

The screenshot shows the Database Explorer in VS Code. A transaction script named `1.sql` is open in the center panel. The script contains the following SQL code:

```
BEGIN;
SAVEPOINT before_cancel;
DELETE FROM booking
WHERE booking_id = 999999;
COMMIT;
ROLLBACK TO SAVEPOINT before_cancel;
COMMIT;
SELECT * FROM booking;
```

The Database Explorer sidebar on the left shows the database structure for `lab2_db`, including tables like `airline`, `airport`, `baggage`, etc., and their columns.

The Services panel at the bottom shows the execution history for the `1.sql` script. The output log is as follows:

```
[2025-11-25 16:16:56] completed in 26 ms
[2025-11-25 16:17:00] lab2_db.public> SAVEPOINT before_cancel
[2025-11-25 16:17:00] completed in 7 ms
[2025-11-25 16:17:09] lab2_db.public> DELETE FROM booking
          WHERE booking_id = 999999
[2025-11-25 16:17:09] completed in 23 ms
[2025-11-25 16:17:17] lab2_db.public> COMMIT
[2025-11-25 16:17:17] completed in 7 ms
[2025-11-25 16:18:05] lab2_db.public> SELECT * FROM booking
[2025-11-25 16:18:06] 50 rows retrieved starting from 1 in 1 s 536 ms (execution: 19 ms, fetching: 1 s 517 ms)
[2025-11-25 16:18:30] lab2_db.public> ROLLBACK TO SAVEPOINT before_cancel
```

The screenshot shows a PostgreSQL database management interface with several panes:

- Top Bar:** Includes icons for file operations (New, Open, Save, Close), a search bar, and window controls.
- Database Explorer:** Shows the database structure. A connection to `postgres@localhost` is selected, with the `lab2_db` database expanded. It lists tables like `airline`, `airport`, `baggage`, etc., and the `flights` table with its columns: `flight_id`, `sch_departure_time`, `sch_arrival_time`, and `departing_airport_id`.
- Code Editor:** The file `1.sql` is open, containing the following SQL script:

```
BEGIN;
SAVEPOINT before_reschedule;
UPDATE flights
SET sch_departure_time = NOW() + INTERVAL '3 hours'
WHERE flight_id = -10;
COMMIT;|
ROLLBACK TO SAVEPOINT before_reschedule;
COMMIT;
```
- Services:** Shows a transaction log with entries for `1.sql` and `def.sql`. The entry for `1.sql` shows it completed in 34 ms.
- Output:** Displays the execution log for the current session:

```
[2025-11-25 16:21:14] completed in 5 ms
[2025-11-25 16:21:18] lab2_db.public> SAVEPOINT before_reschedule
[2025-11-25 16:21:18] completed in 3 ms
[2025-11-25 16:21:24] lab2_db.public> UPDATE flights
          SET sch_departure_time = NOW() + INTERVAL '3 hours'
          WHERE flight_id = -10
[2025-11-25 16:21:24] completed in 15 ms
[2025-11-25 16:21:32] lab2_db.public> COMMIT
[2025-11-25 16:21:32] completed in 4 ms
```
- Files:** Shows a file tree with `Lab3`, `lab8`, and `lab 9` folders. `1.sql` is listed under `lab 9`.

The screenshot shows a PostgreSQL database management interface with several panes:

