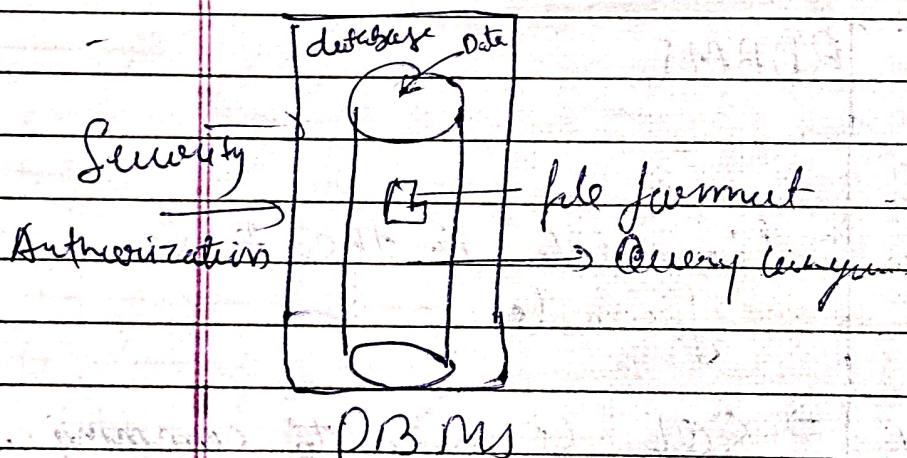


DBMS

- DBMS stands for database management system.
- DBMS is a software which is used to maintain and manage the database.
- Security and Authorization are the two features of DBMS.
- In DBMS we store the data in a form of file format.
- Query language is used to communicate with the dbms.



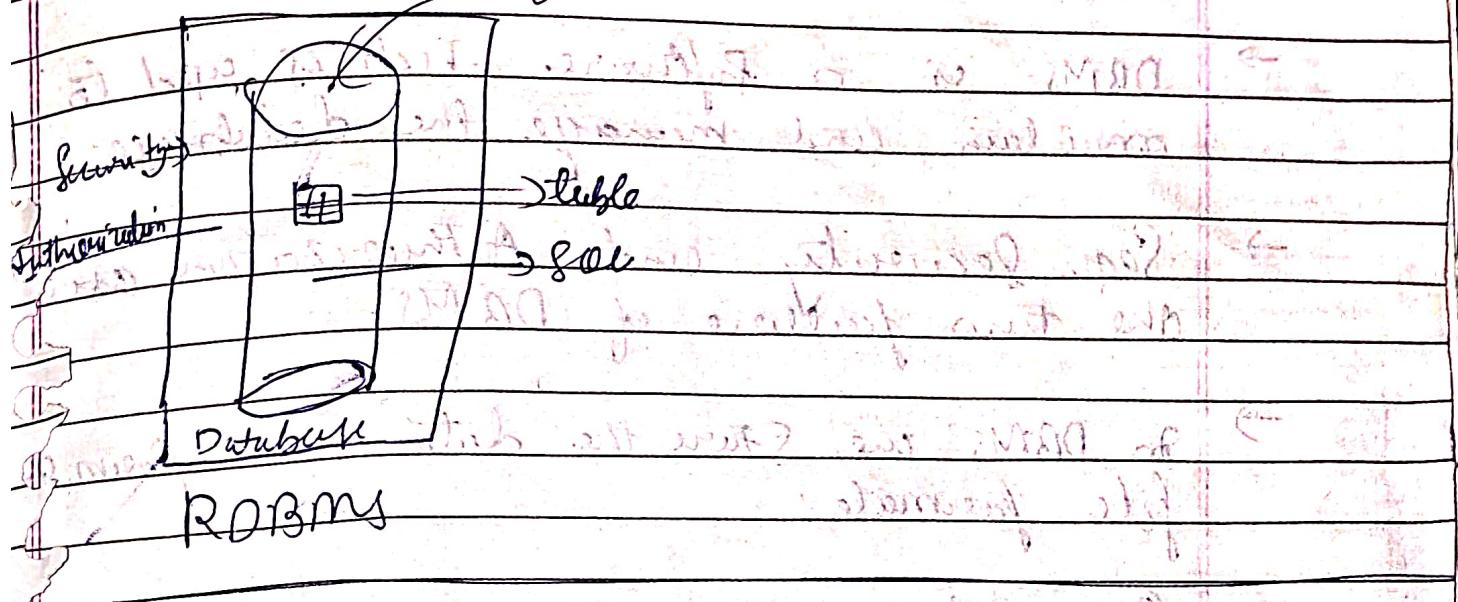
RDBMS

- RDBMS stands for Relational database management system.
- RDBMS is a type of dbms software which is used to maintain and manage database.

