

# Laboratory work 5

## Tasks:

1. Add a CHECK constraint to passenger table to provide that passengers must be at least 10 years old.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'passenger' table is selected. In the central Query pane, the following SQL code is run:

```
1 ALTER TABLE passengers ADD CONSTRAINT check_age
2 CHECK (date_of_birth <= CURRENT_DATE - INTERVAL '10 years');
```

The Data Output tab shows the result: "Query returned successfully in 40 msec." The status bar at the bottom indicates "Query complete 00:00:00.040".

2. Add a CHECK constraint to accept values in booking price not more than 50000tg and less than 0tg.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer, the 'booking' table is selected. In the central Query pane, the following SQL code is run:

```
1 ALTER TABLE booking ADD CONSTRAINT price_check
2 CHECK(price<=50000 AND price >= 0);
```

The Data Output tab shows the result: "Query returned successfully in 41 msec." The status bar at the bottom indicates "Query complete 00:00:00.041".

### 3. Add a CHECK constraint to accept the luggage weight between 1 and 23 kg.

The screenshot shows the pgAdmin 4 interface. The left sidebar has 'Tables(10)' selected. In the main query editor, the following SQL code is run:

```
1 UPDATE baggage
2 SET weight_in_kg = 23
3 WHERE weight_in_kg > 23;
4
5 UPDATE baggage
6 SET weight_in_kg = 1
7 WHERE weight_in_kg < 1;
8
9 ALTER TABLE baggage
10 ADD CONSTRAINT weight_check
11 CHECK (weight_in_kg BETWEEN 1 AND 23);
```

The status bar at the bottom indicates 'Query returned successfully in 43 msec.'

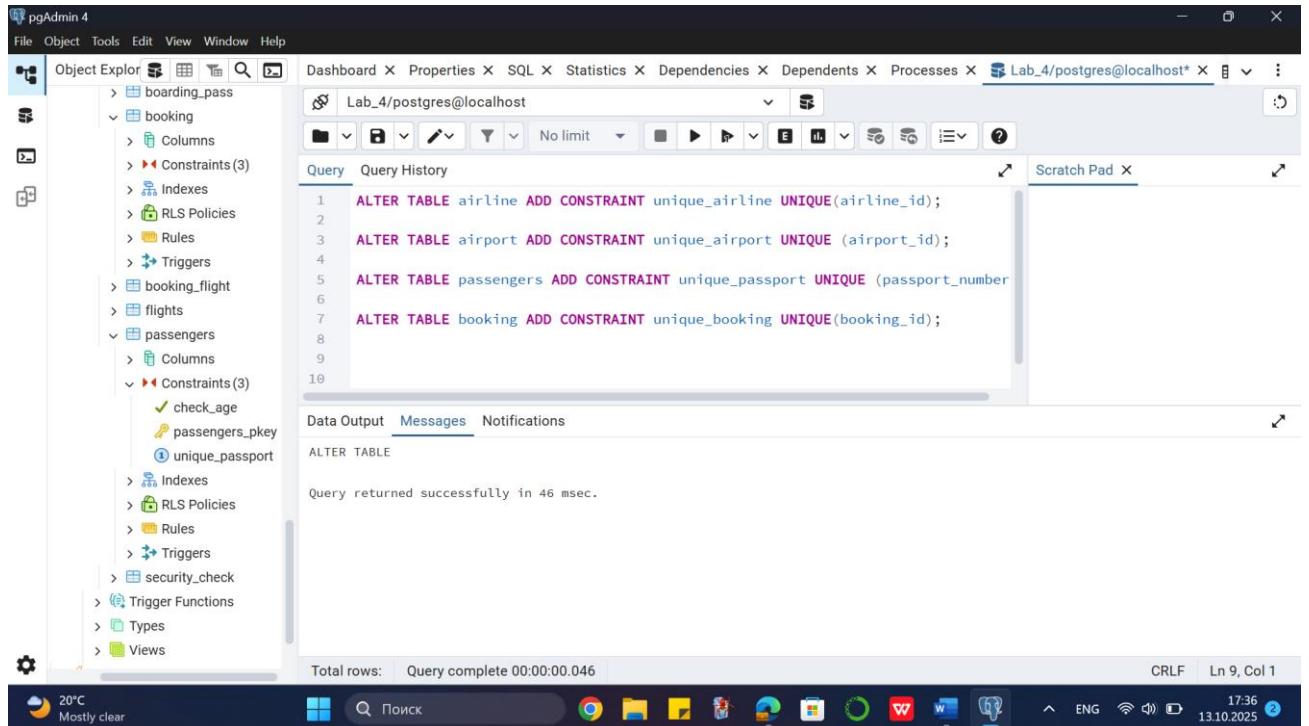
### 4. Add a CHECK constraint to ensure that all values in airport\_name must have at least 10 characters.

