**MYSQL**

**Database:**

🡪 A database is an organized collection of data, so that it can be easily accessed and managed.

🡪We can organize data into tables, rows, columns, and index it to make it easier to relevant information.

File: Unchange/update/can’t organize the data in the file.

🡪A file is a collection of data that is stored on a computer system, and is used to manage, organize, and store data.

API-Application programming Interface.

🡪API is the messenger that delivers your request to the provider that you’r requesting it from and then delivers the response back to you.

Excel-Security;Storage

🡪Excel is widely used for various purpose because the data is easy to save, and information can be added and removed without any discomfort and less hard work.

**DBMS:**

🡪DBMS stands for Database Management System.

🡪It is a software used to manage database.

🡪We can store the data in the form of tables.

🡪It is an interface between user and database.

USER----------------------DBMA---------------------DB

Challenges of DBMS:

1.Relations are not possible for accessing the data.

**RDBMS:**

🡪RDBMS stands for Relational Database Management System.

🡪We can store the data in the form of tables and can also map them from locations.

🡪A RDBMS is a program used to create, update, and manage relational databases.

🡪It will retrieve the data very fastly.

🡪The operations will be very effective.

Database is mainly of two types:

1. RDBMS

RDBMS features :-

* Easy to access and manipulate data.
* Less redundency (duplication of data).
* More security.
* Supports data sharing.
* Supports transactions.

2.Non-RDBMS

🡪It is database, which stores the data in the form of key values.

🡪A non relational database (NoSQL) is a database that doesn’t use the tabular structure of rows and columns found in the most traditional relational database management system.

🡪NoSQL database examples include MongoDB, BigTable, Redis, Cassandra and CouchDB.

MYSQL Database:

🡪MySQL (mysql refers to server platform sql language) with sql (structured query language)

🡪MySQL is a RDBMS that stores and manages data.

🡪MySQL is a RDBMS developed by Oracle that is based on structured query language.

🡪It is not a programming languages.

---------To create a project we need---------

1.Front-end – to view the data

2.Back-end – interaction between the data and programming.

3.Database – Storage; provides space to store the applications.

Database Components:

These are two types:

1. Client

🡪A client is a person or organization that receives servers or device from a professional or business over a long period of time.

1. Server

🡪A server is a computer system that stores, computes, and manages data, devices, and systems over a network.

Mysql uses 2 types of commands:

1.DDL commands: Data Defination Language

2.DML commands: Data Maniculation Language

DDL Commands:

1. Create- to create a database, tables.

create table tablename

1. Alter- update-add a row/column.

alter table tablename

Add colname datatype(size)

1. Drop- delete the records from the database.

drop table tablename

1. Truncate- remove the record from the table.

Truncate table tablename

1. Rename- rename the table or records in the existing database.

DML Commands:

1.Insert- inserts data into a table.

2.Update- updates the existing data within a table.

3.Delete- delete the records from the database of a table.

4.Call- PL/SQL; java programming.

Datatypes:

1.CHAR(Size)- a fixed length string character are allowed.

2.VARCHAR(Size)- a variable string length.

3.BINARY(Size)- equal to CHAR; default it will be 1.It is used for storing binary data.

4.TEXT(Size)- It holds a string with a max length of 65, 535 bytes.

5.TINYTEXT(Size)- holds a string with a max length of 255.

**Clauses and operators:**

We have different types of clauses:

1. Where clause:It is used for the filtering purpose.

🡪Mainly used for particular record in the clause.

Syntax: select colname from tablename where condition

Example:select emp\_name from employee where emp\_id=’101’;

1. AND,OR,NOT:It is used to filter the records.

AND:If we wanted to display a record, if all the conditions are satisfied.

cond1 cond2 result

T T T

T F F

F T F

F F F

Syntax:

select col1,col2 from tablename where cond1 and cond2 and col3;

OR:If any one condition is satisfied then the result will be true.

cond1 cond2 result

T T T

T F T

F T T

F F F

Syntax:

Select col1,col2 from tablename where cond1 or cond2 or cond3;

NOT: Display the records when condition fails.

cond1 result

T F

F T

Syntax:select col1,col2 from tablename where not condition.

1. Orderby:sorting the records(ascending order/descending order)

Syntax:select col1, col2 from tablename order by col1, col2, desc;

1. Insert into:Used for inserting the new record into already existing table.

Syntax:insert into tablename (col1, col2, col3) values (n1,n2,n3);

1. Select clause: To display/to obtain the data from particular table.

Syntax:select \* from tablename;

1. Update:Modify or changing the existing values.

Syntax:update tablename set col1=val1, col2=val2, where condition;

1. Delete:Delete the existing records from the table.

Syntax:delete from tablename where condition;

1. Limit:Used to specify the number of records to return.

Syntax:select colname from tablename wher condition limit number;

1. Min & Max:Functions

Min():Returns the minimum value of the selected column of a table.

Syntax:select min(colname) from tablename where condition;

Max():Returns the max value of the selected column of a table.

Syntax:select max(colname) from tablename where condition;

1. Like: Operator, it is used in the where clause(to obtain the specific pattern).

Syntax:select col1,col2 from tablename where col1 like pattern;

%a--------finds names ending with ‘a’

a%--------finds names starting with ‘a’

\_a%-------finds name whose second letter is a

a\_%-------starts with 2 and continues till 2 characters.

1. In: It allows us to specify multiple values in where clause.

Syntax:select colname from tablename where colname in (val1, val2,..);

Example:from employees table

Select \* from employees where state in(‘AP’,’Telangana’,’Bihar’,’Delhi’);

1. Between:It is used to selects the middle value from a range of values.

Syntax:select colname from tablename where colname between val1 and val2;

1. Avg():Return the average value of a particular col;

Syntax:select AVG(colname) from tablename where condition;

1. SUM(): Gives the total of the numbers present in a column.

Syntax:select SUM(colname) from tablename where condition;

1. COUNT: Returns the number of records which satifies our condition;

Syntax:select COUNT(colname) from tablename where condition;

1. Groupby: It groups the data which is present in the rows with same values.

GROUP BY clause converts detailed data to summarized data which is useful for analysis.

Syntax:select colname from tablename where condition group by colname order by colname;

**Joins:**

🡪Joins are used with select statement.

🡪Combining data from two or more tables based on related columns.

🡪It is used to retrieve the data from multiple tables from same database.

🡪Fetching the records from different tables will be very easy.

🡪There are three types of MySQL joins:

1.Inner Join

2.Outer Join

3.Right Join

1.Inner Join (Simple Join)

* Returns only rows where there is a match in both tables being joined.
* In order to return all the rows from multiple tables where the join condition is satisfied.
* This is the most commonly used joins in MySQL.

Syntax: select columns from table1 inner join table2 on table1.col1=table2.col1;

2.Outer left join:

* Returns all rows from the left hand side table and all the from right hand side table by satisfying the join condition.

Syntax: select cols from table1 left outer join table2 on table1.col=table2.col;

1. Right join:

* Return all rows from the right hand table rows on to the right table by satisfying the join condition.

Syntax: select cols from table1 right join table2 on table1.col=table.col;

1. Self Join:

* It is the basic join.
* The data/rows in the table are combined/joined with the same data/rows in the same table.

Syntax: select col\_name from table1, table2 where condition;

1. Cross Join:

* It will return all the records from both the tables (table1 & table2).

Syntax: select col\_name from table1 cross join table2;