→ features :- Security & authorization.

→ In RDBMS we should store the data in the form of table format.

→ SQL is used to communicate with the RDBMS.

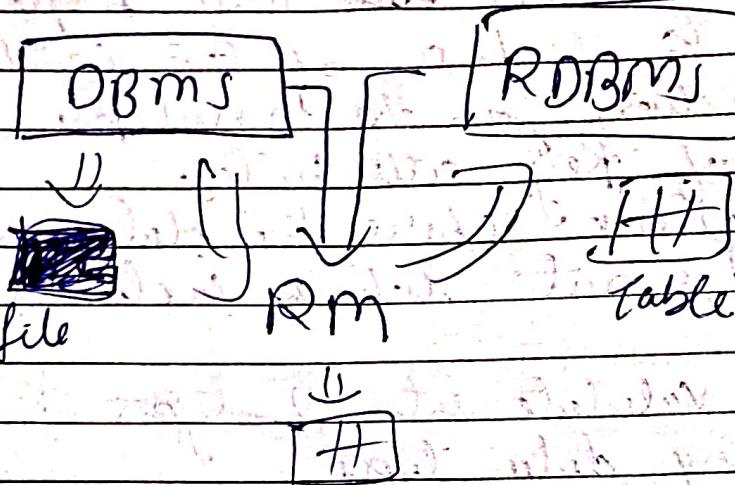


Difference between DBMS and RDBMS.

DBMS	RDBMS
→ DBMS	→ Store data in the file format
→ Every lang. is used to communicate	→ SQL is used to communicate

Relational Model

→ It is one of the theory, ~~it was discovered~~ Date: / / Page no: by E. F. Codd,



→ Any DBMS which follows the Relational model will be converted into RDBMS.

⇒ In relational model we store the data in the form of table format.

→ data :- Data refers to unprocessed facts or details for analysis, inference and computation.

Database :- A database is an

Organised collection of data that is stored, managed and accessed electronically. It allows user to do search operation while ensuring data integrity and security.

Rules of 3NF (Codd)

Date _____ Page No. _____

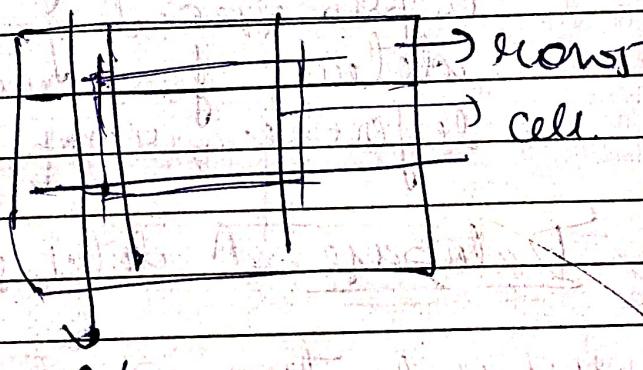
Cell

- The data entered in cell must single value.
- According to rules of 3NF (Codd) we can give connection from the multiple tables with the help of Key attributes.
- In RDBMS please store the data in a form of table format which includes meta data.
- Data can be validate into 2 types :-
 - (1) By assigning data types.
 - (2) By assigning Constraints.

Table :- It is combination of Rows and Columns is called as table.

Table consist of 3 types :-

- (1) Row
- (2) Column
- (3) Cell



(1) Row :- horizontal portion of table is called as Row.

Row is also called tuple or records.

Each row represents a single entity as instance of data.

②

Column :- Column is vertical portion of the table
 Column is also called field / Attribute
 Date: _____ Page No: _____



③

Cell :- Cell is the intersection of row and column. ~~where we can store the data~~ where we can store the data.

