**DATABASE MANAGEMENT SYSTEM**

**Static (with no user interface) Dynamic(with user interface)**

No programming Programming

Database

DBMS : Database Management System :

DBMS is just a software that provided facility to store data.

It is useful to :

To store large amount of data

Provides backup facilities

Provides facility to import/export data

Provided concurrency of data

Provided security to data

Data is managed in two way :

1. Relational Database Management system : It provided many database softwares to store your data in well-defined manner.

Mysql, mssql, oracle, mongodb ,MSAccess ……

1. Non-relational : excel, graph, table

Database : Database is the collection of multiple records that is stored in form of table.

Employees

Student

Expenses

Training

Fee structure

SQL : Structured Query Language : It provided some pre-defined manner of queries that is used to create and manipulate data in database.

Queries : Queries are command to fetch a specific part from large amount of data.

Types of language of SQL:

In Database table each column is known as **fields** and rows is known as **tuples**.

DDL : (Data Definition Language ) : DDL is used to apply queries on table schema.it provided some commands/queries that is applies on table schema.

Create

Alter

Truncate

Drop

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DML : (Data Manipulation Language)

DCL : Data Control Language

TCL : Transaction control language

Create :

To create database :

Syntax :

Create database database\_name;

Ex :

Create database Techpile;

**To select a database :**

Use database\_name;

Ex : use techpile;

**To create a new table :**

**Table :**

1. Table\_name
2. Schema create

Syntax to create a field :

Field\_name datatype(size);

char(100),varchar(200),text,mediumtext,

**Syntax to create table :**

Student Table : id , name , mobno, fee

Create table table\_name

(

Id int(5),

Name char(50),

Mobno char(20),

Fee float

);

**To display table structure / schema :**

Desc table\_name;

**To show all table list in a database :**

show tables;

show databases;

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Set primary key : does not allowed duplicate value to insert in a column set as primary key.

Default value : Default value is a value that sets automatically when we does not pass any value at the time of insertion in this column;

Null : Null is a property of columns that allows user to left it blank.

Write a query to design a employee table with emp\_id-PK and auto-increment , emp\_name that can not be blank , salary with default value of 20000, and post that can be blank.

Create table employee

(

Empid int auto\_increment primary key,

Emp\_name varchar(50) not null,

Salary int default 20000,

Post varchar(50)

);

Popular data type :

Integer

Char(20) : Static string collection

Varchar(20) : dynamic string collection

Timestamp : save time in form of seconds

Enum

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**Insert query :**

**Syntax :**

**To insert record in all columns :**

Insert into table\_name values(value\_1,value\_2,……);

Example :

Insert into student values(1,’Nidhi Maurya’,’8065433232’,4000)

Insert student value(2,’Rohit Maurya’,’8088433232’,5000);

**To insert records in specific columns :**

Insert into table\_name value(column\_name1,column\_name2..) value(value\_1,value\_2…)

**To insert multiple records :**

Insert into student values(1,Nidhi Maurya’,’8065433232’,4000), (1,’Nidhi Maurya’,’8065433232’,4000) , (1,’Nidhi Maurya’,’8065433232’,4000), (1,’Nidhi Maurya’,’8065433232’,4000);

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**To display table record with schema :**

Select \* from table\_name;

Select \* from student;

TBL\_COURSE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SR | COURSE\_NAME | SEATS : 60 | START\_DATE | HOD |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Curdate() : current date

Now() :get current date time

**Alter Command : To make any changes in the schema of table alter command is used.**

**Many type of changes we can made in schema of existing table :**

1. **to add a new column in table**

alter table table\_name add column\_name data\_type(size);

ex : alter table tbl\_course add HOD varchar(50) default ‘Mr. XYZ’;

alter table tbl\_course add HOD varchar(50) default ‘Mr. XYZ’, add second\_column data\_type(size);

1. **To add a new column as the first column of existing table.**

**Alter** table table\_name add column\_name data\_type(size) first;

1. **To add a new column in middle of existing table.**

Alter table table\_name add column\_name data\_type(size) after column\_name;

1. **To delete a existing column of a table.**

**Alter** table table\_name drop column\_name;

1. **To change name of any column**

**To make any change in the definition of a existing column name , u can use modify keyword with alter command.**

1. **To change definition of existing column**

**Alter** table table\_name modify column\_name new\_data\_type(size);

**Ex :** alter table tbl\_course modify hod varchar(50);

**Alter table** locations change state\_province state varchar(25);

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**Select : S**elect is used to fetch records from database. Select query is used to get a part of data from the huge amount of data.

