DATABASE

Microsoft SQL Server :

1. Microsoft SQL Server – 2019 –(server)
2. Microsoft SQL SERVER MANAGEMENT STUDIO (SSMS) – 2018 (software with GUI)

MYSQL, ORACLE, MSACCESS, MSSQL : Techpile@0987654

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DBMS : DBMS stands for database management system. It provides concept to store and manage data for future use. In DBMS data can be managed in many format like file format, table format, json format, key value format etc.

RDBMS : RDBMS stands for relational database management system. Here data is stored in form of table(Rows and columns).

Benefits to use RDBMS over file system is it is :

Easy to use

Easy to access

Easy to update , easy to search any particular data in large , Redundancy free data etc.

Many applications of RDBMS is present in market where you can store and manipulate the data , like MSACCESS, MYSQL, MSSQL, ORACLE, etc.

In RDBMS data is kept in form of Tables where tables are the collection of logically related records.

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To perform any action in any RDBMS software the language that is used is SQL(Structured query language).

**Terminology of RDBMS :**

Schema : Structure of Table

Fields : Columns

Records : Rows

Tuples : Rows

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SQL : SQL stands for Structured Query Language. It is a language that is used to perform any operation in RDBMS. It provides pre-defined syntax of queries that is used for transactions in Database.

So SQL queries are used to store, manipulate and retrieve any part of data in RDBMS.

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According to the working SQL queries are divided into 4 parts :

SQL :

1. DDL(Data Definition Language)
   1. Create
   2. Alter
   3. Drop
   4. Truncate
2. DML (Data Manipulation Language)
   1. Insert
   2. Delete
   3. Update
   4. Select
3. DCL(Data Control Language)
   1. Grant
   2. Revoke
   3. rename
4. TCL(Transaction Control Language)
   1. Commit
   2. Rollback
   3. Savepoint

RDBMS :

Database : Database is the collection of Tables where tables are the collection of rows and columns. Table contains logically related records.

Database

…>

Tables

...>

Records

create database techpile\_db

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

Table = Schema(Structure of the table) + Records

DDL DML

Create : Create is a DDL command. It is used to create database, tables, views, functions, stored procedures, triggers etc.

**Syntax to create DB :**

Create database database\_name;

**Syntax to create tables :**

Create table table\_name

(

Column\_name data\_type(size),

.

.

);

Data Types : Data types defines type of value that a column may hold.

Smallint

Int : 4 byte : 2^16

Bigint

Float

Date

Datetime

Char(20) -fixed length char sequence

Varchar() – variable length char sequence

Text

Nchar()

Nvarchar()

Money

bit

ntext

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Create a table to store students records with following columns :

Rollno

Name

Fee

Course

Mobno

Emailed

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Difference between SQL and NoSQL

Difference between DBMS and RDBMS

What is server

What is SQL

What is Schema, Fields, Attributes, Tuples, Records, Data

Insert : Insert is a DML command. It is used to add a new row in pre-created schema.

By using insert, you can not add any value to the pre-existing rows, each time insert will add a new record in the table.

Syntax :

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

**Syntax to add values in specific columns :**

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

**insert multiple record at once :**

insert into table\_name values(),(),();

insert into table\_name (column\_name\_1,column\_name\_2,……,column\_name\_n)

values(), (), ()

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**Constraints : Constraints** are some rules to the columns. Constraints are some keywords that applies rules and regulations on the value that is inserted in the table.

Constraints defines some restrictions on the value of columns.

Constraints are applied on the columns of table.

It can add by using create command or alter command.

**Type of Constraint :**

**NOT NULL :** A not null type column does not accept NULL values. Each time you have to pass a value in the Not NULL type column.

Create table student

(

Name varchar(50) not null

);

**Default :** Default constraint is used to apply a default value for column. When user left it NULL then except NULL external default value is passed to the column.

Create table student

(

Course varchar(50) default ‘B.tech(C.S)’

)

**Check :** check constraint is used to apply condition before any record insertion in column. If check constraint is applied to the column then any value will be added only if it satisfies the condition.

Column\_name data\_type(size) check (condition)

Ex:

Create table student

(

Age int check (age>=18),

Fee int check(fee>=0)

)

**Primary key : Primary** key is used to uniquely identify each record of table. A primary key type column never accept redundant value, it does not accept NULL value to.

A table may have only a single primary key type column. Each table must should have a primary key type column.

Ex:

Create table student

(

Email\_id varchar(100) primary key

)

**Unique key : A** unique key type column is also used to uniquely identify each record of table.

Unique key= Primary key + NULL value

Ex :

Create table student

(

Rollno int unique

)

**Foreign key : Foreign** key is used to create connection within two or more tables. A primary key type column of a table may perform as a foreign key in another table.

Foreign key is mostly used in joining to select records from two or more tables.

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Auto Increment Column : Auto increment column is a int type column which value is automatic inserted for each new record. In MSSQL auto increment is known as identity . So identity is property of column which inserts unique value automatic.

In MSSQL any external value for identity column is not acceptable.

Syntax :

Column\_name data\_type(size) identity(start\_value, increment\_value);

Create a table named tbl\_student with following columns rollno , name , age , course , mobileno, email\_id

Rollno should be identity

Name and mobileno is not null type

Default value of course is Diploma

Email\_id is a primary key type column

Age of student should be greater than 18

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Create table tbl\_student

(

Rollno int identity(101,1),

Name varchar(50) not null,

Age int check(age>=18) not null,

Course varchar(50) default ‘Diploma’,

Mobile\_no bigint not null,

Email\_id varchar(100) primary key

)

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Select : select is a DML command, it is used to retrieve any part of data from large amount of data from database.

Select is the maximum used query of SQL.

**Syntax :**

Select column\_name(s) from table\_name;

**Select specific rows with condition :**

Select column\_name(s) from table\_name where <condition>

**Operators in Condition:**

=

>

<

>=

<=

<>

And

Or

In

Not in

Is null

Is not null

Between

Like

select name,email,mobno from ststudent

select \* from ststudent

select \* from ststudent where course='b.tech(C.S)'

select \* from ststudent where regid>=10000

select \* from ststudent where tfee<4000

select \* from ststudent where name<>'dv'

select \* from ststudent where name<>'dv' and

course='B.Tech(c.s)'

select \* from ststudent where course='Diploma(C.S)' or course='Diploma(I.T)'

Select \* from ststudent where (course='Diploma(c.s)'

or course='Diploma(i.t)') and year='First'

select \* from ststudent where course in ('Diploma(c.s)'

,'diploma(i.t)','bca') and year in('First','Second')

select \* from ststudent where course not in('Diploma(c.s)',

'Diploma(I.t)')

select \* from ststudent where course='Diploma(C.S)'

and (regid>5000 and regid<10000)

select \* from ststudent where regid between 5000 and 10000

select \* from ststudent where uname='amanst203339'

select \* from ststudent where picture is null and fathername is not null