

Assignment : 28

Full Stack Web Development using Python

Postgres DB

(5275) How To Download And Ins... x | 18th Sept Live Class Postgres - Fu... x | Assignment - 28 (1).pdf - Google... x | PostgreSQL - DROP TABLE - Geel... x | +

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Postgres DB

1. Create a table (student) with 3 columns (rollno, name, course).
2. Insert records for 4 students.

SQL Shell (psql)

```
Server [localhost]: localhost
Database [postgres]: postgres
Port [5432]: 5432
Username [postgres]: postgres
'chcp' is not recognized as an internal or external command,
operable program or batch file.
Password for user postgres:
psql (14.5)
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 table student (roll_no int, name text, course text);
CREATE TABLE
postgres=# insert into student values (1,'Ayush','Python');
INSERT 0 1
postgres=# insert into student values (2,'Jatin','Java');
INSERT 0 1
postgres=# insert into student values (3,'Dhruv','Postgres');
INSERT 0 1
postgres=# insert into student values (4,'Ankit','C++');
INSERT 0 1
postgres=# select * from student;
'more' is not recognized as an internal or external command,
operable program or batch file.
postgres=#
```

Page 1 / 1

Type here to search

32°C Haze 1:25 PM 2022-09-27

4. Update the student name of rollno 3 with 'Mohan'

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Browser' pane shows the database structure: PostgreSQL 14 > Databases (1) > postgres > Schemas (1) > public > Tables (1) > student. The 'student' table is selected. The main pane shows the 'Query' tab with the following SQL statement:

```
1 update student set name='Mohan' where roll_no=3;
```

Below the query editor, the 'Messages' tab is active, showing the execution result:

```
UPDATE 1
Query returned successfully in 89 msec.
```

At the bottom of the main pane, a status bar indicates 'Total rows: 4 of 4' and 'Query complete 00:00:00.089'. The bottom of the image shows the Windows taskbar with the search bar, various application icons, and system tray information including '32°C Haze' and the time '12:53 PM 2022-09-27'.

After Updation :

pgAdmin 4

File Object Tools Help

Browser

Servers (1)

- PostgreSQL 14
 - Databases (1)
 - postgres
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Publications
 - Schemas (1)
 - public
 - Aggregates
 - Collations
 - Domains
 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (1)
 - student
 - Trigger Functions
 - Types
 - Views
 - Subscriptions
 - Login/Group Roles
 - Tablespaces

Dashboard Properties SQL Statistics Dependencies Dependents postgres/p... postgres/p... postgres/post... postgres/post... postgres/p... pc < > ext.

postgres/postgres@PostgreSQL 14

No limit

Query Query History

1 select * from student;

Scratch Pad

Data output Messages Notifications

	roll_no integer	name text	course text
1	1	Ayush	Python
2	2	Jatin	Java
3	4	Ankit	C++
4	3	Mohan	Postgres

Total rows: 4 of 4 Query complete 00:00:00.181

Ln 1, Col 23

Type here to search

32°C Haze 12:54 PM 2022-09-27

5. Delete any student from table with their rollno.

Query : delete from student where roll_no=3;

After deletion :

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to show the 'public' schema, with the 'student' table selected. The main pane displays the 'Query' editor with the SQL statement: `select * from student;`. Below the editor, the 'Data output' tab shows the results of the query in a table format. The table has four columns: 'rollNo' (integer), 'name' (text), and 'course' (text). The results show three rows of data. At the bottom, a green status bar indicates: 'Successfully run. Total query runtime: 109 msec. 3 rows affected.' and 'Query returned successfully in 199 msec.'

	rollNo integer	name text	course text
1	1	Ayush	Python
2	2	Jatin	Java
3	4	Ankit	C++

Total rows: 3 of 3 Query complete 00:00:00.109

✓ Successfully run. Total query runtime: 109 msec. 3 rows affected.
✓ Query returned successfully in 199 msec.

6. Delete all the data from student table.

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Browser' pane shows a tree view of the database structure. The 'public' schema is expanded, and the 'student' table is selected. The main pane shows a SQL query editor with the following text:

```
1  -- Delete all the data from student table.  
2  
3  delete from student;
```

Below the query editor, the 'Messages' tab is active, showing the execution results:

```
DELETE 3  
  
Query returned successfully in 165 msec.
```

At the bottom of the interface, a status bar indicates 'Total rows: 0 of 0' and 'Query complete 00:00:00.165'. Two green notification boxes at the bottom right confirm the successful execution of the query.

Windows taskbar at the bottom shows the search bar, task view, and various application icons. The system tray on the right displays the temperature (32°C), weather (Haze), and the date/time (12:58 PM, 2022-09-27).

7. Drop the student table.

pgAdmin 4

File Object Tools Help

Browser

Servers (1)

- PostgreSQL 14
 - Databases (1)
 - postgres
 - Aggregates
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
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 - Collations
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 - FTS Configurations
 - FTS Dictionaries
 - FTS Parsers
 - FTS Templates
 - Foreign Tables
 - Functions
 - Materialized Views
 - Operators
 - Procedures
 - Sequences
 - Tables (1)
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 - Types
 - Views
 - Subscriptions
 - Login/Group Roles
 - Tablespaces

postgres/postgres@PostgreSQL 14

Query

```
1 -- Drop the student table.  
2  
3 drop table student;
```

Query History

Scratch Pad

Data output Messages Notifications

DROP TABLE

Query returned successfully in 96 msec.

