

LAB 2

DDL

1,2,3:

```
-- Создание таблицы Airline_info
CREATE TABLE Airline_info (
    airline_id INT PRIMARY KEY NOT NULL,
    airline_code VARCHAR(30) NOT NULL,
    airline_name VARCHAR(50) NOT NULL,
    airline_country VARCHAR(50) NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL,
    info VARCHAR(50) NOT NULL
);

-- Airport
CREATE TABLE Airport (
    airport_id INT PRIMARY KEY NOT NULL,
    airport_name VARCHAR(50) NOT NULL,
    country VARCHAR(50) NOT NULL,
    state VARCHAR(50) NOT NULL,
    city VARCHAR(50) NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL
);

-- Passengers
CREATE TABLE Passengers (
    passenger_id INT PRIMARY KEY NOT NULL,
    first_name VARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    date_of_birth DATE NOT NULL,
    gender VARCHAR(50) NOT NULL,
    country_of_citizenship VARCHAR(50) NOT NULL,
    country_of_residence VARCHAR(50) NOT NULL,
    passport_number VARCHAR(20) NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL
);
```

```
-- Flights
CREATE TABLE Flights (
    flight_id INT PRIMARY KEY NOT NULL,
    sch_departure_time TIMESTAMP NOT NULL,
    sch_arrival_time TIMESTAMP NOT NULL,
    departing_airport_id INT NOT NULL,
    arriving_airport_id INT NOT NULL,
    departing_gate VARCHAR(50) NOT NULL,
    arriving_gate VARCHAR(50) NOT NULL,
    airline_id INT NOT NULL,
    act_departure_time TIMESTAMP NOT NULL,
    act_arrival_time TIMESTAMP NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL
);

-- Booking
CREATE TABLE Booking (
    booking_id INT PRIMARY KEY NOT NULL,
    flight_id INT NOT NULL,
    passenger_id INT NOT NULL,
    booking_platform VARCHAR(50) NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL,
    status VARCHAR(50) NOT NULL,
    price DECIMAL(7,2) NOT NULL
);

-- Booking_flight
CREATE TABLE Booking_flight (
    booking_flight_id INT PRIMARY KEY NOT NULL,
    booking_id INT NOT NULL,
    flight_id INT NOT NULL,
    created_at TIMESTAMP NOT NULL,
    updated_at TIMESTAMP NOT NULL
);
```

```
CREATE TABLE Boarding_pass (  
    boarding_pass_id INT PRIMARY KEY NOT NULL,  
    booking_id INT NOT NULL,  
    seat VARCHAR(50) NOT NULL,  
    boarding_time TIMESTAMP NOT NULL,  
    created_at TIMESTAMP NOT NULL,  
    updated_at TIMESTAMP NOT NULL  
);  
  
-- Baggage  
CREATE TABLE Baggage (  
    baggage_id INT PRIMARY KEY NOT NULL,  
    weight_in_kg DECIMAL(4,2) NOT NULL,  
    created_at TIMESTAMP NOT NULL,  
    updated_at TIMESTAMP NOT NULL,  
    booking_id INT NOT NULL  
);  
  
-- Baggage_check  
CREATE TABLE Baggage_check (  
    baggage_check_id INT PRIMARY KEY NOT NULL,  
    check_result VARCHAR(50) NOT NULL,  
    created_at TIMESTAMP NOT NULL,  
    updated_at TIMESTAMP NOT NULL,  
    booking_id INT NOT NULL,  
    passenger_id INT NOT NULL  
);  
  
-- Security_check  
CREATE TABLE Security_check (  
    security_check_id INT PRIMARY KEY NOT NULL,  
    check_result VARCHAR(20) NOT NULL,  
    created_at TIMESTAMP NOT NULL,  
    updated_at TIMESTAMP NOT NULL,  
    passenger_id INT NOT NULL  
);
```

4,5,6,7:

-- Переименовать таблицу

```
ALTER TABLE Airline_info RENAME TO Airline;
```

-- Переименовать колонку

```
ALTER TABLE Booking RENAME COLUMN price TO ticket_price;
```

-- Изменить тип данных

```
ALTER TABLE Flights ALTER COLUMN departing_gate TYPE TEXT;
```

-- Удалить колонку

```
ALTER TABLE Airline DROP COLUMN info;
```

8:

-- === Внешние ключи (связи) ===

```
ALTER TABLE Flights
```

```
    ADD CONSTRAINT fk_airline FOREIGN KEY (airline_id) REFERENCES Airline(airline_id),
```

```
    ADD CONSTRAINT fk_departure_airport FOREIGN KEY (departing_airport_id) REFERENCES Airport(airport_id),
```

```
    ADD CONSTRAINT fk_arrival_airport FOREIGN KEY (arriving_airport_id) REFERENCES Airport(airport_id);
```

```
ALTER TABLE Booking
```

```
    ADD CONSTRAINT fk_booking_flight FOREIGN KEY (flight_id) REFERENCES Flights(flight_id),
```

```
    ADD CONSTRAINT fk_booking_passenger FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id);
```

```
ALTER TABLE Booking_flight
```

```
    ADD CONSTRAINT fk_bf_booking FOREIGN KEY (booking_id) REFERENCES Booking(booking_id),
```

```
    ADD CONSTRAINT fk_bf_flight FOREIGN KEY (flight_id) REFERENCES Flights(flight_id);
```

```
ALTER TABLE Boarding_pass
```

```
    ADD CONSTRAINT fk_bp_booking FOREIGN KEY (booking_id) REFERENCES Booking(booking_id);
```

```
ALTER TABLE Baggage
```

```
    ADD CONSTRAINT fk_baggage_booking FOREIGN KEY (booking_id) REFERENCES Booking(booking_id);
```

```
ALTER TABLE Baggage_check
```

```
    ADD CONSTRAINT fk_bc_booking FOREIGN KEY (booking_id) REFERENCES Booking(booking_id),
```

```
    ADD CONSTRAINT fk_bc_passenger FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id);
```

```
ALTER TABLE Security_check
```

```
    ADD CONSTRAINT fk_sc_passenger FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id);
```

DML

1.

```

1 INSERT INTO Passengers (passenger_id, first_name, last_name, date_of_birth, gender, country_of_citizenship, country_of_residence, pas
2 VALUES
3 (1, 'Alex', 'Smith', '1990-01-01', 'Male', 'USA', 'USA', 'P100001', NOW(), NOW()),
4 (2, 'Maria', 'Ivanova', '1992-05-12', 'Female', 'Kazakhstan', 'Kazakhstan', 'P100002', NOW(), NOW()),
5 (3, 'John', 'Doe', '1985-07-23', 'Male', 'UK', 'France', 'P100003', NOW(), NOW()),
6 (4, 'Aigerim', 'Sultanova', '2000-03-15', 'Female', 'Kazakhstan', 'Germany', 'P100004', NOW(), NOW()),
7 (5, 'David', 'Kim', '1995-11-20', 'Male', 'Korea', 'Japan', 'P100005', NOW(), NOW()),
8 (6, 'Sarah', 'Johnson', '1988-09-14', 'Female', 'Canada', 'Canada', 'P100006', NOW(), NOW()),
9 (7, 'Michael', 'Brown', '1991-12-05', 'Male', 'Australia', 'Australia', 'P100007', NOW(), NOW()),
10 (8, 'Emma', 'Wilson', '1993-04-18', 'Female', 'UK', 'Spain', 'P100008', NOW(), NOW()),
11 (9, 'James', 'Taylor', '1987-11-30', 'Male', 'USA', 'Mexico', 'P100009', NOW(), NOW()),
12 (10, 'Olivia', 'Anderson', '1994-06-22', 'Female', 'Germany', 'Germany', 'P100010', NOW(), NOW()),
13 (11, 'Robert', 'Martinez', '1989-02-11', 'Male', 'Spain', 'Italy', 'P100011', NOW(), NOW()),
14 (12, 'Sophia', 'Garcia', '1996-08-09', 'Female', 'Mexico', 'USA', 'P100012', NOW(), NOW()),
15 (13, 'William', 'Lee', '1990-03-25', 'Male', 'China', 'China', 'P100013', NOW(), NOW()),
16 (14, 'Isabella', 'Chen', '1992-07-19', 'Female', 'Taiwan', 'Japan', 'P100014', NOW(), NOW()),
17 (15, 'Thomas', 'Wang', '1986-10-08', 'Male', 'Singapore', 'Singapore', 'P100015', NOW(), NOW()),
18 (16, 'Mia', 'Zhang', '1995-01-17', 'Female', 'China', 'UK', 'P100016', NOW(), NOW()),
19 (17, 'Charles', 'Li', '1991-05-29', 'Male', 'Hong Kong', 'Canada', 'P100017', NOW(), NOW()),
20 (18, 'Amelia', 'Liu', '1993-09-03', 'Female', 'China', 'Australia', 'P100018', NOW(), NOW()),
21 (19, 'Joseph', 'Yang', '1988-12-14', 'Male', 'Malaysia', 'Malaysia', 'P100019', NOW(), NOW()),
22 (20, 'Charlotte', 'Wu', '1994-04-07', 'Female', 'Thailand', 'Thailand', 'P100020', NOW(), NOW()),
23 (21, 'Daniel', 'Zhou', '1990-11-21', 'Male', 'Vietnam', 'France', 'P100021', NOW(), NOW()),
24 (22, 'Evelyn', 'Lin', '1992-02-28', 'Female', 'Philippines', 'Philippines', 'P100022', NOW(), NOW()),
25 (23, 'Matthew', 'Zhao', '1987-06-13', 'Male', 'Indonesia', 'Indonesia', 'P100023', NOW(), NOW()),
26 (24, 'Abigail', 'Sun', '1996-08-26', 'Female', 'India', 'India', 'P100024', NOW(), NOW()),