- Database Explorer**: Shows the database structure. A connection to `postgres@localhost` is selected, with the `lab2_db` schema expanded to show tables like `airline`, `airport`, `baggage`, etc., and their columns.
- Editor**: A code editor window titled `1.sql` containing the following SQL script:

```
BEGIN;
SAVEPOINT before_price_update;
UPDATE booking
SET ticket_price = ticket_price - 5000
WHERE flight_id = 12;
COMMIT;
ROLLBACK TO SAVEPOINT before_price_update;
COMMIT;|
```
- Services**: Shows a transaction history with a currently active transaction for the `lab2_db.public.booking` query.
- Output**: Displays the execution log for the `lab2_db.public.booking` query:

```
SET ticket_price = ticket_price - 5000
WHERE flight_id = 12
[2025-11-25 16:22:26] [23514] ОШИБКА: новая строка в отношении "booking" нарушает ограничение-проверку "bookingpl"
[2025-11-25 16:22:26] Подробности: Ошибочная строка содержит (3, 12, 30, Meetz, 2025-08-11 00:00:00, 2025-03-14 00:00:00)
[2025-11-25 16:28:53] lab2_db.public> ROLLBACK TO SAVEPOINT before_price_update
[2025-11-25 16:28:53] completed in 4 ms
[2025-11-25 16:29:01] lab2_db.public> COMMIT
[2025-11-25 16:29:01] completed in 6 ms
```
- Files**: Shows the file tree, with `1.sql` highlighted under the `lab 9` folder.

The bottom status bar indicates the file is `1.sql` in the `Lab 9` folder, with encoding `CRLF`, `UTF-8`, and `4 spaces`.

The screenshot shows a PostgreSQL database management interface with the following components:

- Top Bar:** Includes icons for file operations (New, Open, Save, etc.), a search bar, and a tab bar with "Lab3" and "Version control".
- Database Explorer:** Shows the database structure for "lab2_db.public". It includes a tree view of schemas like "information_schema" and "pg_catalog", and tables like "airline", "airport", "baggage", etc.
- Code Editor:** A tab titled "1.sql" contains the following SQL script:

```
BEGIN;
SAVEPOINT before_update;
UPDATE passengers
SET first_name = 'Aidar',
    last_name = 'Sultanov',
    date_of_birth = '2002-05-10'
WHERE passenger_id = 15;
COMMIT;

ROLLBACK TO SAVEPOINT before_update;
COMMIT;
```
- Services:** A transaction log window showing the execution of "1.sql". The log entries are:
 - [2025-11-25 16:30:12] lab2_db.public> UPDATE passengers
 - SET first_name = 'Aidar',
last_name = 'Sultanov',
date_of_birth = '2002-05-10'
WHERE passenger_id = 15
 - [2025-11-25 16:30:12] 1 row affected in 24 ms
 - [2025-11-25 16:30:16] lab2_db.public> COMMIT
 - [2025-11-25 16:30:16] completed in 7 ms
- Output:** A window showing the results of the executed SQL statements, including the update details and transaction completion.
- Files:** A sidebar showing the project structure with files like "1.sql" and "def.sql".

The screenshot shows a PostgreSQL database management interface with the following details:

Database Explorer (Left Panel):

- Connected to **postgres@localhost** (2 of 3).
- Selected database: **lab2_db** (3).
- Tables listed under **public**: airline, airport, baggage, baggage_check, boarding_pass, booking, booking_flight, flights.
- Columns listed under **flights**: flight_id, sch_departure_time, sch_arrival_time, departure_airport_id.

Editor Area (Top Center):

- File: **1.sql**.
- Content:

```
1 BEGIN;
2
3 SAVEPOINT before_inc;
4
5 UPDATE booking
6 SET ticket_price = ticket_price + 4000
7 WHERE flight_id = 7;
8
9 COMMIT;
10
11 ROLLBACK TO SAVEPOINT before_inc;
12 COMMIT;
```
- Status bar: Tx: Auto, Playground.
- Connection: lab2_db.public, postgres@localhost.

Output Area (Bottom Center):

- Transaction ID: 1.sql [45 ms].
- Table: lab2_db.public.booking.
- Content:

```
SET ticket_price = ticket_price + 4000
WHERE flight_id = 7
[2025-11-25 16:32:33] [23514] ОШИБКА: новая строка в отношении "booking" нарушает ограничение-проверку "bookingpl"
[2025-11-25 16:32:33] Подробности: Ошибочная строка содержит (2, 7, 23, Roomm, 2025-06-25 00:00:00, 2024-11-12 00:00:00)
[2025-11-25 16:33:44] lab2_db.public> ROLLBACK TO SAVEPOINT before_inc
[2025-11-25 16:33:44] completed in 6 ms
[2025-11-25 16:33:49] lab2_db.public> COMMIT
[2025-11-25 16:33:49] completed in 3 ms
```

File Explorer (Right Panel):

- Lab3
- lab8
- lab 9
- 1.sql [postgres@localhost]
- Scratches and Consoles

Services (Bottom Left):

- Tx
- Database
- postgres@localhost
- 1.sql 45 ms
- def.sql

Bottom Status Bar:

- File: lab 9 > 1.sql
- Editor settings: 12:8, CRLF, UTF-8, 4 spaces.

