

Laboratory work #2

DDL

1. Create following tables with corresponding attributes,

2. Define Primary Keys for each tables;

3. Define for all attributes not null constraint;

```
1  -- DDL PART
2  -- 1 task
3  CREATE TABLE airline_info (
4      airline_id INT PRIMARY KEY NOT NULL,
5      airline_code VARCHAR(30) NOT NULL,
6      airline_name VARCHAR(50) NOT NULL,
7      airline_country VARCHAR(50) NOT NULL,
8      created_at TIMESTAMP NOT NULL,
9      updated_at TIMESTAMP NOT NULL,
10     info VARCHAR(50) NOT NULL
11 );
12
13 CREATE TABLE airport (
14     airport_id INT PRIMARY KEY NOT NULL,
15     airport_name VARCHAR(50) NOT NULL,
16     country VARCHAR(50) NOT NULL,
17     state VARCHAR(50) NOT NULL,
18     city VARCHAR(50) NOT NULL,
19     created_at TIMESTAMP NOT NULL,
20     updated_at TIMESTAMP NOT NULL
21 );
22
23 CREATE TABLE baggage_check (
24     baggage_check_id INT PRIMARY KEY NOT NULL,
25     check_result VARCHAR(50) NOT NULL,
26     created_at TIMESTAMP NOT NULL,
27     updated_at TIMESTAMP NOT NULL,
28     booking_id INT NOT NULL,
29     passenger_id INT NOT NULL
30 );
31
32 CREATE TABLE baggage (
33     baggage_id INT PRIMARY KEY NOT NULL,
34     weight_in_kg DECIMAL(4,2) NOT NULL,
35     created_at TIMESTAMP NOT NULL,
36     updated_at TIMESTAMP NOT NULL,
37     booking_id INT NOT NULL
38 );
39
40 CREATE TABLE boarding_pass (
41     boarding_pass_id INT PRIMARY KEY NOT NULL,
42     booking_id INT NOT NULL,
43     seat VARCHAR(50) NOT NULL,
44     boarding_time TIMESTAMP NOT NULL,
45     created_at TIMESTAMP NOT NULL,
46     updated_at TIMESTAMP NOT NULL
47 );
48
49 CREATE TABLE booking_flight (
50     booking_flight_id INT PRIMARY KEY NOT NULL,
51     booking_id INT NOT NULL,
52     flight_id INT NOT NULL,
53     created_at TIMESTAMP NOT NULL,
54     updated_at TIMESTAMP NOT NULL
55 );
56
57 CREATE TABLE booking (
58     booking_id INT PRIMARY KEY NOT NULL,
59     flight_id INT NOT NULL,
60     passenger_id INT NOT NULL,
61     booking_platform VARCHAR(50) NOT NULL,
62     created_at TIMESTAMP NOT NULL,
63     updated_at TIMESTAMP NOT NULL,
64     status VARCHAR(50) NOT NULL,
65     price DECIMAL(7,2) NOT NULL
66 );
67
68 CREATE TABLE flights (
69     flight_id INT PRIMARY KEY NOT NULL,
70     sch_departure_time TIMESTAMP NOT NULL,
71     sch_arrival_time TIMESTAMP NOT NULL,
72     departing_airport_id INT NOT NULL,
73     arriving_airport_id INT NOT NULL,
74     departing_gate VARCHAR(50) NOT NULL,
75     arriving_gate VARCHAR(50) NOT NULL,
76     airline_id INT NOT NULL,
77     act_departure_time TIMESTAMP NOT NULL,
78     act_arrival_time TIMESTAMP NOT NULL,
79     created_at TIMESTAMP NOT NULL,
80     updated_at TIMESTAMP NOT NULL
81 );
82
83 CREATE TABLE passengers (
84     passenger_id INT PRIMARY KEY NOT NULL,
85     first_name VARCHAR(50) NOT NULL,
86     last_name VARCHAR(50) NOT NULL,
87     date_of_birth DATE NOT NULL,
88     gender VARCHAR(50) NOT NULL,
89     country_of_citizenship VARCHAR(50) NOT NULL,
90     country_of_residence VARCHAR(50) NOT NULL,
91     passport_number VARCHAR(20) NOT NULL,
92     created_at TIMESTAMP NOT NULL,
93     updated_at TIMESTAMP NOT NULL
94 );
95
```

```
96  ✓ CREATE TABLE security_check (  
97      security_check_id INT PRIMARY KEY NOT NULL,  
98      check_result VARCHAR(20) NOT NULL,  
99      created_at TIMESTAMP NOT NULL,  
100     updated_at TIMESTAMP NOT NULL,  
101     passenger_id INT NOT NULL  
102 );
```