Cell

SID	SName	Branch	PA/DO	Photo	Gender	Phone	Alt phone
1	Ajay	IT	R			958---	
2	Vijay	CSE	R			9770---	9993--
3	Rehan	Mech	R			6872---	
4	Shyam	civil	R			2786--	

details

Location - Bangalore
 Date - 25-02-12
 Time - 4:00 pm

metre Date

Table is a fundamental structure in DB used to organize data in a tabular format

Data types :- Data type is used to store what type of data we will store in a particular memory location.

Types of data type :-

- (1) CHAR
- (2) NUMBER
- (3) VARCHAR / VARCHAR2
- (4) Date
- (5) LARGE object.

CHAR :- Char can accept 'A-Z', 'a-z', '0-9', 'Special character', and Alpha numeric values.

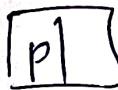
→ whenever we are using char we should mention the size and ''.

→ The maximum size of char is 2000.

→ Char is a fixed length memory allocation.

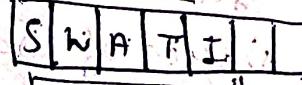
Syntax :- Char(size); Eg:-

Eg-1



Char[2]: unused memory
used memory

Char(7).



used memory unused memory as wastage



This unused memory will now back to database memory so, it's waste.

(a) VARCHAR : It can accept 'A-Z', 'a-z', '0-9', 'Special character' and Alpha numeric Value.

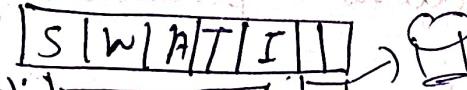
→ whenever we are using varchar we should mention the size and single ''.

→ The maximum size of varchar is 2000.

→ Varchar is a variable length memory allocation - left space

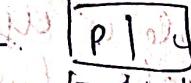
Syntax :- Varchar(size); left space

Eg-1



Varchar(7); used memory unused memory

Eg-2



used memory unused memory

left space goes back to the memory.

(b) VARCHAR2 = Varchar2 is the updated version of Varchar.

→ The size of Varchar2 is 2000. Whenever we are using Varchar that will be automatically converted as a Varchar2.

Difference b/w CHAR and VARCHAR :-

CHAR

- (1) Char is a fixed length memory allocation
- (2) If we have any wastage

VARCHAR

- (1) VARCHAR is a variable length memory allocation.

of blocks it will not
go back to one memory

On VARNISH - If we have any varnish
block it will go back
to the memory.

③ NUMBER :- Number is used to store numerical values.

In number we have two arguments, cell precision and Scale.

④ precision :- precision is used to integer value.

3) Scale :- Scale is used to convert decimal values into fractions.

→ The size of scale O is - 127.

→ The default value of Scale is 0;

Syntaxis

Number (precision, scale)

$$\textcircled{1}(5) = \underline{\underline{5}} \underline{\underline{6}} \underline{\underline{1}} \underline{\underline{7}} \underline{\underline{9}} \quad \textcircled{2}(5,3) = \underline{\underline{2}} \underline{\underline{1}} \underline{\underline{7}} \underline{\underline{1}} \underline{\underline{1}}$$

$$\text{③ } (6.2) = 1791 \cdot 1.1 (9.2) = 0.045$$

37. *Scutellaria* (L.) *lanceolata* L. *var. pilosa* (L.) *Werneri*

$(3, 6) = \frac{0.00912}{0.0087} \approx 1.0$ (3, 3) = $\frac{0.0912}{0.087}$

D. Date -- Date is used to store following a particular journal
called archive format.

OS-Jan-2015. Ex. 2

we prefer to call it mon-iy-yg (AH).

IS-JATR-2002

1922-1923 (1923) (1923) (1923) (1923) (1923) (1923)

Large Object :-

Large Object :-

Syntax: [CLOB] - character large object, upto 4GB of size.

Syntax: [BLOB] - Binary large object.

Constraints: Constraint is the rule given to validate the data.

Types of Constraints

- (1) Unique (2) Not Null (3) check (4) primary key
- (5) Foreign key.

Unique:- Unique is a constraint which can not accept duplicate or repeated values.

NOT NULL:- NOT NULL is a constraint which can not accept the null values.

Check:- Check is a constraint which extra validation assign to the column if the condition is satisfied then it returns true.

Syntax: [Check (length[ColumnName = Size])]

Eg. [Check (length(phNo = 10))]

Primary Key:- Primary key is a constraint which uniquely identify the records in the table.