The screenshot shows the Database Explorer panel on the left, the main code editor in the center, and the Files panel on the right.

Database Explorer:

- Connected to **postgres@localhost** (2 of 3).
- Selected database: **lab2_db** (3 tables).
- Tables: **airline**, **airport**, **baggage**, **baggage_check**, **boarding_pass**, **booking**, **booking_flight**, **flights**.
- Flights table details:
 - Columns: **flight_id** integer, **sch_departure_time** time, **sch_arrival_time** timestamp, **departing_airport_id** integer.
 - Primary key: **flight_id** integer = nextval('')

Code Editor (1.sql):

```
1 BEGIN;
2
3     SAVEPOINT before_insert;
4
5     INSERT INTO passengers(first_name, last_name, date_of_birth, gender)
6     VALUES ( first_name 'Dana', last_name 'Tulegen', date_of_birth '2005-10-11', gender 'F')
7     RETURNING passenger_id;
8
9     INSERT INTO booking(passenger_id, flight_id, ticket_price)
10    VALUES ( passenger_id 45, flight_id 8, ticket_price 30000);
11
12    COMMIT;
13
14    ROLLBACK TO SAVEPOINT before_insert;
15    COMMIT;
```

Files:

- Lab3 C:\Users\amina\Desktop
- lab8 C:\Users\amina\Desktop
- lab 9 C:\Users\amina\Desktop
 - 1.sql [postgres@localhost]
- Scratches and Consoles

The screenshot shows the Services panel at the bottom, displaying the execution history of the 1.sql file.

Services:

- Transactions: **1.sql** (51 ms), **def.sql**.

Output:

```
VALUES (45, 8, 30000)
[2025-11-25 16:31:42] [25P02] ОШИБКА: текущая транзакция прервана, команды до конца блока транзакции игнорируются
[2025-11-25 16:31:42] [23502] ОШИБКА: значение NULL в столбце "country_of_citizenship" отношения "passengers" нарушает ограничение NOT NULL
[2025-11-25 16:31:42] Подробности: Ошибочная строка содержит (38, Dana, Tulegen, 2005-10-11, F, null, null, null, 2005-10-11, 8, 30000)
[2025-11-25 16:31:50] lab2_db.public> ROLLBACK TO SAVEPOINT before_insert
[2025-11-25 16:31:50] completed in 3 ms
[2025-11-25 16:31:56] lab2_db.public> COMMIT
[2025-11-25 16:31:56] completed in 6 ms
```

Bottom Status Bar:

- File: lab 9 > 1.sql
- Line: 15:8
- Encoding: CRLF
- Character Set: UTF-8
- Spaces: 4 spaces
- Icons: Save, Undo, Redo, Find, Replace, Open, Close, Minimize, Maximize, Close

The screenshot shows a PostgreSQL database management interface with the following components:

- Top Bar:** Includes icons for file operations (New, Open, Save, etc.), a search bar, and a settings gear icon.
- Database Explorer:** Shows the database connection `postgres@localhost` and the schema `lab2_db`. It lists tables like `airline`, `airport`, `baggage`, etc., and their columns.
- Code Editor:** A tab titled `1.sql` contains the following SQL script:

```
BEGIN;
SAVEPOINT before_baggage;
UPDATE baggage
SET weight_in_kg = 18
WHERE baggage_id = 33;
COMMIT;
ROLLBACK TO SAVEPOINT before_baggage;
COMMIT;
```
- Services:** A transaction log window showing the execution of the `1.sql` file. The log entries are:
 - [2025-11-25 16:36:45] lab2_db.public> SAVEPOINT before_baggage
 - [2025-11-25 16:36:45] completed in 2 ms
 - [2025-11-25 16:36:49] lab2_db.public> UPDATE baggage
SET weight_in_kg = 18
WHERE baggage_id = 33
 - [2025-11-25 16:36:49] completed in 12 ms
 - [2025-11-25 16:36:53] lab2_db.public> COMMIT
 - [2025-11-25 16:36:53] completed in 3 ms
- Output:** A window showing the results of the executed SQL statements, specifically the update operation.
- File Explorer:** Shows the project structure with files `1.sql` and `def.sql`.
- Bottom Status Bar:** Displays the file path `lab 9 > 1.sql`, encoding `CRLF`, character set `UTF-8`, and indentation `4 spaces`.

The screenshot shows the Database Explorer panel on the left, displaying a tree view of database objects under the connection `postgres@localhost`. The `public` schema is expanded, showing tables like `airline`, `airport`, `baggage`, etc., and their corresponding columns. A transaction script named `1.sql` is open in the central editor, containing the following SQL code:

```
BEGIN;
SAVEPOINT before_disc;
UPDATE booking
SET ticket_price = ticket_price * 0.9
WHERE passenger_id = 13;

COMMIT;
ROLLBACK TO SAVEPOINT before_disc;
COMMIT;
```

The Services panel at the bottom left shows the transaction history. The `1.sql` file is selected, indicating it was run recently. The Output tab in the Services panel displays the log of the executed SQL statements:

```
[2025-11-25 16:39:17] completed in 3 ms
[2025-11-25 16:39:21] lab2_db.public> UPDATE booking
SET ticket_price = ticket_price * 0.9
WHERE passenger_id = 13
[2025-11-25 16:39:21] [23514] ОШИБКА: новая строка в отношении "booking" нарушает ограничение-проверку "bookingpl"
[2025-11-25 16:39:21] Подробности: Ошибочная строка содержит (25, 6, 13, Topiclounge, 2025-05-30 00:00:00, 2025-01-01 00:00:00)
[2025-11-25 16:39:45] lab2_db.public> COMMIT
[2025-11-25 16:39:45] completed in 5 ms
```

The screenshot shows a PostgreSQL database management interface with several panes:

- Database Explorer**: Shows the database structure. The `public` schema contains tables: `airline`, `airport`, `baggage`, `baggage_check`, `boarding_pass`, `booking`, `booking_flight`, and `flights`. The `flights` table has columns: `flight_id` (integer), `sch_departure_time` (time), `sch_arrival_time` (timestamp), and `departing_airport_id` (integer).
- Editor**: A code editor window titled `1.sql` containing the following SQL script:

```
BEGIN;
SAVEPOINT before_reschedule_all;
UPDATE booking
SET flight_id = 20
WHERE flight_id = 5;
COMMIT;
ROLLBACK TO SAVEPOINT before_reschedule_all;
COMMIT;|
```
- Services**: Shows a transaction history with entries for `1.sql` and `def.sql`.
- Output**: Shows the execution results of the transaction:

```
lab2_db.public.booking
SET flight_id = 20
WHERE flight_id = 5
[2025-11-25 16:58:22] [23514] ОШИБКА: новая строка в отношении "booking" нарушает ограничение-проверку "bookingpl"
[2025-11-25 16:58:22] Подробности: Ошибочная строка содержит (1, 20, 35, Eimbee, 2025-08-09 00:00:00, 2025-09-20 00:00:00)
[2025-11-25 17:02:16] lab2_db.public> ROLLBACK TO SAVEPOINT before_reschedule_all
[2025-11-25 17:02:16] completed in 4 ms
[2025-11-25 17:02:20] lab2_db.public> COMMIT
[2025-11-25 17:02:20] completed in 3 ms
```
- Files**: Shows the file system structure under `Lab3`, including `1.sql` in the `lab9` directory.

The transaction fails at step 11 due to a constraint violation on the `booking` table. The transaction is rolled back to the savepoint `before_reschedule_all` at step 12, and then committed at step 13.