The screenshot shows the pgAdmin 4 interface. The left sidebar has 'Tables(10)' selected, with 'airport' expanded. In the main query editor, the following SQL code is run:

```
1 ALTER TABLE airport ADD CONSTRAINT airport_check
2 CHECK (LENGTH(airport_name) >= 10);
```

The status bar at the bottom indicates 'Query returned successfully in 41 msec.'

## 5. Add UNIQUE constraint to some columns in each table in database.

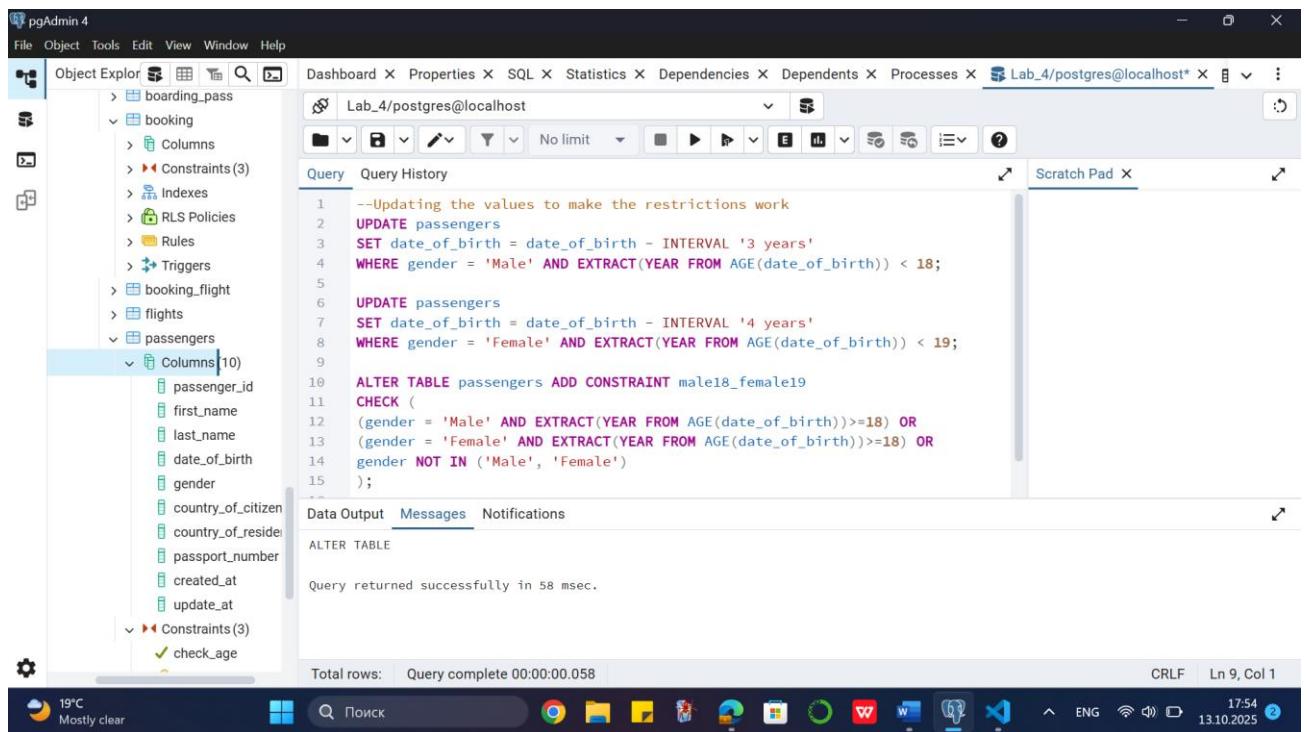


The screenshot shows the pgAdmin 4 interface with the Object Explorer on the left and a query editor on the right. The query editor contains the following SQL code:

```
ALTER TABLE airline ADD CONSTRAINT unique_airline UNIQUE(airline_id);
ALTER TABLE airport ADD CONSTRAINT unique_airport UNIQUE (airport_id);
ALTER TABLE passengers ADD CONSTRAINT unique_passport UNIQUE (passport_number);
ALTER TABLE booking ADD CONSTRAINT unique_booking UNIQUE(booking_id);
```

The Data Output tab shows the message: "Query returned successfully in 46 msec."

## 6. Add a CHECK constraint to ensure that male passengers must be at least 18 years old and female passengers must be 19 years old.



The screenshot shows the pgAdmin 4 interface with the Object Explorer on the left and a query editor on the right. The query editor contains the following SQL code:

```
--Updating the values to make the restrictions work
UPDATE passengers
SET date_of_birth = date_of_birth - INTERVAL '3 years'
WHERE gender = 'Male' AND EXTRACT(YEAR FROM AGE(date_of_birth)) < 18;

UPDATE passengers
SET date_of_birth = date_of_birth - INTERVAL '4 years'
WHERE gender = 'Female' AND EXTRACT(YEAR FROM AGE(date_of_birth)) < 19;