5. Rename airline_info table to airline;

```
104  -- 5 task  
105  ALTER TABLE airline_info RENAME TO airline;
```

6. Rename column price to ticket_price in booking table;

```
107  -- 6 task  
108  ALTER TABLE booking RENAME COLUMN price TO ticket_price;
```

7. Change data type of departing_gate from varchar(50) to text;

```
110  -- 7 task  
111  ALTER TABLE flights ALTER COLUMN departing_gate TYPE text;
```

8. Drop the column info(varchar(50)) from the airline table.

















```
113  -- 8 task  
114  ALTER TABLE airline DROP COLUMN info;
```







9. Make a relationship between following tables:






```
163 -- Airport with Flights (arriving)
164 ALTER TABLE flights
165 ADD CONSTRAINT fk_flights_arriving_airport
166 FOREIGN KEY (arriving_airport_id) REFERENCES airport(airport_id);
167
168 -- Airline with Flights
169 ALTER TABLE flights
170 ADD CONSTRAINT fk_flights_airline
171 FOREIGN KEY (airline_id) REFERENCES airline(airline_id);
```






1. Generate and insert 200 random rows in your airport database.






	airline_id [PK] integer	airline_code character varying (30)	airline_name character varying (300)	airline_country character varying (50)	created_at timestamp without time zone	updated_at timestamp without time zone	info character varying (50)
1	1	SA	South African Airways	France	2024-10-05 00:00:00	2025-01-18 00:00:00	odio
2	2	SQ	Singapore Airlines	China	2025-03-22 00:00:00	2024-12-12 00:00:00	purus
3	3	SK	SAS Scandinavian	France	2025-04-24 00:00:00	2024-12-30 00:00:00	erat
4	4	AI	Air India	Thailand	2025-07-16 00:00:00	2025-08-22 00:00:00	curabitur
5	5	SQ	Singapore Airlines	Netherlands	2025-06-05 00:00:00	2024-11-30 00:00:00	non ligula
6	6	TG	Thai Airways	Singapore	2025-03-05 00:00:00	2024-09-26 00:00:00	curabitur in
7	7	BA	British Airways	France	2025-01-28 00:00:00	2024-10-14 00:00:00	justo pellentesque
8	8	AZ	Alitalia	France	2024-11-16 00:00:00	2025-04-23 00:00:00	nulla dapibus
9	9	SA	South African Airways	France	2025-09-02 00:00:00	2024-10-19 00:00:00	nisi
10	10	AV	Avianca	USA	2025-09-08 00:00:00	2024-09-23 00:00:00	cras
Total rows: 204		Query complete 00:00:00.083					

