

# Laborotory work 3

0.

```
pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
lab2/postgres@PostgreSQL 17* x
Query History
1 INSERT INTO booking
2 (booking_id, flight_id, passenger_id, booking_platform, created_at, updated_at, status,
3 VALUES
4 (1, 101, 1, 'AirAstana', '2023-11-01', '2023-11-02', 'Completed', 50000),
5 (2, 102, 2, 'FlyEmirates', '2023-11-15', '2023-11-15', 'Completed', 65000),
6 (3, 103, 3, 'QatarAir', '2023-12-10', '2023-12-11', 'Cancelled', 72000),
7 (4, 104, 4, 'AirAstana', '2023-12-20', '2023-12-21', 'Completed', 28000),
8 (5, 105, 5, 'FlyEmirates', '2024-01-02', '2024-01-03', 'Completed', 90000),
9 (6, 106, 6, 'QatarAir', '2024-01-15', '2024-01-15', 'Pending', 75000),
10 (7, 107, 7, 'AirAstana', '2024-02-05', '2024-02-06', 'Completed', 60000),
11 (8, 108, 8, 'FlyEmirates', '2024-02-28', '2024-03-01', 'Completed', 38000),
12 (9, 109, 9, 'QatarAir', '2024-03-05', '2024-03-06', 'Completed', 85000),
13 (10, 110, 10, 'AirAstana', '2024-03-15', '2024-03-16', 'Completed', 95000);
14

Data Output Messages Notifications
INSERT 0 10
Query returned successfully in 54 msec.

Total rows: 10 Query complete 00:00:00.054
CRLF Ln 14, Col 1

pgAdmin 4
File Object Tools Edit View Window Help
Object Explorer
lab2/postgres@PostgreSQL 17* x
Query History
1 INSERT INTO passengers
2 (passenger_id, first_name, last_name, date_of_birth, gender,
3 country_of_citizenship, country_of_residence, passport_number, created_at, updated_at)
4 VALUES
5 (1, 'Aruzhan', 'Aruzhan', '2002-01-12', 'Female', 'Kazakhstan', 'Kazakhstan', 'KZ123456
6 (2, 'Dias', 'Bek', '1999-07-20', 'Male', 'Kazakhstan', 'Turkey', 'TR5566777', '2023-11-0
7 (3, 'Amina', 'Sultan', '2001-03-10', 'Female', 'Kazakhstan', 'Kazakhstan', 'KZ987654
8 (4, 'Nursultan', 'Ali', '1995-12-05', 'Male', 'Kazakhstan', 'Russia', 'RU223344', '202
9 (5, 'Dana', 'Adil', '2003-04-22', 'Female', 'Kazakhstan', 'Kazakhstan', 'KZ112233', '26
10 (6, 'Yerbol', 'Yerbol', '1998-10-14', 'Male', 'Kazakhstan', 'Kazakhstan', 'KZ445566', '2
11 (7, 'Aigul', 'Serik', '2000-08-30', 'Female', 'Kazakhstan', 'France', 'FR778899', '202
12 (8, 'Azamat', 'Nur', '1997-06-18', 'Male', 'Kazakhstan', 'Kazakhstan', 'KZ990011', '202
13 (9, 'Alikhan', 'Dias', '1992-02-02', 'Male', 'Kazakhstan', 'Poland', 'PL667788', '2023-
14 (10, 'Aruzhan', 'Sultan', '2005-09-25', 'Female', 'Kazakhstan', 'Kazakhstan', 'KZ333444
15

Data Output Messages Notifications
INSERT 0 10
Query returned successfully in 68 msec.

Total rows: 10 Query complete 00:00:00.068
CRLF Ln 15, Col 1
```

I added some extra data to my DB before doing the third laboratory work.

1.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, under the 'passenger' table, the 'Columns (10)' section is selected. A query is run in the Query tab:

```
1 SELECT * FROM passengers
2 WHERE first_name = last_name;
```

The Data Output tab displays the results:

passenger_id	first_name	last_name	date_of_birth	gender	country_of_citizenship	country_of_residence	passport_number
1	Aruhan	Aruhan	2002-01-12	Female	Kazakhstan	Kazakhstan	KZ123456
2	Yerbol	Yerbol	1998-10-14	Male	Kazakhstan	Kazakhstan	KZ445566

Total rows: 2    Query complete 00:00:00.073    CRLF    Ln 2, Col 18

2.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, under the 'passenger' table, the 'Columns (10)' section is selected. A query is run in the Query tab:

```
1 SELECT
2     DISTINCT last_name
3     FROM passengers;
```

The Data Output tab displays the results:

last_name
Adil
Nur
Yerbol
Dias
Serik
Sultan
Bek
Aruhan
Ali

Total rows: 9    Query complete 00:00:00.101    CRLF    Ln 3, Col 17

### 3.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'passenger' table is selected. A query is run in the main pane:

```
1 SELECT * FROM passengers
2 WHERE gender = 'Male'
3 AND date_of_birth BETWEEN '1990-01-01' AND '2000-01-01';
```

