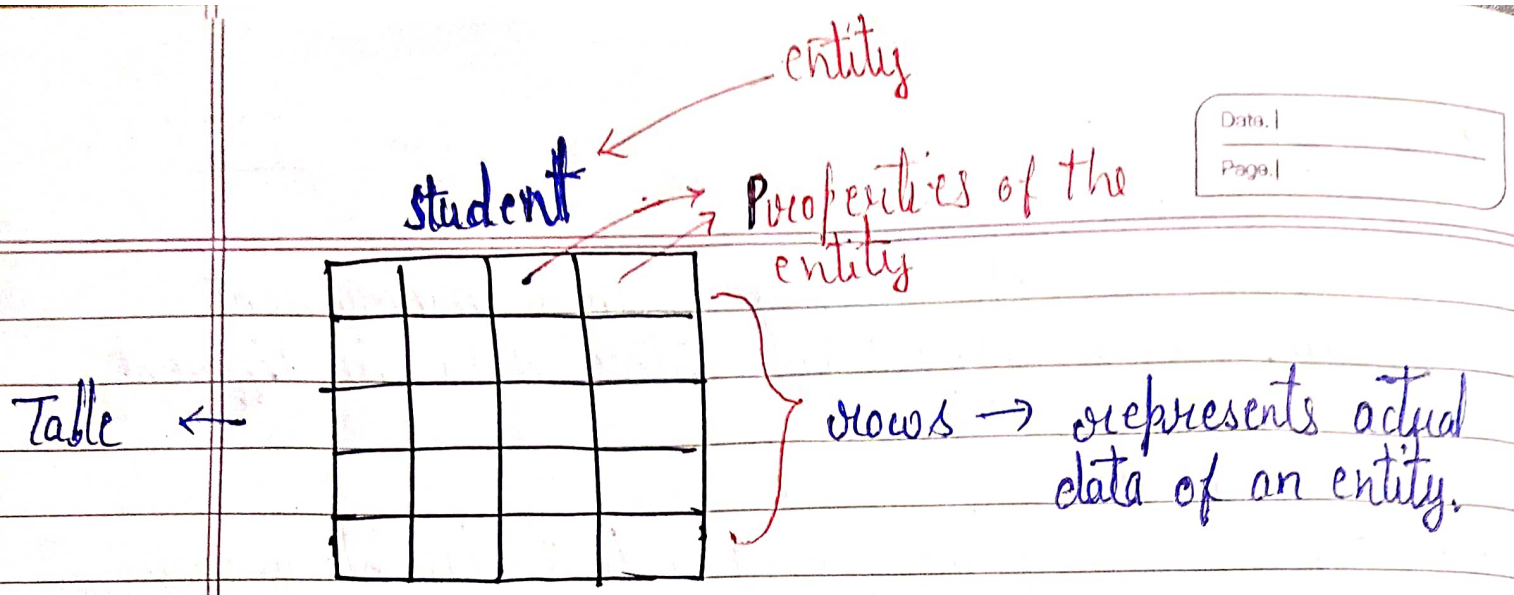
⇒ **RDBMS** :— In relational management system we store data in form of '**Tables**'.

* MySQL is a type of relational DBMS

Every table in relational DBMS denotes an '**entity**' example :— student is an entity

Now because every real life entity has some properties. for example:

'student' entity having rollno, name of student, father's names, address etc. All these properties defines an entity.



So this table actually representing an entity (student) and the **columns** actually represents properties of the entity and one individual rows represents one unique entity's actual data