```

The screenshot shows the pgAdmin 4 interface with a query executed: `SELECT * FROM public.passengers ORDER BY passenger_id ASC`. The results are displayed in a table with 10 rows and 9 columns. The columns are: `passenger_id` (integer), `first_name` (character varying), `last_name` (character varying), `date_of_birth` (date), `gender` (character varying), `country_of_citizenship` (character varying), `country_of_residence` (character varying), `passport_number` (character varying), and `created_at` (timestamp).

passenger_id	first_name	last_name	date_of_birth	gender	country_of_citizenship	country_of_residence	passport_number	created_at
1	Alex	Smith	1990-01-01	Male	USA	USA	P100001	2025
2	Maria	Ivanova	1992-05-12	Female	Kazakhstan	Kazakhstan	P100002	2025
3	John	Doe	1985-07-23	Male	UK	France	P100003	2025
4	Aigerim	Sultanova	2000-03-15	Female	Kazakhstan	Germany	P100004	2025
5	David	Kim	1995-11-20	Male	Korea	Japan	P100005	2025
6	Sarah	Johnson	1988-09-14	Female	Canada	Canada	P100006	2025
7	Michael	Brown	1991-12-05	Male	Australia	Australia	P100007	2025
8	Emma	Wilson	1993-04-18	Female	UK	Spain	P100008	2025
9	James	Taylor	1987-11-30	Male	USA	Mexico	P100009	2025
10	Olivia	Anderson	1994-06-22	Female	Germany	Germany	P100010	2025

2.

-- Добавить одну авиалинию KazAir

```

INSERT INTO Airline (airline_id, airline_code, airline_name, airline_country, created_at, updated_at)
VALUES (1, 'KZ001', 'KazAir', 'Kazakhstan', NOW(), NOW());

```

3.

-- Обновить страну KazAir

```

UPDATE Airline SET airline_country = 'Turkey' WHERE airline_name = 'KazAir';

```

4.

```
-- Добавить 3 авиалинии сразу
INSERT INTO Airline (airline_id, airline_code, airline_name, airline_country, created_at, updated_at)
VALUES
(2, 'FR001', 'AirEasy', 'France', NOW(), NOW()),
(3, 'BR001', 'FlyHigh', 'Brazil', NOW(), NOW()),
(4, 'PL001', 'FlyFly', 'Poland', NOW(), NOW());
```

5.

```
-- Удалить все рейсы с прибытием в 2024 году
DELETE FROM Flights WHERE EXTRACT(YEAR FROM sch_arrival_time) = 2024;
```

6.

```
-- Увеличить цену всех билетов на 15%
UPDATE Booking SET ticket_price = ticket_price * 1.15;
```

7.

```
-- Удалить все билеты дешевле 10000
DELETE FROM Booking WHERE ticket_price < 10000;
|
```