Characteristics of Primary Key:-

(a) It is a constraint which can not accept the duplicate or repeated values.

(b) It is a constraint which cannot accept the null values.

Primary key is the combination of unique and not null

Constraints

- ④ In a table it will accept only one column as a primary key.
- ⑤ Foreign Key: It is a constraint which can establish the connection between two tables.
- Characteristics of foreign key:
- ⑥ It is a constraint which can accept duplicate or repeated values.
- ⑦ It can accept null values.
- ⑧ It is not a combination of both unique and not null constraint.
- ⑨ In a table, it will accept more than one column as a foreign key.
- ⑩ In a table if the columns want to become a foreign key must and should primary key should present on its known table.
- ⑪ Foreign key is present in child table but it belongs to parent table.
- ⑫ Foreign key is called as referential integrity constraint.

Example

Employee table

varchar(5) varchar(10) number(10) number(3)

eno	ename	sal	phno	repno
1	Renu	5000	12345-----	16
2	Shyam	7000	7799-----	20
3	Gupta	60	995-----	1
4	Sita	10000	7100-----	30
5	Reetu		7656-----	10

Department table

Dep No	DName	Locality
10	Sales	hyd
20	Accounting	Bangalore
30	operation	Paris

difference between primary key and foreign key.

primary key foreign key.

It will not accept duplicate values.

② Not accept Null values.

③ Combination of unique and not null constraint

④ It will accept only one column as a primary key

① It can accept duplicate values.

② Accept Null values.

③ Not a Combination of unique and not null constraint

④ accept more than one column as a foreign key.

primary key

① It will not accept Null value

② It will accept only one column as a primary key

③ It will accept unique constraint

Unique Constraint

There will be at least 1

① Can accept 1 null value.

② It will accept ~~more than~~ number of columns at can unique constraint.

Types of SQL / Statement of SQL Subset of SQL

- (1) DDL : (2) DML (3) TCL (4) DCT (5) DQL.
Data definition Data manipulation Transaction control Date control Data Query language

(1) DDL: Data definition language
Data query language

the data from the database?

types of dql command:

- (1) Select , (2) projection (3) Selection (4) Joins:
Select :- It is used to retrieve or fetch the data from the table.
- (2) projection :- It is used to retrieve or fetch the data by selecting only the columns called as the projection.
- (3) Selection :- It is used to retrieve or fetch the data by selecting rows and columns as called Selection.
- (4) joins :- It is used to retrieve or fetch the data from the multiple tables simultaneously is called joins.

(5) ~~projection~~ :- It is used to retrieve or fetch the data by selecting ~~rows and columns~~ as called as projection.

syntax : Select * | ColumnName | Expression | distinct
| after | from Table-Name;

Emp ID	Employee Name	Salary	Dep No
1	Bold	1000	10
2	Mike Smith	2000	20
3	Miller	3000	30
4	Smith	4000	40

Write a query to display
ename of all the Emp.

Select ename from emp.

Order of Execution:

- ① From (first first the 'from' clause will execute).
- ② Select (After from 'select' clause will execute);
- from clause will be executed first. The job of from clause will go to the database and search for the table and put the table under the execution.
- In from clause always we should pass table name as an argument.
- After the from clause select clause will be executed.
- The job of select clause will go to the table which is under the execution and display the column mentioned it.
- In select clause we can pass column name as an argument.

eno	ename	salary	d-no
1	Bold	1000	10
2	Mike	2000	20
3	Miller	3000	30
4	Smith	4000	40

Write a query to display
ename of all Emp.

Select ename from
emp.

Q Write a query to display salary of all the emp.

→ Select salary from Emp;

→ ~~W A Q T D~~, Dep No from Emp;

Select DepNo from Emp;

① ~~W A Q T D~~, All the details of Employee from the emp table.

Select * from Emp; OR ~~Emp~~. Select Emp.*;

② ~~W A Q T D~~, department no, sal, job and Ename of all Emp;

→ Select depNo, sal, job, Ename from Emp;

③ ~~W A Q T D~~, all the details of Emp. from the department table

→ Select * from dept.

④ ~~W A Q T D~~, D.no and location from the dept table

→ Select d_no, location from department

⑤ ~~W A Q T D~~