Showing rows: 1 to 200  Page No: 1 of 1  							
	     						
							
	airport_id [PK] integer	airport_name character varying (150)	country character varying (150)	state character varying (150)	city character varying (150)	created_at timestamp without time zone	updated_at timestamp without time zone
1	1	Sarzana-Luni Air Base	China	IL	Xianbao	2025-09-18 00:00:00	2024-12-02 00:00:00
2	2	Tumeremo Airport	Malaysia	FL	Raub	2024-11-15 00:00:00	2025-04-19 00:00:00
3	3	Wologorang Airport	Portugal	MN	Santa Maria Oliveira	2025-08-19 00:00:00	2024-11-10 00:00:00
4	4	Yorkton Municipal Airport	Poland	LA	Smoldzino	2025-04-09 00:00:00	2025-06-30 00:00:00
5	5	Kenosha Regional Airport	Canada	KS	Saint-Bruno-de-Guigues	2025-03-21 00:00:00	2025-01-12 00:00:00
6	6	Senadora Eunice Micheles Airport	China	MA	Shuanghe	2025-05-19 00:00:00	2025-08-28 00:00:00
7	7	Riverside Airport	Indonesia	MI	Sukarama	2025-03-21 00:00:00	2025-05-05 00:00:00
8	8	Lalmonirhat Airport	Russia	AL	Pikalëvo	2024-09-30 00:00:00	2025-09-05 00:00:00
9	9	Puerto Leda Airport	Brazil	MT	Santa Quitéria do Maranhão	2024-10-21 00:00:00	2025-07-18 00:00:00
10	10	Bembridge Airport	Morocco	TX	Moulay Yacoub	2024-12-30 00:00:00	2025-02-04 00:00:00
Total rows: 200		Query complete 00:00:00.122					LF Ln 15

						
	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
1	1	Eartha	2025-07-04 00:00:00	2025-05-19 00:00:00	45527	1
2	2	Morna	2024-10-28 00:00:00	2025-06-29 00:00:00	29	2
3	3	Yettie	2025-03-26 00:00:00	2025-03-16 00:00:00	3815	3
4	4	Averyl	2025-01-09 00:00:00	2025-09-01 00:00:00	56	4
5	5	Raimundo	2025-01-08 00:00:00	2025-04-15 00:00:00	779	5
6	6	Martelle	2025-04-14 00:00:00	2024-12-06 00:00:00	4	6
7	7	Melvyn	2025-08-08 00:00:00	2025-06-28 00:00:00	62734	7
8	8	Lissa	2024-12-16 00:00:00	2024-11-06 00:00:00	51761	8
9	9	Jo ann	2025-07-05 00:00:00	2025-06-08 00:00:00	7	9
10	10	Pammie	2024-12-03 00:00:00	2025-04-01 00:00:00	76	10
Total rows: 200		Query complete 00:00:00.133				

					
	baggage_id [PK] integer	weight_in_kg numeric (4,2)	created_at timestamp without time zone	updated_at timestamp without time zone	booking_id integer
1	1	20.00	2024-10-27 00:00:00	2024-11-28 00:00:00	1
2	2	14.00	2025-06-01 00:00:00	2025-03-31 00:00:00	2
3	3	12.00	2024-10-13 00:00:00	2025-05-23 00:00:00	3
4	4	9.00	2025-04-17 00:00:00	2025-05-30 00:00:00	4
5	5	4.00	2024-12-29 00:00:00	2024-12-29 00:00:00	5
6	6	3.00	2025-05-05 00:00:00	2025-03-07 00:00:00	6
7	7	11.00	2025-01-27 00:00:00	2024-12-28 00:00:00	7
8	8	7.00	2025-06-19 00:00:00	2024-10-06 00:00:00	8
9	9	5.00	2024-10-15 00:00:00	2024-12-07 00:00:00	9
10	10	10.00	2024-11-13 00:00:00	2025-05-09 00:00:00	10
Total rows: 200		Query complete 00:00:00.208			

	baggage_id [PK] integer 	weight_in_kg numeric (4,2) 	created_at timestamp without time zone 	updated_at timestamp without time zone 	booking_id integer 
1	1	20.00	2024-10-27 00:00:00	2024-11-28 00:00:00	1
2	2	14.00	2025-06-01 00:00:00	2025-03-31 00:00:00	2
3	3	12.00	2024-10-13 00:00:00	2025-05-23 00:00:00	3
4	4	9.00	2025-04-17 00:00:00	2025-05-30 00:00:00	4
5	5	4.00	2024-12-29 00:00:00	2024-12-29 00:00:00	5
6	6	3.00	2025-05-05 00:00:00	2025-03-07 00:00:00	6
7	7	11.00	2025-01-27 00:00:00	2024-12-28 00:00:00	7
8	8	7.00	2025-06-19 00:00:00	2024-10-06 00:00:00	8
9	9	5.00	2024-10-15 00:00:00	2024-12-07 00:00:00	9
10	10	10.00	2024-11-13 00:00:00	2025-05-09 00:00:00	10

