

## 1 Creating database- create database anurag;

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# create database anurag;
CREATE DATABASE
postgres=# \l

      List of databases
  Name | Owner | Encoding | Locale Provider | Collate | Ctype | Locale | ICU Rules | Access privileges
-----+-----+-----+-----+-----+-----+-----+-----+-----
 anurag | postgres | UTF8 | libc | en-US | en-US | | | =c/postgres +
 postgres | postgres | UTF8 | libc | en-US | en-US | | | postgres=CTc/postgres
 template0 | postgres | UTF8 | libc | en-US | en-US | | | =c/postgres +
 template1 | postgres | UTF8 | libc | en-US | en-US | | | postgres=CTc/postgres
(4 rows)

postgres=#
```

## 2. Connect to database- \c anurag

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag;
You are now connected to database "anurag" as user "postgres".
anurag=#
```

## 3. Deleting database- drop database anurag;

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# drop database anurag;
DROP DATABASE
postgres=# \l

          List of databases
  Name | Owner | Encoding | Locale Provider | Collate | Ctype | Locale | ICU Rules | Access privileges
-----+-----+-----+-----+-----+-----+-----+-----+-----
 postgres | postgres | UTF8 | libc | en-US | en-US |  |  | =c/postgres,+
 template0 | postgres | UTF8 | libc | en-US | en-US |  |  | postgres=Ctc/postgres,+
 template1 | postgres | UTF8 | libc | en-US | en-US |  |  | =c/postgres,+
          postgres=Ctc/postgres
(3 rows)

postgres=#
```

4. Creating table and inserting data-create table employee(ID int, name text, age int);

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# create table employee(ID int, name text, age int);
CREATE TABLE
anurag=# \d

          List of relations
 Schema | Name      | Type  | Owner
-----+-----+-----+-----
 public | employee | table | postgres
 public | employees | table | postgres
(2 rows)

anurag=#
```

5. Adding data to table: insert into employees(ID, name, age) values(1,'Anurag Srivastava',32);

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# insert into employees(ID, name, age) values(6,'Ajay',33);
INSERT 0 1
anurag=# select * from employees;
 id |      name      | age
-----+-----+-----
  1 | Anurag Srivastava | 32
  2 | Atharv Srivastava |  7
  3 | Priti Srivastava  | 37
  4 | Priyanka Srivastava | 35
  5 | Neelam Srivastava | 75
  6 | Ajay             | 33
(6 rows)

anurag=#
```

6. Retrieving Data from table: select \* from employees;

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# select * from employees;
 id |      name      | age
-----+-----+-----
  1 | Anurag Srivastava | 32
  2 | Atharv Srivastava |  7
  3 | Priti Srivastava  | 37
  4 | Priyanka Srivastava | 35
  5 | Neelam Srivastava | 75
  6 | Ajay             | 33
(6 rows)

anurag=#
```

7. Retrieving Data from table using filter: select name from employees;

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# select * from employees;
 id |      name      | age
-----+-----+-----
  1 | Anurag Srivastava | 32
  2 | Atharv Srivastava |  7
  3 | Priti Srivastava  | 37
  4 | Priyanka Srivastava | 35
  5 | Neelam Srivastava | 75
  6 | Ajay             | 33
(6 rows)

anurag=# select name from employees;
      name
-----
Anurag Srivastava
Atharv Srivastava
Priti Srivastava
Priyanka Srivastava
Neelam Srivastava
Ajay
(6 rows)

anurag=#
```

8. select \* from employees where ID=4;

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# select * from employees where ID=4;
 id |      name      | age
-----+-----+-----
  4 | Priyanka Srivastava | 35
(1 row)

anurag=#
```

9. Select age from employees where name = 'Anurag Srivastava';

```
SQL Shell (psql)
Server [localhost]:
Database [postgres]:
Port [5432]:
Username [postgres]:
Password for user postgres:
psql (17.4)
WARNING: Console code page (437) differs from Windows code page (1252)
8-bit characters might not work correctly. See psql reference
page "Notes for Windows users" for details.
Type "help" for help.

postgres=# \c anurag
You are now connected to database "anurag" as user "postgres".
anurag=# select age from employees where name = 'Anurag Srivastava';
 age
----
  32
(1 row)

anurag=#
```

## 10. Creating Virtual environment

```
File Edit Selection View Go Run ... python
EXPLORER
PYTHON
  env
  test.py
test.py
1 import psycopg2
2 conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
3
4 print("Connect Successfully")

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS
PS E:\python> cd env
PS E:\python\env> cd scripts
PS E:\python\env\scripts> activate
(env) PS E:\python\env\scripts> cd..
(env) PS E:\python\env> cd..
(env) PS E:\python> python test.py
Connect Successfully
(env) PS E:\python>
```

## 11. Connect to database using psycopg2

The screenshot shows the Visual Studio Code interface with a Python file named `test.py` open. The code in the editor is as follows:

```
1 import psycopg2
2 conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
3
4 print("Connect Successfully")
```

The terminal at the bottom shows the command `python test.py` being executed, resulting in the output `Connect Successfully`.

## 12. Create table using python

The screenshot shows the Visual Studio Code interface with a Python file named `test.py` open. The code in the editor is as follows:

```
1 import psycopg2
2 conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
3 cursor = conn.cursor()
4 cursor.execute('CREATE TABLE employees(ID int, name text, age int);')
5 print("Table Created")
6 conn.commit()
7 conn.close()
8
```

The terminal at the bottom shows the command `python test.py` being executed, resulting in the output `Table Created`.

