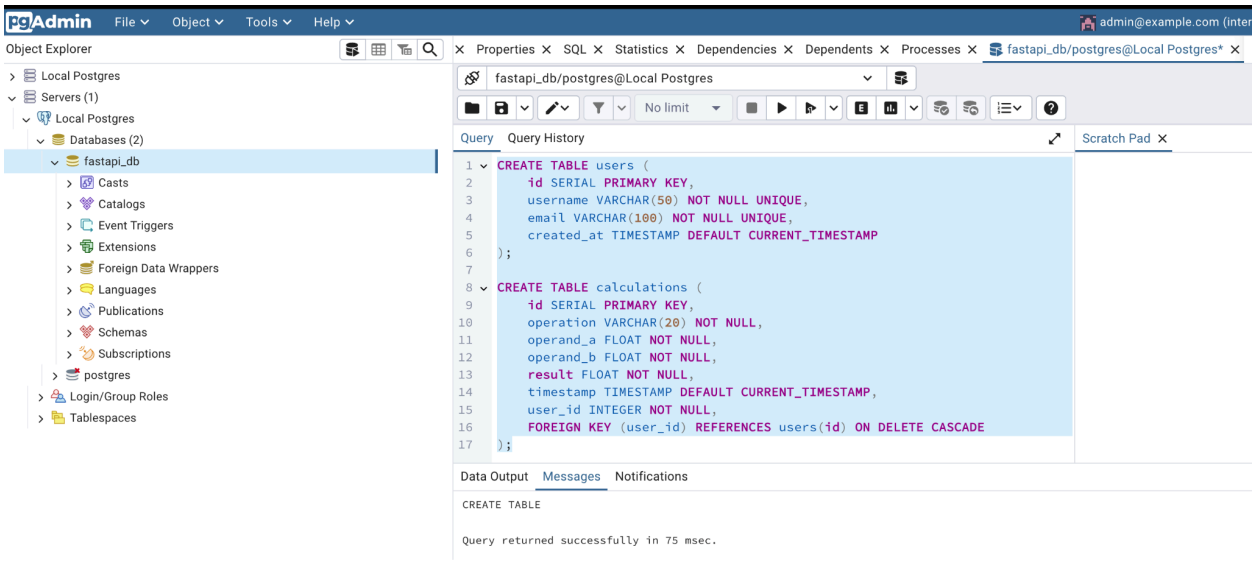
Table Creation – users & calculations

- The first screenshot shows creation of two related tables.
- users stores unique usernames and emails with a timestamp for account creation.
- calculations records arithmetic operations performed by users, including operands, results, and timestamps.
- A foreign key (user_id) links each calculation to a corresponding user, demonstrating a one-to-many relationship.
- Result: “Query returned successfully” confirms both tables were created without errors.

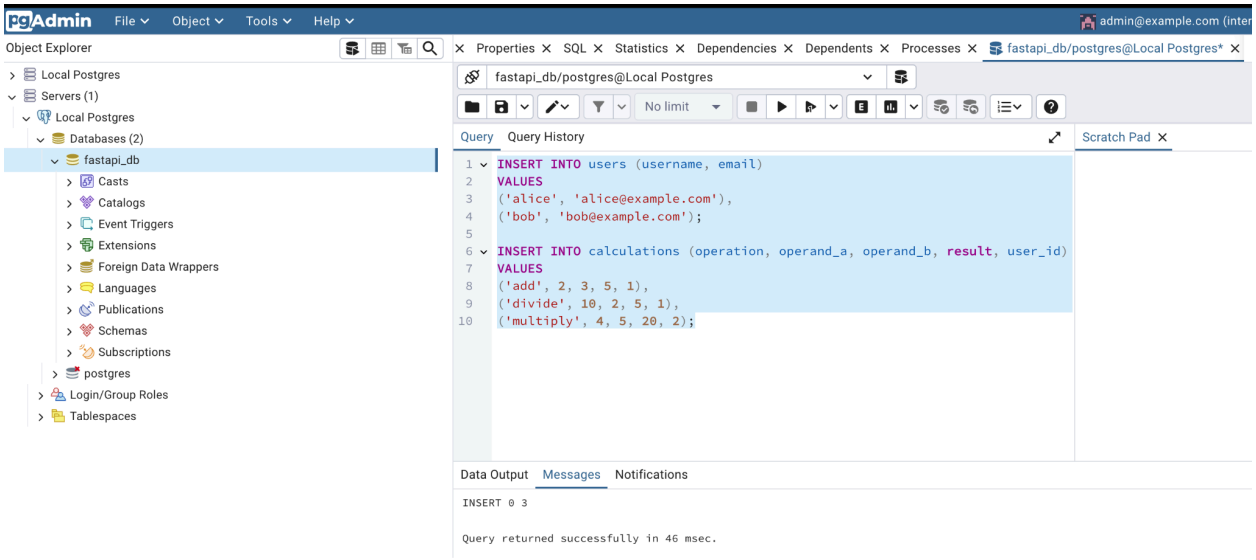
A)



Data Insertion

- Two users (alice, bob) and three calculations were inserted into the database.
- This verifies correct use of INSERT INTO for both parent and child tables.
- The foreign key relationship ensures that each calculation references a valid user ID.
- ✅ Result: “INSERT 0 3” confirms that three rows were successfully added to calculations.