The results show five rows of passenger data:

passenger_id	first_name	last_name	date_of_birth	gender	country_of_citizenship	country_of_residence	passport_number
1	2	Dias	Bek	1999-07-20	Male	Kazakhstan	Turkey
2	4	Nursultan	Ali	1995-12-05	Male	Kazakhstan	Russia
3	6	Yerbol	Yerbol	1998-10-14	Male	Kazakhstan	KZ44556
4	8	Azamat	Nur	1997-06-18	Male	Kazakhstan	KZ990011
5	9	Alikhan	Dias	1992-02-02	Male	Kazakhstan	Poland

Total rows: 5 Query complete 00:00:00.105 CRLF Ln 3, Col 58

### 4.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'booking' table is selected. A query is run in the main pane:

```
1 SELECT LEFT(created_at::text, 7) AS month, SUM(ticket_price) AS total_price
2 FROM booking
3 GROUP BY month
4 ORDER BY month;
```

The results show monthly booking totals:

month	total_price
2023-11	115000.00
2023-12	100000.00
2024-01	165000.00
2024-02	90000.00
2024-03	180000.00

Total rows: 5 Query complete 00:00:00.060 CRLF Ln 4, Col 16

5.

The screenshot shows the pgAdmin 4 interface. The left pane is the Object Explorer, displaying the database schema with tables like airline, airport, and booking. The right pane is the Query Editor, showing a query to select flights arriving in China:

```
1 SELECT * FROM flights
2 WHERE arriving_gate = 'China';
```

The Data Output pane shows the structure of the flights table:

flight_id	sch_departure_time	sch_arrival_time	departing_airport_id	arriving_airport_id	departing_gate	arriving_gate	airline_id
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Total rows: 0    Query complete 00:00:00.076    CRLF    Ln 2, Col 31

6.

The screenshot shows the pgAdmin 4 interface. The left pane is the Object Explorer, displaying the database schema with tables like airline, airport, and booking. The right pane is the Query Editor, showing a query to select flights from France, Portugal, or Poland between specific dates:

```
1 SELECT * FROM airline
2 WHERE (airline_country = 'France'
3 OR airline_country = 'Portugal'
4 OR airline_country = 'Poland')
5 AND created_at BETWEEN '2023-11-01' AND '2024-03-31';
6
```

The Data Output pane shows the structure of the airline table:

airline_id	airline_code	airline_name	airline_country	created_at	updated_at
------------	--------------	--------------	-----------------	------------	------------

Total rows: 0    Query complete 00:00:00.095    CRLF    Ln 6, Col 1

7.

The screenshot shows the pgAdmin 4 interface. The left pane is the Object Explorer, displaying a tree structure of database objects. The 'Tables (11)' node is expanded, showing the 'airline' table. The 'Columns (6)' node under 'airline' is also expanded, listing columns: airline\_id, airline\_code, airline\_name, airline\_country, created\_at, and updated\_at. The 'Constraints (1)' node shows a primary key constraint named 'airline\_info\_pkey'. The right pane contains a SQL query editor with the following code:

```
1 SELECT airline_name
2   FROM airline
3 WHERE airline_country = 'Kazakhstan';
```

The results pane shows the output of the query:

airline_name
character varying (50)

Total rows: 0 Query complete 00:00:00.101 CRLF Ln 3, Col 2

8.

The screenshot shows the pgAdmin 4 interface. The left pane is the Object Explorer, displaying a tree structure of database objects. The 'Tables (11)' node is expanded, showing the 'airline' table. The 'Columns (6)' node under 'airline' is also expanded, listing columns: airline\_id, airline\_code, airline\_name, airline\_country, created\_at, and updated\_at. The 'Constraints (1)' node shows a primary key constraint named 'airline\_info\_pkey'. The right pane contains a SQL query editor with the following code:

```
1 UPDATE booking
2 SET ticket_price = ticket_price * 0.9
3 WHERE created_at < '2023-11-01';
```

The results pane shows the output of the query:

UPDATE 0  
Query returned successfully in 69 msec.

Total rows: 0 Query complete 00:00:00.069 CRLF Ln 4, Col 1

9.

The screenshot shows the pgAdmin 4 interface with the following details:

- Object Explorer:** Shows the database schema with tables: `airline`, `airport`, `baggage`, `boarding_pass`, and `booking`.
- Query Editor:** Contains the following SQL query:

```
1 SELECT *  
2 FROM baggage  
3 WHERE weight_in_kg > 25  
4 ORDER BY weight_in_kg DESC  
5 LIMIT 3;
```
- Data Output:** Displays the results of the query in a table format:

baggage_id	weight_in_kg	created_at	updated_at	booking_id
[PK integer]	numeric (4,2)	timestamp without time zone	timestamp without time zone	integer

Total rows: 0 Query complete 00:00:00.084 CRLF Ln 4, Col 22

10.

