Before Using Database, Flat Files (for example: .CSV, .txt) were used to store data. Example of flat files used in excel sheets:

Accounting Department >> employee files >>

- Name
- Address
- Salary
- Overtimes
- Taxes
- Attendance

Same data would be redundant for employees in Human Resource Department

Human Resource Department >> Employee file

- Name
- Address
- Birthdate
- mobile
- Telephone
- HireDate

And same data may exist in Sales Department

Which leads to (File disadvantages):
- Redundancy
  - Different format
  - waste of storage
  - Slow Update speed
  - Lack of Consistency
  - Lack of security
- No Relation Between Data
- No available Meta data

Advantages: in case of small amount of data and no much operations to be done on data, flat files are faster.
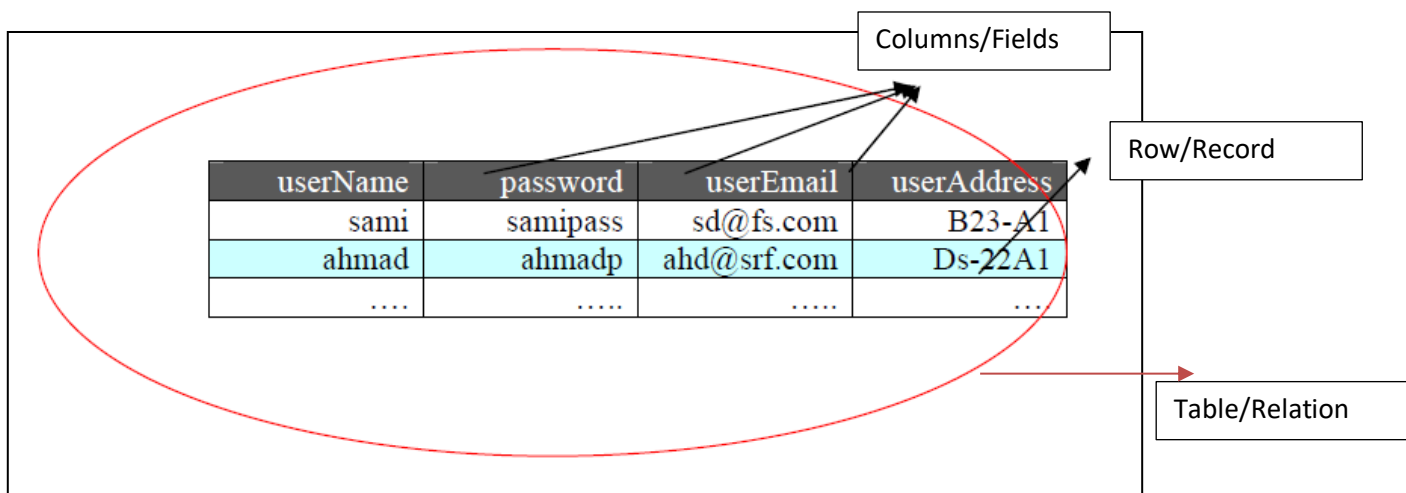
Evolving to Database:
What is SQL?

- SQL stands for Structured Query Language
- SQL lets you access and manipulate databases
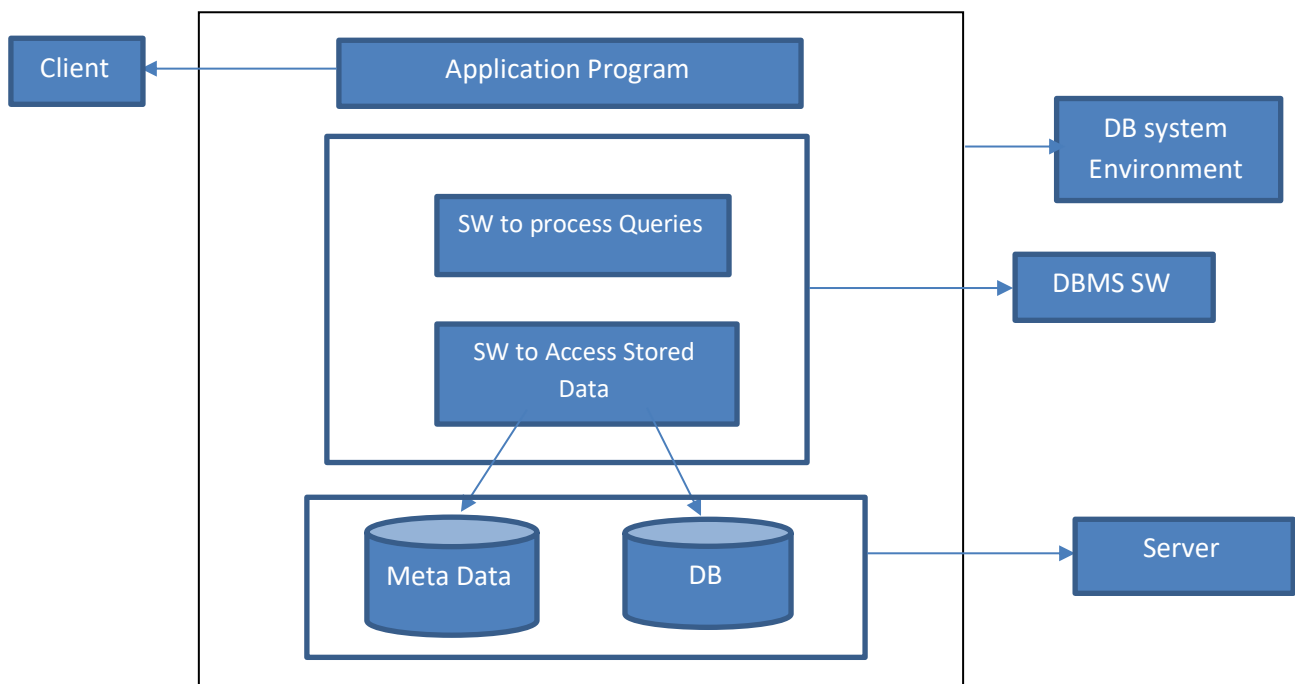- SQL is an ANSI (American National Standards Institute) standard

- Although SQL is an ANSI (American National Standards Institute) standard, there are different versions of the SQL language.
- However, to be compliant with the ANSI standard, they all support at least the major commands (such as SELECT, UPDATE, DELETE, INSERT, WHERE) in a similar manner.

RDBMS:

- RDBMS stands for Relational Database Management System. RDBMS is the basis for SQL, and for all modern database systems such as MS SQL Server, IBM DB2, Oracle, MySQL, and Microsoft Access.

Microsoft SQL Server: is a client server Architecture

Sql Server Handel two types of DBs

- OLTP >> normal Database
- OLAP>> Warehousing DB and Historical Data
  Sql Server Handles two types of Database within OLTP:
    1. System Database (Master, Model, TempDB, MSDB)
    2. User-Defined Database

SQL Commands

SQL queries can be categorized into several types based on their functionality. Here are the main categories:

•DQL focuses on retrieving data.
•DDL is concerned with defining and modifying database structures.
•DML is for manipulating the data itself.
•DCL manages user permissions.

Download

Microsoft SQL Server 2022 Express Edition : https://www.microsoft.com/en-us/sql-server/sql-server-downloads

Download SQL Server Management Studio (SSMS) 20.2