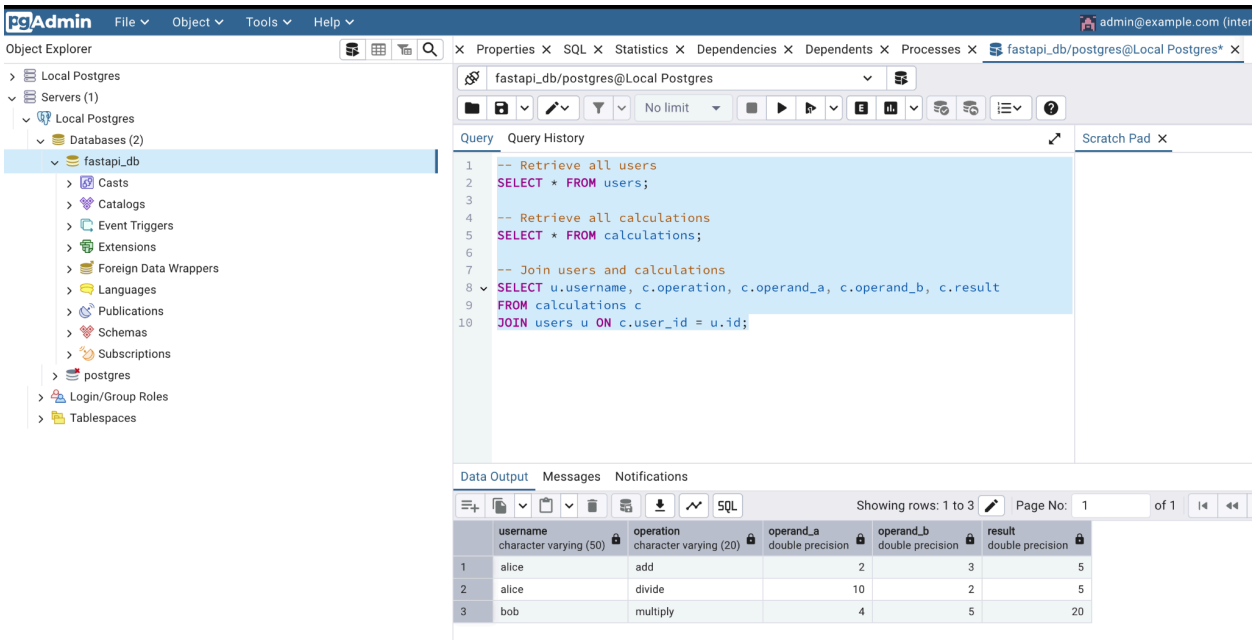
B)



Data Retrieval (SELECT Queries & JOIN)

- Individual queries retrieved data from users and calculations tables.
- The JOIN query combines both tables using user_id, clearly showing which user performed each operation.
- The output displays rows for alice and bob with their respective operations (add, divide, multiply).
- ✅ Result: Confirms relational integrity and demonstrates successful data linking between tables.