The screenshot shows the pgAdmin 4 interface with the following details:

- Object Explorer:** Shows the database schema with tables: `airline`, `airport`, `baggage`, `boarding_pass`, and `booking`.
- Query Editor:** Contains the following SQL query:

```
1 SELECT first_name || ' ' || last_name AS full_name, date_of_birth  
2 FROM passengers  
3 ORDER BY date_of_birth DESC  
4 LIMIT 1;
```
- Data Output:** Displays the results of the query in a table format:

full_name	date_of_birth
Aruzhan Sultan	2005-09-25

Total rows: 1 Query complete 00:00:00.072 CRLF Ln 1, Col 57

## 11.

The screenshot shows the pgAdmin 4 interface with the title bar "pgAdmin 4" and connection details "lab2/postgres@PostgreSQL 17\*". The left sidebar is the Object Explorer, showing a tree structure of database objects. The "Tables" node is expanded, and the "booking" table is selected. The main pane contains a SQL query editor with the following code:

```
1 SELECT booking_platform, MIN(ticket_price) AS cheapest_ticket
2 FROM booking
3 GROUP BY booking_platform;
```

The results are displayed in the Data Output tab:

booking_platform	cheapest_ticket
FlyEmirates	30000.00
AirAstana	28000.00
QatarAir	72000.00

Total rows: 3 Query complete 00:00:00.077 CRLF Ln 3, Col 27

## 12.

The screenshot shows the pgAdmin 4 interface with the title bar "pgAdmin 4" and connection details "lab2/postgres@PostgreSQL 17\*". The left sidebar is the Object Explorer, showing a tree structure of database objects. The "Tables" node is expanded, and the "airline" table is selected. The main pane contains a SQL query editor with the following code:

```
1 SELECT *
2 FROM airline
3 WHERE airline_code LIKE '%K%'
```

The results are displayed in the Data Output tab:

airline_id	airline_code	airline_name	airline_country	created_at	updated_at
1	KZ001	KazAir	Turkey	2025-09-24 00:14:29.241882	2025-09-24 00:15:29.69134
2	FR001	AirEasy	France	2025-09-24 00:16:00.605389	2025-09-24 00:16:00.605389
3	BR001	FlyHigh	Brazil	2025-09-24 00:16:00.605389	2025-09-24 00:16:00.605389
4	PL001	FlyFly	Poland	2025-09-24 00:16:00.605389	2025-09-24 00:16:00.605389

Total rows: 4 Query complete 00:00:00.075 CRLF Ln 12, Col 18

13.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'Tables (11)' node is expanded, and the 'airline' table is selected. The Query Editor contains the following SQL code:

```
1 SELECT airline_name
2 FROM airline
3 ORDER BY created_at DESC
4 LIMIT 5;
```

The Data Output tab shows the results of the query:

airline_name
AirEasy
FlyHigh
FlyFly
KazAir

Total rows: 4    Query complete 00:00:00.085    CRLF    Ln 4, Col 9

14

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'Tables (11)' node is expanded, and the 'booking' table is selected. The Query Editor contains the following SQL code:

```
1 SELECT *
2 FROM booking
3 WHERE booking_id BETWEEN 200 AND 300
4 AND status <> 'Checked';
5
```

The Data Output tab shows the results of the query:

booking_id	flight_id	passenger_id	booking_platform	created_at	updated_at	status	ticket_price
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Total rows: 0    Query complete 00:00:00.081    CRLF    Ln 5, Col 1

## 15.

pgAdmin 4

File Object Tools Edit View Window Help

Object Explorer      lab2/postgres@PostgreSQL 17\*

Query History      Scratch Pad

```
1 SELECT *
2 FROM baggage_check
3 WHERE LEFT(updated_at::text, 7) = LEFT(created_at::text, 7)
4 AND updated_at < created_at;
5
```

Data Output      Messages      Notifications

baggage_check_id	[PK] integer	check_result	character varying (50)	created_at	timestamp without time zone	updated_at	timestamp without time zone	booking_id	integer	passenger_id	integer
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Total rows: 0      Query complete 00:00:00.089

Successfully run. Total query runtime: 89 msec. 0 rows affected. CRLF Ln 5, Col 1

The screenshot shows the pgAdmin 4 interface. The left pane is the Object Explorer, displaying a tree structure of database objects. The 'Tables' node under 'Tables (11)' is expanded, showing 'airline' and 'baggage\_check'. The 'Columns' node under 'airline' is also expanded, listing columns like airline\_id, airline\_code, airline\_name, airline\_country, created\_at, and updated\_at. The 'Constraints' node under 'airline' contains a single constraint named 'airline\_info\_pkey'. The right pane contains a query editor with the following SQL code:

```
1 SELECT *
2 FROM baggage_check
3 WHERE LEFT(updated_at::text, 7) = LEFT(created_at::text, 7)
4 AND updated_at < created_at;
```

Below the query editor is a data output grid with the following schema:

baggage_check_id	[PK] integer	check_result	character varying (50)	created_at	timestamp without time zone	updated_at	timestamp without time zone	booking_id	integer	passenger_id	integer
------------------	--------------	--------------	------------------------	------------	-----------------------------	------------	-----------------------------	------------	---------	--------------	---------

The status bar at the bottom indicates "Total rows: 0" and "Query complete 00:00:00.089". A message bar at the bottom right says "Successfully run. Total query runtime: 89 msec. 0 rows affected. CRLF Ln 5, Col 1".