# PostgreSQL

SQL: structured query language (to interact with the database)

**Data:** collections of facts/ information.

Audio, text, visual, images………….

**Database**: storage that stores the data permanently, categorical storage of data.

**Database management systems (DBMS)**: software that allows us to manipulate the database

Controls the data.

DBMS example: MySQL, MongoDB, PostgreSQL, Cassandra, SQL server, Hive , RedHat etc…………….


SQL data : structured, relational format  eg: tables MySQL, SQL server,

NO SQL data: dynamic, key value format, eg: mongoDB,


RDBMS: tables

Object relational db: tables

Sql and PostgreSQL:


Select * from table_name;


PostgreSQL:


Open-source object relational database system.

Open for all

History: 15 years

Post gress sql------------------ postgresql

Open RDBMS

**Features:**

Complex queries compatible with various programming language: c/c++, python, java.

Trigger

Views

Transactions

Multiversion concurrency control (MVCC), indexing,

Cross platform

Free downloading


Document data type: Xml, json/jsonb, key – value

Psql

phpPgAdmin

pgAdmin

pgFouine

pdDevOps


Dis Advantanges:

Slow than mysql.

**PostgreSQL – DataType:**

Sql shell (psql) – cli

 PgAdmin GUI

**Numeric:**

Integer

Decimal

Numeric

Bigint

Smallint

**Monetory Types:**

8 bytes ( currency amount)

**Character Types:**

Varchar

Character

char

Text (variable unlimited length)

**Binary Data Types:**

bytea (variable length binary string)

**Date/ Time Types:**

Timestamp

Timestamp 2334567

Origin date: 8 July 1996

Calculate years ➔ 26 years

1 year =365 days

26 years=== 26 * 365 = 9490 days + 6 months ( 180 days)

9670 days

1 day===24 hours

9670 * 24 ==➔ 232080 hours

1 hour == 60 min

232080*60 = 13924800

13924800


Date

Time

Time with zone

Interval


Boolean Type:
True/False 1 byte

Age Boolean;

Geometric Type:

 Point

Line

Box

Path

Polygon

Circles

**Array Type:**

Range Type:

Int4range: range of integers

Int8range

Numrange

OID( object identifier types):

Create table table_name ( column_name1, ………………)

create schema information;

CREATE SCHEMA

postgres=# <span style="color:red">set search_path to information;</span>

set search_path to information;

select * from students;

select * from information.students;

CRUD

Installed PostgreSQL
created a db

Select that particular database

Drop it/ delete database:

SQL commandS:

DDL: Data Definition Language eg: defining a table / <span style="color:red">on the table or on the database.</span>

- Create
- Drop
- Alter
- Truncate
- rename

Alter table table_name **action**;

DML: in the table.

- Insert
- Update
- Delete
- Lock


DQL : Data Query Language

- SELECT

DCL : Data Control Language

- Grant
- Revoke

TCL

- Commit
- Rollback
- Savepoint
- Set transaction


# Drop database db_name;

DETAIL:  There is 1 other session using the database.

postgres=# select pg_terminate_backend (pg_start_activity.pid)

postgres-# select pg_terminate_backend (pg_stat_activity.pid)

postgres-# select pg_stat_activity

postgres-# where pg_stat_activity.datname='bajaj';

ERROR:  syntax error at or near "pg_terminate_backend"

LINE 2: select pg_terminate_backend (pg_stat_activity.pid

## PostgreSQL commands:

Drop database db_name;

Create a table

Select / Retrieve a particular table_data

Delete that table

select * from information.students;

/*

*/

--

-- DDL Command--> Alter

alter table table_name add column age integer;

-- Drop a column

alter table table_name

drop

column age;

```sql
select * from table;


-- reanme


alter table table_name
rename
column std_id to rollno;


-- rename the name of the table.
alter table table_name
rename to other_name;


-- changing the column type after creating the table
alter table table_name
alter column col1 type varchar(10)
alter column col2 type varchar;


--constraints (Add not null constraint)


alter table table_name alter column col1 set not null;


insert into table_name values( 1)


-- drop the not null constraint
```

```sql
alter table table_name alter column col1
drop not null;


-- primary key add constraint


alter table table_name
add
primary key (col1);


alter table table_name alter
drop primary key(col1);



-- alter table table_name drop constraint primary_key_constraint;


-- alter table stu_info drop constraint stu_info_pkey;
```