Total rows: 0 of 0 Query complete 00:00:00.096

✓ Query returned successfully in 199 msec.

Type here to search

32°C Haze 1:00 PM 2022-09-27

8. Create Courses table (cid, cname) where cid is a primary key and Student table (rollno, name, cid) where rollno is a primary key and cid is a foreign key.

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to show the 'public' schema, with 'Tables (1)' highlighted. The main pane shows the SQL editor for the 'postgres/postgres@PostgreSQL 14' connection. The editor contains the following SQL code:

```
-- Create Courses table (cid, cname) where cid is a primary key and Student table
-- (rollno, name, cid) where rollno is a primary key and cid is a foreign key.
create table courses (cid int, cname text, primary key(cid));
```

Below the SQL editor, the 'Messages' tab is active, showing the message: 'CREATE TABLE' and 'Query returned successfully in 211 msec.' The status bar at the bottom indicates 'Total rows: 0 of 0' and 'Query complete 00:00:00.211'.

pgAdmin 4

pgAdmin File Object Tools Help

Browser Servers (1) PostgreSQL 14 Databases (1) postgres Casts Catalogs Event Triggers Extensions Foreign Data Wrappers Languages Publications Schemas (1) public Aggregates Collations Domains FTS Configurations FTS Dictionaries FTS Parsers FTS Templates Foreign Tables Functions Materialized Views Operators Procedures Sequences Tables (2) courses student Trigger Functions Types Views Subscriptions Login/Group Roles Tablespaces

Dashboard Properties SQL Statistics Dependencies Dependents postgres/p... postgres/p... postgres/post... postgres/post... postgres/p... pc < > ext.

postgres/postgres@PostgreSQL 14

Query Query History

```
1 create table student (roll_no int, name text, cid int, primary key(roll_no), constraint fk_courses
2 foreign key(cid) references courses(cid));
```

Scratch Pad

Data output Messages Notifications

CREATE TABLE

Query returned successfully in 126 msec.

Total rows: 0 of 0 Query complete 00:00:00.126 Ln 2, Col 50

Type here to search

32°C Haze 1:12 PM 2022-09-27

9. Insert data in both the tables.

The screenshot displays the pgAdmin 4 web interface. On the left, the 'Browser' pane shows the database structure: PostgreSQL 14 > Databases (1) > postgres > Schemas (1) > public > Tables (2). The 'student' table is selected. The main pane shows the 'Query' tab with the following SQL script:

```
1 insert into student values(1,'Ayush',1);
2 insert into student values(2,'Akash',3);
3 insert into student values(3,'Bhavesh',4);
4 insert into student values(4,'Jatin',2);
5 insert into student values(5,'Dhruv',5);
6 insert into student values(6,'Samarth',4);
7
```

Below the query editor, the 'Messages' tab shows the execution results:

```
INSERT 0 1
Query returned successfully in 8 secs 891 msec.
```

At the bottom, a status bar indicates 'Total rows: 0 of 0' and 'Query complete 00:00:08.891'. A green notification box at the bottom right states: 'Query returned successfully in 8 secs 891 msec.'

Query : select * from courses;

The screenshot shows the pgAdmin 4 interface. The left sidebar displays the database structure for 'PostgreSQL 14', with the 'public' schema selected. The 'courses' table is highlighted under the 'Tables (2)' section. The main query editor contains the following SQL query:

```
1 SELECT * FROM public.courses
2 ORDER BY cid ASC
```

The 'Data output' tab is active, showing the results of the query in a table with 5 rows. The status bar at the bottom indicates 'Total rows: 5 of 5' and 'Query complete 00:00:00.384'.

cid	name
1	Python
2	Java
3	Postgres
4	C++
5	Django

Query : select * from student;

The screenshot shows the pgAdmin 4 interface. The left sidebar displays the database structure for 'PostgreSQL 14', with the 'public' schema selected. The 'student' table is highlighted under the 'Tables (2)' section. The main query editor contains the following SQL query:

```
1 SELECT * FROM public.student
2 ORDER BY roll_no ASC
```

The 'Data output' tab is active, showing the results of the query in a table with 6 rows. The status bar at the bottom indicates 'Total rows: 6 of 6' and 'Query complete 00:00:00.479'. A green message box at the bottom right states 'Successfully run. Total query runtime: 479 msec. 6 rows affected.'

roll_no	name	cid
1	Ayush	1
2	Akash	3
3	Bhavesh	4
4	Jatin	2
5	Dhruv	5
6	Samarth	4

10. Select all the students who are doing a specific course, eg. Python.

The screenshot shows the pgAdmin 4 web interface. On the left, the 'Servers' tree is expanded to 'PostgreSQL 14' > 'Databases (1)' > 'postgres' > 'Schemas (1)' > 'public' > 'Tables (2)', with the 'student' table selected. The main pane shows a SQL query in the 'Query' tab:

```
1 select * from student where cid=(select cid from courses where cname='Python');
```

The 'Data output' tab shows the results of the query in a table with 1 row and 3 columns:

	roll_no [PK] integer	name text	cid integer
1	1	Ayush	1

The status bar at the bottom indicates 'Total rows: 1 of 1' and 'Query complete 00:00:04.582'. The system tray at the bottom shows the date and time as '2022-09-27 1:22 PM'.