ALTER TABLE passengers ADD CONSTRAINT male18_female19
CHECK (
(gender = 'Male' AND EXTRACT(YEAR FROM AGE(date_of_birth))>=18) OR
(gender = 'Female' AND EXTRACT(YEAR FROM AGE(date_of_birth))>=19) OR
gender NOT IN ('Male', 'Female')
);
```

The Data Output tab shows the message: "Query returned successfully in 58 msec."

7. Add a CHECK constraint to add rule as follow (use column country\_of\_citizenship):

- Passengers from Kazakhstan must be at least 18 years old.
- Passengers from France must be at least 17 years old.
- Passengers from other countries must be at least 19 years old.

The screenshot shows the pgAdmin 4 interface. In the Object Explorer on the left, under the 'passenger' table, there is a 'Constraints(3)' section which includes a 'check\_age' constraint. The main window contains a SQL query editor with the following code:

```
1 ALTER TABLE passengers ADD CONSTRAINT country_check CHECK(
2 (country_of_citizenship = 'Kazakhstan' AND EXTRACT(YEAR FROM AGE(date_of_birth)) >= 18) OR
3 (country_of_citizenship = 'France' AND EXTRACT(YEAR FROM AGE(date_of_birth)) >= 17) OR
4 (country_of_citizenship NOT IN ('Kazakhstan', 'France') AND
5 EXTRACT(YEAR FROM AGE(date_of_birth)) >= 19)
6 );
```

The 'Messages' tab in the results pane shows the message: 'ALTER TABLE'. Below it, it says 'Query returned successfully in 41 msec.' The status bar at the bottom right indicates 'CRLF' and 'Ln 6, Col 3'.

8. Add a ticket\_discount column to table booking and a CHECK constraint to apply some discount based on ticket price and created time:

- the constraint applies a 5% discount for tickets created after 2024-01-01, and 10% discount for tickets created before 2024-01-01.