## 13. Inserting data using python

The screenshot shows the Visual Studio Code editor with a file named `test.py` open. The code defines two functions: `table()` and `insert()`. The `table()` function creates a table named `employees` with columns `ID` (int), `name` (text), and `age` (int). The `insert()` function connects to a PostgreSQL database using `psycopg2`, inserts a record with `ID=1`, `name='Atharv Kumar Srivastava'`, and `age=7`, and then commits the transaction and closes the connection. The terminal shows the output of running `python test.py`, which is `Data Added Successfully`.

```
def table():
    cursor.execute('''CREATE TABLE employees(ID int, name text, age int);''')
    print("Table Created")
    conn.commit()
    conn.close()

def insert():
    conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
    cursor = conn.cursor()

    cursor.execute(''' insert into employees(ID , name, age)values(1,'Atharv Kumar Srivastava',7);''')
    print("Data Added Successfully")
    conn.commit()
    conn.close()

insert()
```

Terminal output:

```
(env) PS E:\python> python test.py
Data Added Successfully
(env) PS E:\python>
```

#### 14. Extracting data from database using python

The screenshot shows the Visual Studio Code editor with a file named `test.py` open. The code defines two functions: `insert()` and `extract()`. The `insert()` function is identical to the one in the previous screenshot. The `extract()` function connects to a PostgreSQL database using `psycopg2`, executes a `SELECT * FROM employees` query, fetches the results, prints them, commits the transaction, and closes the connection. The terminal shows the output of running `python test.py`, which is `(1, 'Atharv Kumar Srivastava', 7)`.

```
def insert():
    cursor.execute(''' insert into employees(ID , name, age)values(1,'Atharv Kumar Srivastava',7);''')
    print("Data Added Successfully")
    conn.commit()
    conn.close()

def extract():
    conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
    cursor = conn.cursor()

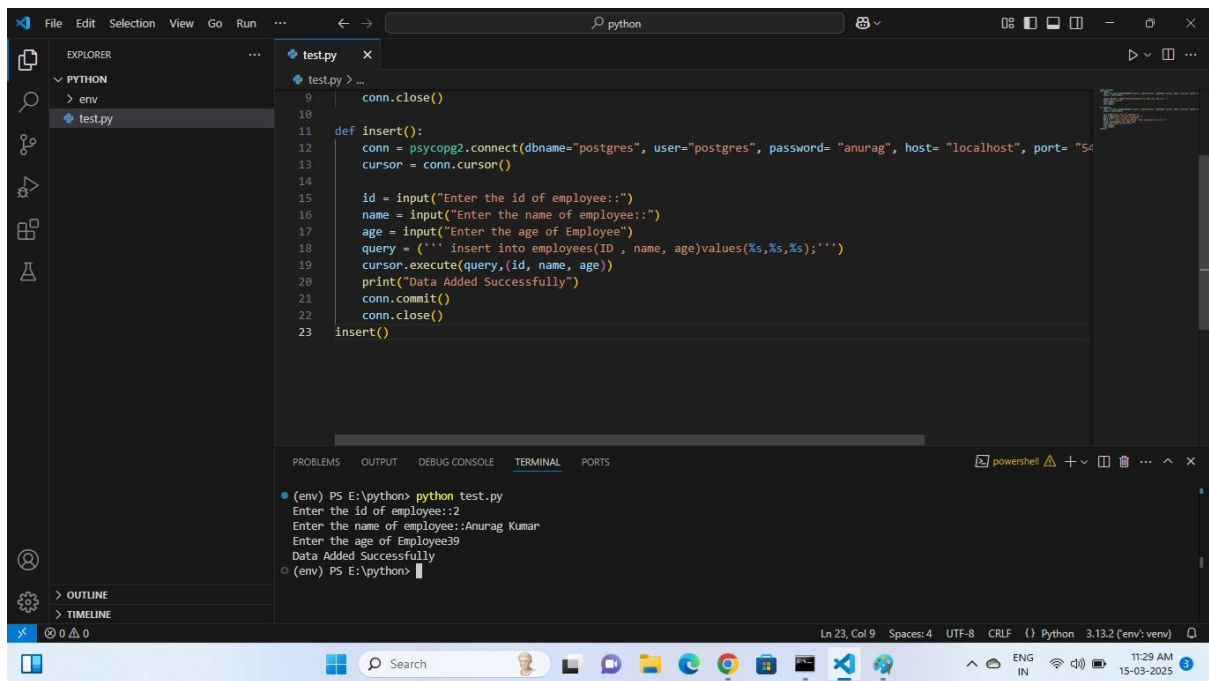
    cursor.execute(''' select * from employees;''')
    print(cursor.fetchone())
    conn.commit()
    conn.close()

extract()
```

Terminal output:

```
(env) PS E:\python> python test.py
(1, 'Atharv Kumar Srivastava', 7)
(env) PS E:\python>
```

## 15. Inserting data through user using python



```
File Edit Selection View Go Run ... python
EXPLORER
PYTHON
env
test.py
test.py
9 conn.close()
10
11 def insert():
12     conn = psycopg2.connect(dbname="postgres", user="postgres", password="anurag", host="localhost", port="5432")
13     cursor = conn.cursor()
14
15     id = input("Enter the id of employee::")
16     name = input("Enter the name of employee::")
17     age = input("Enter the age of Employee")
18     query = (''' insert into employees(ID , name, age)values(%s,%s,%s);''')
19     cursor.execute(query,(id, name, age))
20     print("Data Added Successfully")
21     conn.commit()
22     conn.close()
23 insert()
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
(env) PS E:\python> python test.py
Enter the id of employee::2
Enter the name of employee::Anurag Kumar
Enter the age of Employee39
Data Added Successfully
(env) PS E:\python>
```

Ln 23, Col 9 Spaces: 4 UTF-8 CRLF Python 3.13.2 (env: venv)









