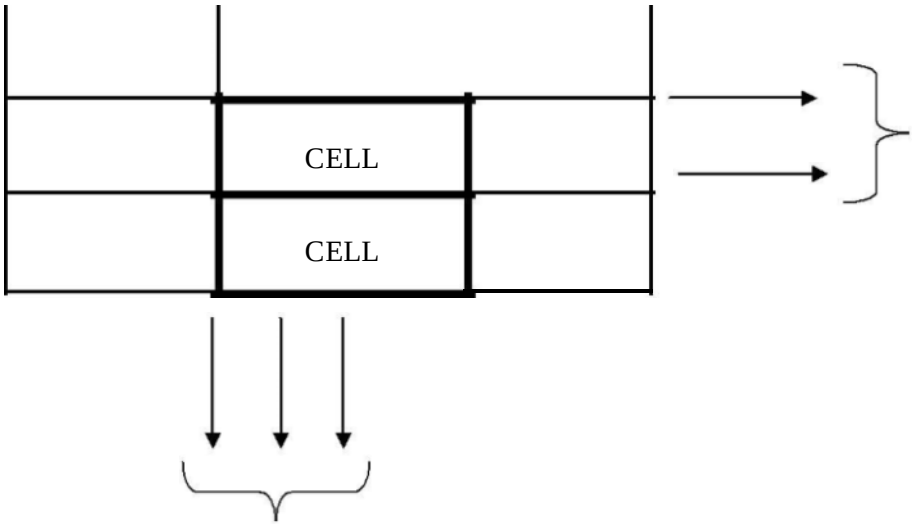
CHAPTER 1

RDBMS Concepts

Database

A database is the place of storage of the data in the form of tables
Data means information which is very useful. A database is also collection of 1 or more tables.

Table – a table is a collection of rows and columns.



A cell is an intersection of a row and a column
A column is also called as a field / attribute
A record is also called as a row / tuple.
A table is also called as an entity / relation.

Note :-

- If we install any of the database related software(s) – we can create our own database, we can create our own tables and we can store the data inside it.
- When we install any database s/w(s) – a part of hard disk will be designated / reserved to perform database related activities
- A database can also contain other database objects like views, indexes, stored procedures, functions, triggers etc, apart from tables.

Some of the database software(s) we have are,
Oracle, SQL Server, DB2, Sybase, Informix, MySQL, MS – Access, Foxbase, FoxPro

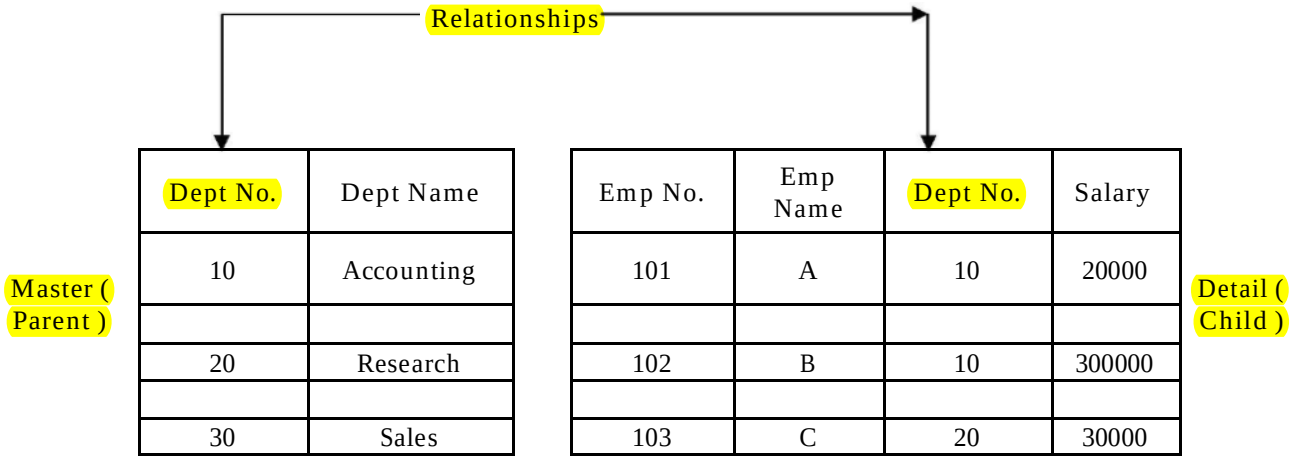
Among the above database software – some of them are DBMS and some of them are RDBMS

The s/w which is widely used today is Oracle. The different versions of Oracle starting from the earliest to the latest are – Oracle 2, Oracle 3, Oracle 4, Oracle 5, Oracle 6, Oracle 7, Oracle 8i, Oracle 9i, Oracle 10g,

and the latest to hit the market is Oracle 11g. here „i" stands for Internet and „g" stands for Grid / Grid computing.

RELATIONSHIPS

A relationship is the association between any two tables which preserves data integrity.



Dept No.	Dept Name
10	Accounting
20	Research
30	Sales

Emp No.	Emp Name	Dept No.	Salary
101	A	10	20000
102	B	10	300000
103	C	20	30000

Relationship helps to prevent the incorrect data in the child tables

Once the relationship is created, one table becomes master (or parent) and the other one becomes the child (or detail).

Whatever we insert into the child should be present in the master, else the record will be rejected from the child.

The master table contains the master data which will not change frequently. The child table contains the transactional data which will change quite often.

DBMS & RDBMS

DBMS – stands for Database Management System

DBMS is a database s/w which allows us to store the data in the form of tables.

RDBMS – stands for Relational DBMS

RDBMS is also a database s/w which has facility to handle more data volume, good performance, enhanced security features etc when compared against DBMS.

Any DBMS to qualify as a RDBMS should support the Codd rules / Codd laws

Ex for DBMS – FoxPro, FoxBase, Dbase

Ex for RDBMS – Oracle, Sybase, DB2, Teradata, SQL Server, MySQL

CONSTRAINTS

A constraint is a condition which restricts the invalid data in the table.

A constraint can be provided for a column of a table.

Types of Constraints

- NOT NULL
- UNIQUE
- Primary Key
- Foreign Key
- Check

NULL

→ NULL is nothing, it is neither zero nor blank space
→ It will not occupy any space in the memory
→ Two NULLS are never same in Oracle.
→ NULL represents unknown value
→ Any arithmetic operation we perform on NULL will result in NULL itself. For ex, 100000 + NULL = NULL ; 100000 * NULL = NULL

NOT NULL

- NOT NULL will ensure atleast some value should be present in a column

UNIQUE

→ It will not allow any duplicates in a column
→ UNIQUE column can take multiple NULL (s)

Primary Key

→ It is the combination of NOT NULL and UNIQUE
→ Only one PK is allowed in a table
→ PK identifies a record uniquely in a table
→ Creation of PK is not mandatory, but it is highly recommended to create

Foreign Key

→ FK creates relationship between any two tables
→ FK is also called as referential integrity constraints
→ FK is created on the child table
→ FK can take both NULL and duplicate values
→ To create FK, the master table should have PK defined on the common column of the master table
→ We can have more than 1 FK in a given table

CHECK

It is used to provide additional validations as per the customer requirements.

Ex - 1) sal > 0
2) empnum should start with 1
3) commission should be between 1000 & 5000

Dept Table

Employee Table