**To select all stored data from table :**

**Select \* from table\_name;**

SELECT \* from table\_name

**Select a specific column values from table :**

**Select column\_name,……… from table\_name;**

**Select** sn,name from student;

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To select specific record from table we apply condition :

To apply condition with query we use **where** clause:

> : select \* from student where fee>5000;

< : select \* from student where id<3;

>= : select \* from student where id>=3;

<= : select \* from student where id<=3;

=

<> : is not equals to

**And :** where you have to apply 2 conditions on a single row then we use and operator.

select \* from ststudent where tfee=0 and batch<>'Free Course'

Ex :

select \* from student where id<=3 and name='kajal';

**or :** select \* from ststudent where batch='Batch1' or Batch='Batch2'

select \* from ststudent where tfee=0 or batch='batch1'

In : select \* from student where name=’Divya’ and mobno=’8090877665’

select \* from stdailytask where batch not in ('Batch1','Batch2');

select all records from table which has batch1 or batch2 value in batch column.

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not in : select \* from stdailytask where batch in ('Batch1','Batch2');

Between : select \* from stdailytask where id between 1 and 10;

select emp\_name from employee where salary between 10000 and 20000;

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Is Null : select \* from ststudent where batch='Batch1' and picture is null

Is not null : select \* from ststudent where batch='Batch1' and picture is not null

where id=2or id=5

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Order by : select \* from ststudent where batch='Batch2' and picture is null order by name asc

Asc : for ascending order

Desc : for descending order

Like :

Where name like ‘%divya’

Like ‘divya%’ divya

Divya rai

Divya singh

Divya Srivastava

Where name like ‘%kumar%’

--------kumar--------

select \* from ststudent where college like '%Ambedkarnagar';

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Aggregate Function : Aggregate function are those functions that returns a single value after the calculation on database table.

Sum() :

Count() : select count(id),uname from sttasksubmit ;

Min()

Max()

Avg()

Select sum() from table\_name

Select count() from table\_name

Select min() from table\_name

select sum (salary ) from ;

update : update command is used to change any value in already inserted record of table.

Sytax : update table\_name set column\_name=value where <condition> ;

update student set mobno='4656456456',name='Techpile' where fee is null ;

DDL : Data definition language

Create

Alter

Drop

Truncate

rename

DML : Records

Insert

Delete

Update

Select

Delete : delete command is used to delete a complete row from the table.

U can use conditions in multiple way to perform delete operation on specific records.

Syntax :

Delete from table\_name where <conditions>;

Ex:

Delete from student ;

Truncate : truncate is used to delete all records of the table permanently. No conditions can be applied with the truncate command.

But it saves the schema / structure of table.

Syntax :

Truncate table table\_name;

Ex : truncate table employee;

Delete from employee;

Drop : Drop is used to erase the existence of table. Drop command is used to delete table records with structure.

Syntax :

Drop table table\_name;

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Update student set name=NULL where name=’Divya’

Rollback :

Syntax:

Rollback;

To remove autocommit :

Set autocommit=0;

Commit;

Rollback;

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Primary key :

Unique key :

Candidate key : When

create table tbl1

( id int primary key , name varchar(40) primary key , course varchar(40) );

create table mytbl (id int,

name char(50),

course varchar(50),

primary key(id,course));

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Distinct : Distinct clause is used to select unique records from the table. Distinct keyword is used to select unique records.

Syntax :

Select distinct column\_name,….. from table\_name;

Group By :

select name,sum(fee) from student group by name;