BCA Part –III

Paper XX: RDBMS

Topic: Introduction

Compiled by: Dr. Kiran Pandey
(School of Computer Science)
Email-id: kiranpandey.nou@gmail.com

What is RDBMS

RDBMS stands for *Relational Database Management Systems.*.

All modern database management systems like SQL, MS SQL Server, IBM DB2, ORACLE, My-SQL and Microsoft Access are based on RDBMS.

It is called Relational Data Base Management System (RDBMS) because it is based on relational model introduced by E.F. Codd.

How it works

Data is represented in terms of tuples (rows) in RDBMS.

Relational database is most commonly used database. It contains number of tables and each table has its own primary key.

Due to a collection of organized set of tables, data can be accessed easily in RDBMS.

Brief History of RDBMS

During 1970 to 1972, E.F. Codd published a paper to propose the use of relational database model.

RDBMS is originally based on that E.F. Codd's relational model invention.

What is table

The RDBMS database uses tables to store data. A table is a collection of related data entries and contains rows and columns to store data.

A table is the simplest example of data storage in RDBMS.

Let's see the example of student table.

ID	Name	AGE	COURSE
1	Ajeet	24	B.Tech
2	aryan	20	C.A
3	Mahesh	21	BCA
4	Ratan	22	MCA
5	Vimal	26	BSC

Field is a smaller entity of the table which contains specific information about every record in the table. In the above example, the field in the student table consist of id, name, age, course.

A row of a table is also called record. It contains the specific information of each individual entry in the table. It is a horizontal entity in the table. For example: The above table contains 5 records.

Let's see one record/row in the table.

1	Ajeet	24	B.Tech

What is column

A column is a vertical entity in the table which contains all information associated with a specific field in a table. For example: "name" is a column in the above table which contains all information about student's name.

Ajeet

Aryan
Mahesh
Ratan
Vimal

NULL Values

The NULL value of the table specifies that the field has been left blank during record creation. It is totally different from the value filled with zero or a field that contains space.

Difference between DBMS and RDBMS

Although DBMS and RDBMS both are used to store information in physical database but there are some remarkable differences between them.

The main differences between DBMS and RDBMS are given below:

No.	DBMS	RDBMS
1)	DBMS applications store **data as file**.	RDBMS applications store **data in a tabular form**.
2)	In DBMS, data is generally stored in either a hierarchical form or a navigational form.	In RDBMS, the tables have an identifier called primary key and the data values are stored in the form of tables.
3)	**Normalization is not** present in DBMS.	**Normalization is** present in RDBMS.
4)	DBMS does **not apply any security** with regards to data manipulation.	RDBMS **defines the integrity constraint** for the purpose of ACID (Atomocity, Consistency, Isolation and Durability) property.
5)	DBMS uses file system to store data, so there will be **no relation between the tables**.	in RDBMS, data values are stored in the form of tables, so a **relationship** between these data values will be stored in the form of a table as well.

6)	DBMS has to provide some uniform methods to access the stored information.	RDBMS system supports a tabular structure of the data and a relationship between them to access the stored information.
7)	DBMS **does not support distributed database**.	RDBMS **supports distributed database**.
8)	DBMS is meant to be for small organization and **deal with small data**. it supports **single user**.	RDBMS is designed to **handle large amount of data**. it supports **multiple users**.
9)	Examples of DBMS are file systems, **xml** etc.	Example of RDBMS are **mysql**, **postgre**, **sql server**, **oracle** etc.