Types of DBMS

Hierarchical DBMS, Network DBMS, Relational DBMS(Tables), Object oriented DBMS.

SQL

A standardized programming language which is use for relational databases.  
With SQL you can modify databases, add, update and delete rows of data, retrieve subset of information from a database and more.  
Relational database like MySQL databases, Oracle, MS SQL Server, Sybase etc use SQL.  
Queries and other SQL operations are written as statements. Example: select, insert, add, update, delete, create, alter, truncate.

What is PostgreSQL ?

PostgreSQL is an open-source object relational database system with 30+years of active development in the industry.

Features of PostgreSQL

Data type, Data Integrity, Performance, Reliability, Security, Extensibility.

Install in ubuntu

Sudo apt update #to update the repository

Sudo apt install postgresql pastgresql-contrib #install postgresql

Sudo -i -u postgres #using postgres user  
psql #Enter postgres command line  
postgres-# \q #to quit postgres

Directly go to interface of postgresql

Sudo -u postgres psql

Postgres=# \conninfo # Show the data (database, user, socket, port)

**Create a user and database**

Sudo -u postgres createuser –interactive  
Enter name of role to add: linuxdb  
Shall the new role be a superuser? (y/n) y

Sudo -u postgres createdb linuxddb #creating database

Sudo -u linuxdb psql #to enter the db of linuxdb user

Install in Windows through installer.  
password – askme123

Zip file extraction

Initdb.exe -U postgres -A password -W -D C:/(path)

pg\_ctl -D ^"C^:^\Postgre^\db^\data^" -l logfile start

Open postgresql command line – sudo su postgres -c psql template1

SQL Shell

\l – #**list of databases**

Create database db\_name; #create a new database

\c db\_name #**swap between database**

Can’t delete current database . To delete a database we have to switch to another database.

Drop database school; #Delete the database

Create Table

Create table tb\_name(id integer not null primary key, fname text not null, lname text not null, age integer not null)

\d #To see table list

Drop table tb\_name; #Delete table

**SQL statement to create a table**

CREATE TABLE person(

id BIGSERIAL NOT NULL PRIMARY KEY,

first\_name VARCHAR(50) NOT NULL,

last\_name VARCHAR(50) NOT NULL,

gender VARCHAR(7) NOT NULL,

date\_of\_birth DATE NOT NULL,

email VARCHAR(150));

Create schema new\_schema #create schema

Drop schema new\_schema #Delete schema

The SQL schema contains multiple database objects like tables, views, sequences, functions, triggers etc.

**Insert data in table(single data)**

INSERT INTO person (first\_name, last\_name, gender, date\_of\_birth)

VALUES ('Priti', 'Mahanta', 'Male', date '1989-10-28');

Select \* in tb\_name #select the data from table

Insert data table

Insert into tb\_name values (2,’Rohit’,’Sharma’,18);

**Insert multiple data in the table**

Insert into tb\_name values (2,’Rohit’,’Sharma’,18), (3,’Sonam’,’Baichung’,21),-----;

Select keyword:

Select \* from tb\_name; #Show all the data in the table

Select id, fname from tb\_name; #Show data in id and fname

**ORDER BY**

Ascending and Descending order.

SELECT \* FROM person ORDER BY first\_name ASC;

SELECT \* FROM person ORDER BY first\_name DESC;

**DISTINCT**

Give only one distinct or unique value in the column or eliminate duplicate from column.

SELECT DISTINCT column1 FROM table\_name ORDER BY column1;

here we get the unique values then order them ascending.

**WHERE clause and AND**

allows to filter the data with condition.

SELECT \* FROM table\_name WHERE conditions AND/OR condition2 OR/AND condition3;

SELECT \* FROM person WHERE gender = ‘male’;

select all the male gender from the table.

**Comparison Operator**

< less than

> greater than

<= less than equal to

>= greater than equal to

<> not equal

**Limit, Offset and Fetch**

SELECT \* FROM table\_name LIMIT 10;

Select first 10 record from the table.

SELECT \* FROM table\_name OFFSET 5 LIMIT 5;

Select 5 rows after 5 number row means it will select 6,7,8,9,10 from the table.

SELECT \* FROM table\_name OFFSET 5 FETCH FIRST ROW ONLY;

This statement will select only one row after 5th row .

SELECT \* FROM table\_name OFFSET 5 FETCH FIRST 5 ROW ONLY;

This statement will select 5 rows after 5th row . 6,7,8,9,10th row.

**IN**

‘In’ keyword take an array as input return the matching result.

SELECT \* FROM table\_name WHERE country\_of\_birth IN (‘China’, ‘Brazil’, ‘France’);

Select the row having China Brazil and France as input from country\_of\_birth column.

**BETWEEN**

A range

SELECT \* FROM table\_name WHERE column BETWEEN

SELECT \* FROM table\_name WHERE date\_of\_birth BETWEEN DATE ‘2000-01-01’ AND ‘2003-01-01’;

Select all the rows between date of birth 2000 to 2003.

What is a database?

Store, manipulate, retrieve data from oneplace.

SQL – Structured Query Language

* Mange data held in a relational database
* easy to learn
* very powerful
* 1974
* used all over internet

Data stored in table.

Relational database means relation between two more tables.

PostgreSQL -

* Object-relational database management system.
* Modern
* Open source

QUERY EDITOR

Select version()

1. How to get first ‘N’ record in PostgreSQL?

SELECT \* FROM tableName LIMIT N #GET THE FIRST N RECORDS

SELECT \* FROM tablename ORDER BY Salary DESC LIMIT N #show N records in descending order.

1. What is pgAdmin?

It is a developer friendly interface or GUI. Write the queries, pull the data, do the development.

1. How to change or alter datatype of a column?

Alter keyword which helps to modify the structure of the table.

1. What is table Partitioning?

Partitioning splits the data multiple logical files. Helps to improve performance of the table.

1. Different type of Commands?

DDL – Data Definition Language Commands

CREATE

DROP

ALTER

TRUNCATE

DML – Data Manipulation Language

DELETE

UPDATE

INSERT

DCL – Data Control Language

GRANT

REVOKE

TCL – Transaction Control Language

COMMIT

ROLLBACK

SAVEPOINT

DQL – Data Query Language

SALECT