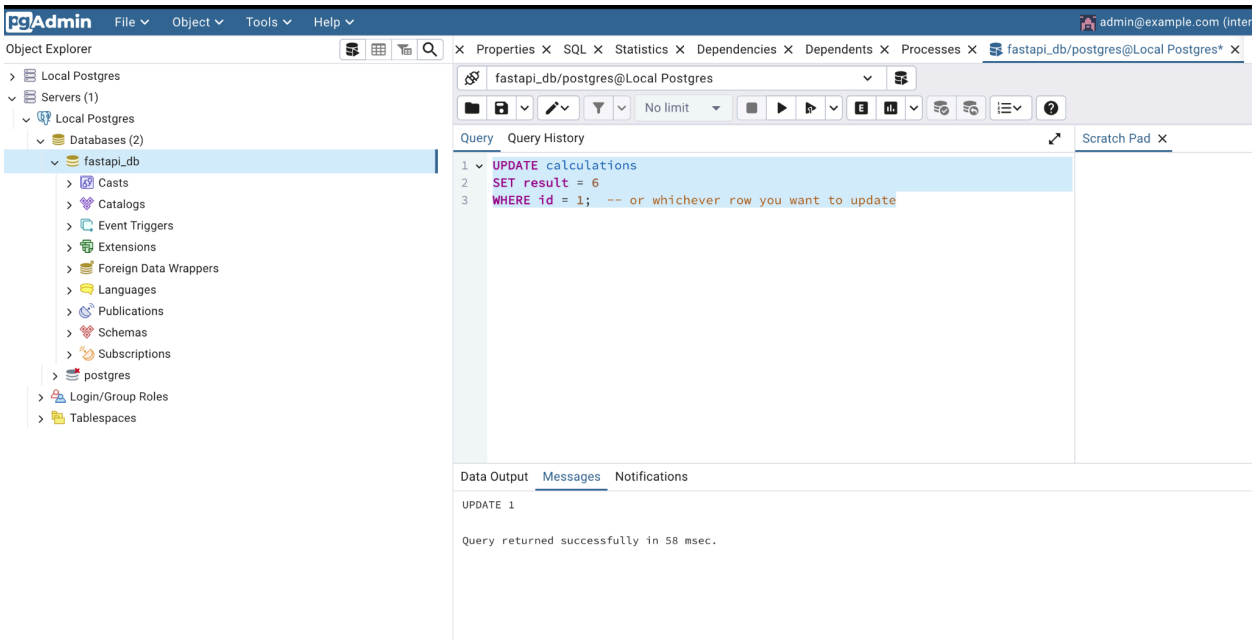
C)



Updating Records

- The UPDATE statement modifies an existing record in calculations, setting result = 6 for the record with id = 1.
- This demonstrates how to modify specific values while preserving other columns.
- Result: “UPDATE 1” confirms one record was successfully updated.

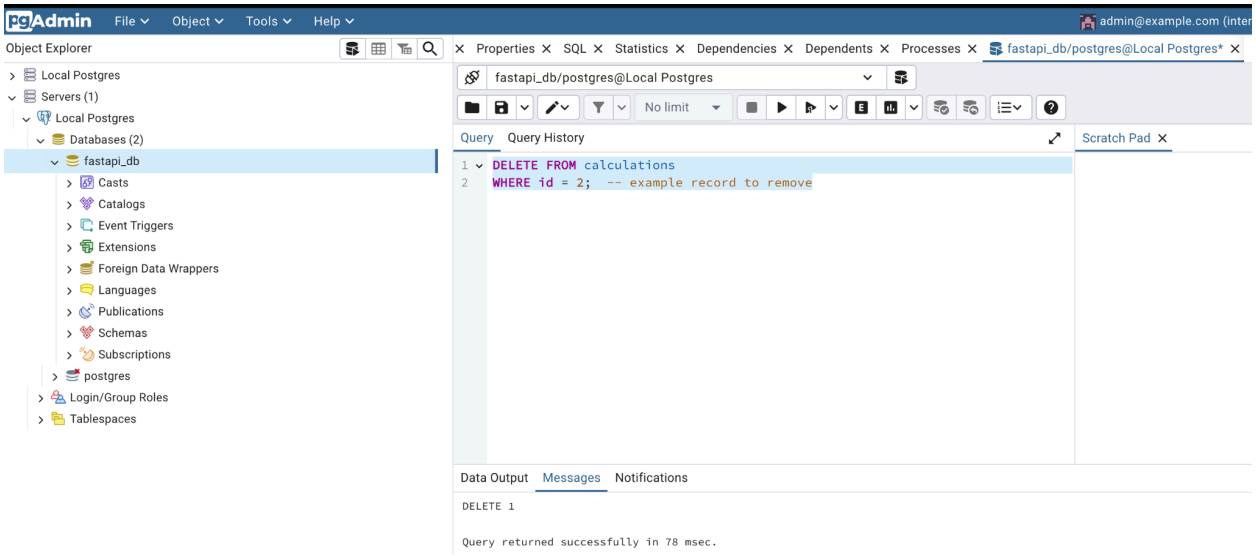
D)



Deleting Records

- The DELETE statement removes the calculation with id = 2.
- This verifies cascade and referential behavior—deleting a calculation doesn't affect the parent user record.
- *Result:* "DELETE 1" confirms the record was successfully removed.

E)



Overall Outcome

- All Docker containers (FastAPI, PostgreSQL, pgAdmin) are running correctly.
- The database operations confirm understanding of CRUD principles and relational modeling (one-to-many relationships using foreign keys).
- Queries executed successfully with expected results, fulfilling the assignment requirements.