	booking_flight_id [PK] integer 	booking_id integer 	flight_id integer 	created_at timestamp without time zone 	updated_at timestamp without time zone 
1	1	1	1	2024-11-21 00:00:00	2025-08-17 00:00:00
2	2	2	2	2025-07-01 00:00:00	2025-02-20 00:00:00
3	3	3	3	2024-12-27 00:00:00	2025-06-08 00:00:00
4	4	4	4	2025-09-03 00:00:00	2025-09-19 00:00:00
5	5	5	5	2025-04-01 00:00:00	2025-03-21 00:00:00
6	6	6	6	2025-02-28 00:00:00	2025-03-27 00:00:00
7	7	7	7	2025-09-15 00:00:00	2025-01-02 00:00:00
8	8	8	8	2025-07-01 00:00:00	2025-05-14 00:00:00
9	9	9	9	2025-01-15 00:00:00	2024-11-28 00:00:00
10	10	10	10	2024-10-31 00:00:00	2025-08-16 00:00:00

	flight_id	sch_departure_time	sch_arrival_time	departing_airport_id	arriving_airport_id	departing_gate	arriving_gate	airline_id	act_departure_time	act_arrival_time
	[PK] integer	timestamp without time zone	timestamp without time zone	integer	integer	character varying (50)	character varying (50)	integer	timestamp without time zone	timestamp without time zone
1	2	2025-07-10 00:00:00	2025-06-17 00:00:00	2	2	LA2448	LA	2	2025-08-07 00:00:00	2025-07-10 00:00:00
2	4	2025-06-20 00:00:00	2025-03-08 00:00:00	4	4	BA7332	BA	4	2025-04-10 00:00:00	2025-06-20 00:00:00
3	5	2025-08-30 00:00:00	2025-06-06 00:00:00	5	5	AA6702	AA	5	2025-07-21 00:00:00	2025-08-30 00:00:00
4	6	2025-03-20 00:00:00	2025-05-20 00:00:00	6	6	NH4005	NH	6	2025-03-12 00:00:00	2025-03-20 00:00:00
5	7	2025-03-20 00:00:00	2025-04-12 00:00:00	7	7	SK4201	SK	7	2025-07-13 00:00:00	2025-03-20 00:00:00
6	8	2024-10-06 00:00:00	2025-03-09 00:00:00	8	8	UA7982	UA	8	2025-05-09 00:00:00	2024-10-06 00:00:00
7	9	2025-03-09 00:00:00	2025-07-17 00:00:00	9	9	SQ8522	SQ	9	2024-10-24 00:00:00	2025-03-09 00:00:00
8	10	2025-06-04 00:00:00	2025-07-10 00:00:00	10	10	SQ9811	SQ	10	2025-03-16 00:00:00	2025-06-04 00:00:00
9	11	2025-05-27 00:00:00	2025-07-04 00:00:00	11	11	KL6990	KL	11	2024-09-30 00:00:00	2025-05-27 00:00:00
10	12	2024-10-06 00:00:00	2025-05-20 00:00:00	12	12	UA7364	UA	12	2025-06-03 00:00:00	2024-10-06 00:00:00

