

# FastAPI + PostgreSQL Docker Compose Assignment

This document shows successful FastAPI and PostgreSQL integration using Docker Compose, with SQL operations executed in pgAdmin.

## *FastAPI Health & DB Ping*



## *Create Table Query*

localhost:5050/browser/

pgAdmin File Object Tools Help admin@example.com (internal)

Object Explorer Servers (1) Local-DB Databases (2) fastapi\_db Casts Catalogs Event Triggers Extensions Foreign Data Wrappers Languages Publications Schemas Subscriptions postgres Login/Group Roles Tablespaces

fastapi\_db/postgres@Local-DB

Query Query History Scratch Pad

```
6 );
7
8 CREATE TABLE calculations (
9     id SERIAL PRIMARY KEY,
10    operation VARCHAR(20) NOT NULL,
11    operand_a FLOAT NOT NULL,
12    operand_b FLOAT NOT NULL,
13    result FLOAT NOT NULL,
14    timestamp TIMESTAMP DEFAULT CURRENT_TIMESTAMP,
15    user_id INTEGER NOT NULL,
16    FOREIGN KEY (user_id) REFERENCES users(id) ON DELETE CASCADE
17 );
18
```

Data Output Messages Notifications

CREATE TABLE

Query returned successfully in 103 msec.

## Insert Query Execution

localhost:5050/browser/

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fastapi\_db/postgres@Local-DB

Query Query History Scratch Pad

```
1 INSERT INTO users (username, email)
2 VALUES
3 ('alice', 'alice@example.com'),
4 ('bob', 'bob@example.com');
5
6 INSERT INTO calculations (operation, operand_a, operand_b, result, user_id)
7 VALUES
8 ('add', 2, 3, 5, 1),
9 ('divide', 10, 2, 5, 1),
10 ('multiply', 4, 5, 20, 2);
11
```

Data Output Messages Notifications

INSERT 0 3

Query returned successfully in 46 msec.

## Select Query Results

localhost:5050/browser/

pgAdmin

FileObjectToolsHelp

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Object Explorer

Servers (1)

Local-DB

Databases (2)

fastapi\_db

Casts

Catalogs

Event Triggers

Extensions

Foreign Data Wrappers

Languages

Publications

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Subscriptions

postgres

Login/Group Roles

Tablespaces

fastapi\_db/postgres@Local-DB

No limit

Query

Query History

Scratch Pad

fastapi\_db/postgres@Local-DB

1 -- All users

2 SELECT \* FROM users;

3

4 -- All calculations

5 SELECT \* FROM calculations;

6

7 -- Join users and calculations

8 SELECT u.username, c.operation, c.operand\_a, c.operand\_b, c.result

9 FROM calculations c

10 JOIN users u ON c.user\_id = u.id;

11

Data Output

Messages

Notifications

SQL

	username character varying (50)	operation character varying (20)	operand_a double precision	operand_b double precision	result double precision
1	alice	add	2	3	5
2	alice	divide	10	2	5
3	bob	multiply	4	5	20

## Update Query Execution

localhost:5050/browser/

pgAdmin File Object Tools Help admin@example.com (internal)

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fastapi\_db/postgres@Local-DB

Query Query History Scratch Pad

```
1 UPDATE calculations
2 SET result = 6
3 WHERE id = 1;
4
```

Data Output Messages Notifications

UPDATE 1

Query returned successfully in 54 msec.

## Update Query Results

localhost:5050/browser/

pgAdmin File Object Tools Help admin@example.com (internal)

Object Explorer Servers (1) Local-DB Databases (2) fastapi\_db Casts Catalogs Event Triggers Extensions Foreign Data Wrappers Languages Publications Schemas Subscriptions postgres Login/Group Roles Tablespaces

