Relational Database Management System (RDMS)

A relational database is a database that can be perceived as a set of tables and manipulated in accordance with the relational model of data. It contains a set of data objects used to store, manage, and access data. Examples of such data objects are tables, views, indexes, functions, triggers, and packages.

Most of today's database systems are referred to as a Relational Database Management System (RDBMS), because of their ability to store related data across multiple tables.

Relational databases are designed for fast storage and retrieval of large quantities of data.

What is RDBMS?

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

The data in RDBMS is stored in database objects called tables. The table is a collection of related data entries and it consists of columns and rows.

Remember, a table is the most common and simplest form of data storage in a relational database.

RDBMS Concepts

A Relational Database management System (RDBMS) is a database management system based on relational model introduced by **E.F Codd**. In relational model, data is represented in terms of tuples (rows).

Relational Database Definitions

- Entity: Object, Concept or event (subject)
- Attribute: a Characteristic of an entity
- Row or Record: the specific characteristics of one entity
- Table: a collection of records
- Database: a collection of tables

A relational database is one whose data are split up into tables, sometimes called relations.

RDBMS is used to manage Relational database. **Relational database** is a collection of organized set of tables from which data can be accessed easily. Relational Database is most commonly used database. It consists of number of tables and each table has its own primary key.

Overview of Relational Databases

- Table
  - Matrix with columns and rows
- Columns
  - Represent different data fields
  - Characteristics or attributes about entity
- Rows
  - Contain individual records
  - Attributes about a specific instance of entity

- Entity
  - Object about which you want to store data
  - Different tables store data about each different entity
- Relationships
  - Links that show how different records are related

Relational Database

- Definition:
  - Data stored in tables that are associated by shared attributes (keys).
  - Any data element (or entity) can be found in the database through the name of the table, the attribute name, and the value of the primary key.

Relational databases views all data in the form of tables

- **Relational Database Management System (RDBMS)**
  - Consists of a number of *tables* and single *schema* (definition of tables and attributes)
  - Students (sid, name, login, age, gpa)
    Students identifies the table

sid, name, login, age, gpa identify attributes
sid is primary key