SQL

Showing rows: 1 to 200

Page No: 1

of 1

	passenger_id [PK] integer	first_name character varying (50)	last_name character varying (50)	date_of_birth date	gender character varying (50)	country_of_citizenship character varying (50)	country_of_residence character varying (50)	passport_number character varying (20)	created_at timestamp without time zone	updated_at timestamp without time zone
1	1	Jess	Strongman	2025-02-14	Female	Slovenia	Ireland	064202682	2025-07-17 00:00:00	2025
2	2	Edgardo	Hawyes	2024-10-08	Male	France	Indonesia	101107080	2025-03-17 00:00:00	2025
3	3	Hester	Wooler	2024-10-14	Genderqueer	Indonesia	Portugal	072413036	2025-02-19 00:00:00	2024
4	4	Jayson	Mogg	2025-05-23	Male	Indonesia	China	113007835	2025-04-17 00:00:00	2025
5	5	Xylina	Blewis	2024-09-26	Bigender	Portugal	Burkina Faso	221172610	2025-09-17 00:00:00	2025
6	6	Ches	Moreside	2025-09-10	Male	Russia	China	101000077	2025-03-16 00:00:00	2024
7	7	Ruby	Maddick	2025-02-19	Male	Poland	Philippines	082902757	2024-11-11 00:00:00	2025
8	8	Donella	Cribbott	2025-01-22	Female	Mexico	Mongolia	103103642	2025-06-16 00:00:00	2025
9	9	Lennie	Filloux	2025-06-18	Male	Malaysia	China	026011507	2025-01-17 00:00:00	2024
10	10	Morgan	Morgan	2025-08-05	Female	China	Canada	000000000	2025-08-05 00:00:00	2025

	security_check_id [PK] integer	check_result character varying (150)	created_at timestamp without time zone	updated_at timestamp without time zone	passenger_id integer
1	1	eros	2025-04-22 00:00:00	2024-09-30 00:00:00	1
2	2	proin at	2024-12-23 00:00:00	2025-08-12 00:00:00	2
3	3	at turpis	2025-06-16 00:00:00	2024-12-21 00:00:00	3
4	4	id	2025-06-21 00:00:00	2025-08-18 00:00:00	4
5	5	potenti	2024-10-03 00:00:00	2025-01-18 00:00:00	5
6	6	sapien	2025-05-31 00:00:00	2024-10-01 00:00:00	6
7	7	quisque erat	2025-01-27 00:00:00	2025-05-31 00:00:00	7
8	8	rutrum	2024-09-30 00:00:00	2025-02-06 00:00:00	8
9	9	suscipit	2025-03-06 00:00:00	2024-09-24 00:00:00	9
10	10	id	2025-03-22 00:00:00	2024-11-11 00:00:00	10
Total rows: 200		Query complete 00:00:00.150			

2. Add a new airline named "KazAir" based in "Kazakhstan" to the airline table.

```

195 --dml
196 -- task 2
197 INSERT INTO airline_info (airline_id, airline_code, airline_name, airline_country, created_at, updated_at, info)
198 VALUES (201, 'KZ001', 'KazAir', 'Kazakhstan', NOW(), NOW(), 'National airline');
199

```

3. Update the airline country "KazAir" to "Turkey".

```

199 --task 3
200 UPDATE airline_info SET airline_country = 'Turkey' WHERE airline_name = 'KazAir';
201

```

Data Output
Messages
Notifications

UPDATE 1

Query returned successfully in 53 msec.

4. Add three airlines at once: "AirEasy" in "France", "FlyHigh" in "Brazil" and "FlyFly" in "Poland".

```

203 --task 4
204 INSERT INTO airline_info (airline_id, airline_code, airline_name, airline_country, created_at, updated_at, info) VALUES
205 (203, 'FR001', 'AirEasy', 'France', NOW(), NOW(), 'French airline'),
206 (204, 'BR001', 'FlyHigh', 'Brazil', NOW(), NOW(), 'Brazilian airline'),
207 (205, 'PL001', 'FlyFly', 'Poland', NOW(), NOW(), 'Polish airline');

```

5. Delete all flights whose arrival in 2024 year.

```

208 --task 5
209 DELETE FROM flights WHERE sch_arrival_time BETWEEN '2024-01-01' AND '2024-12-31';

```

Data Output
Messages
Notifications

DELETE 0

Query returned successfully in 58 msec.

6. Increase the price of all tickets in booking table for flights by 15%.

```
211 --task 6
212 UPDATE booking SET price = price * 1.15;
```

Data Output Messages Notifications

UPDATE 0

Query returned successfully in 51 msec.

7. Delete all tickets where price is less than 10000.

```
214 --task 7
215 DELETE FROM booking WHERE price < 10000;
216
```

Data Output Messages Notifications

DELETE 0

Query returned successfully in 49 msec.