fastapi\_db/postgres@Local-DB

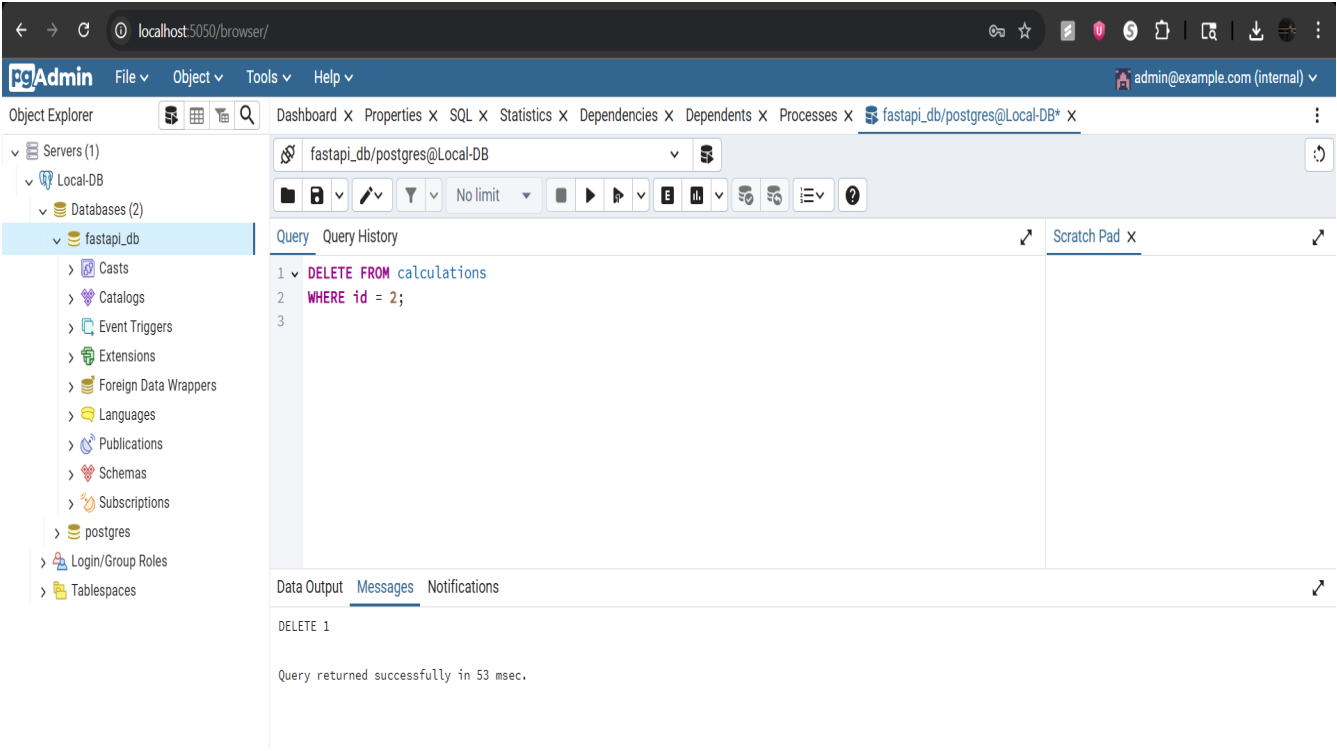
Query Query History Scratch Pad

```
1 SELECT * FROM calculations WHERE id = 1;
2
```

Data Output Messages Notifications

	id [PK] integer	operation character varying (20)	operand_a double precision	operand_b double precision	result double precision	timestamp timestamp without time zone	user_id integer
1	1	add	2	3	6	2025-11-09 03:29:33.393987	1

Delete Query Execution



Delete Query Results

localhost:5050/browser/

pgAdmin File Object Tools Help admin@example.com (internal)

Object Explorer Servers (1) Local-DB Databases (2) fastapi\_db

- Casts
- Catalogs
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- Schemas
- Subscriptions
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- Tablespaces

fastapi\_db/postgres@Local-DB

Query Query History Scratch Pad

```
1 SELECT * FROM calculations ORDER BY id;
```

Data Output Messages Notifications

	id [PK] integer	operation character varying (20)	operand_a double precision	operand_b double precision	result double precision	timestamp timestamp without time zone	user_id integer
1	1	add	2	3	6	2025-11-09 03:29:33.393987	1
2	3	multiply	4	5	20	2025-11-09 03:29:33.393987	2

## Delete 2 (Cascade Test)

localhost:5050/browser/

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- Tablespaces

fastapi\_db/postgres@Local-DB

Query Query History Scratch Pad

```
1 DELETE FROM users WHERE id = 1;
```

```
2 SELECT * FROM calculations ORDER BY id;
```

Data Output Messages Notifications

	id [PK] integer	operation character varying (20)	operand_a double precision	operand_b double precision	result double precision	timestamp timestamp without time zone	user_id integer
1	3	multiply	4	5	20	2025-11-09 03:29:33.393987	2

