

## 3.4 SQL Functions and JOINS: Homework

1. Open the [Flight Search UI](#) of the educational application.
2. Write a query that will show the flight number, arrival airport name, and departure airport name values. Pay attention, that in the *flights* table, we have only the IDs of the airports, not names, we need JOIN to show names.
3. Write an SQL query, that returns the same result as the result on the UI, as in the picture below (attached as a file).

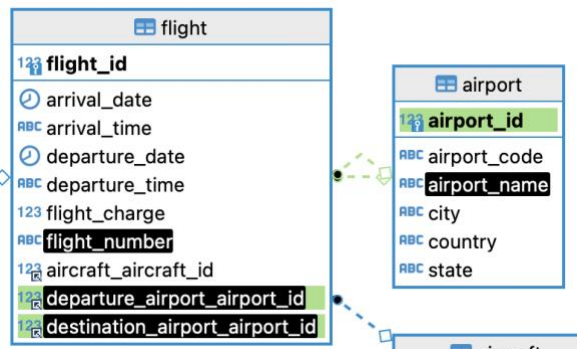
### Result

ID	Flight Number	From	To	Departure time	Arrival time	Flight Charge	Aircraft	Available Seats
1	ZY-8171	Brighton Early	Gladys Eeya	2022-09-25 Sun Sep 25 00:22:33 UTC 2022	2022-09-26 Sun Sep 25 01:26:09 UTC 2022	746.8465246989646	IL-2	-2/1

Add a caption

1. Write a query that will show the flight number, arrival airport name, and departure airport name values. Pay attention, that in the *flights* table, we have only the IDs of the airports, not names, we need JOIN to show names.

To write a query I'll use information from 2 tables: flight and airport.



```
SELECT DISTINCT f.flight_number as 'Flight Number', a.airport_name as 'Departure
airport', a2.airport_name as 'Arrival airport'
FROM flight f
JOIN airport a
ON f.departure_airport_airport_id = a.airport_id
JOIN airport a2
ON f.destination_airport_airport_id = a2.airport_id
```

**GROUP BY** f.flight\_id

	ABC Flight Number ▼	ABC Departure airport ▼	ABC Arrival airport ▼
1	ced-chi05	Cedar Rapid Airport	Chicago Airport
2	chi-cedar01	Chicago Airport	Cedar Rapid Airport
3	CHI-CLN-N	Chicago Airport	California Airport
4	dal - cal	Dallas Love Field	California Airport
5	dallas-dubai100	Dallas Love Field	Dubai Creek SPB
6	dubai-dalas110	Dubai Creek SPB	Dallas Love Field
7	IA-TEX101	Cedar Rapid Airport	Texas Airport

Or a query with another order: **flight number, arrival airport name, and departure airport name**:

**SELECT DISTINCT** f.flight\_number **as** 'Flight Number', a.airport\_name **as** 'Arrival airport', a2.airport\_name **as** 'Departure airport'

**FROM** flight f

**JOIN** airport a

**ON** f.destination\_airport\_airport\_id = a.airport\_id

**JOIN** airport a2

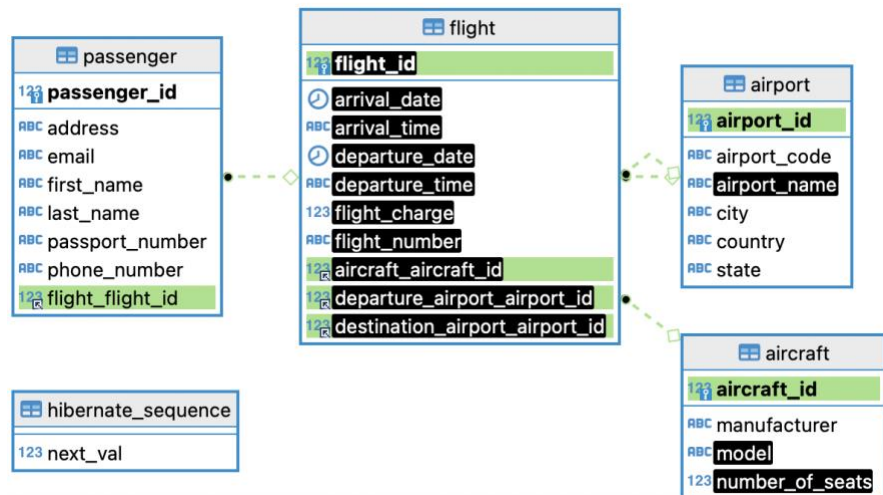
**ON** f.departure\_airport\_airport\_id = a2.airport\_id

**GROUP BY** f.flight\_id

	ABC Flight Number ▼	ABC Arrival airport ▼	ABC Departure airport ▼
1	ced-chi05	Chicago Airport	Cedar Rapid Airport
2	chi-cedar01	Cedar Rapid Airport	Chicago Airport
3	CHI-CLN-N	California Airport	Chicago Airport
4	dal - cal	California Airport	Dallas Love Field
5	dallas-dubai100	Dubai Creek SPB	Dallas Love Field
6	dubai-dalas110	Dallas Love Field	Dubai Creek SPB
7	IA-TEX101	Texas Airport	Cedar Rapid Airport

2. Write an SQL query, that returns the same result as the result on the UI, as in the picture below (attached as a file).

To get result we should use some information from 4 tables: flight, airport, aircraft and passenger.



Query for flights with passengers:

**SELECT** f.flight\_id **as** 'ID', f.flight\_number **as** 'Flight Number', a.airport\_name **as** 'From',  
a2.airport\_name **as** 'To',

**CONCAT\_WS**(' ', f.departure\_date, f.departure\_time) **as** 'Departure time',

**CONCAT\_WS**(' ', f.arrival\_date, f.arrival\_time) **as** 'Arrival time',

f.flight\_charge **as** 'Flight charge', a3.model **as** 'Aircraft',

*/\*COUNT(p.passenger\_id) as 'Number of passengers',\*/*

*/\*a3.number\_of\_seats - COUNT(p.passenger\_id) as 'Number of Available seats',\*/*

**CONCAT**(a3.number\_of\_seats - **COUNT**(p.passenger\_id), '/', a3.number\_of\_seats) **as**  
'Available seats'

**FROM** flight f

**JOIN** airport a

**ON** f.departure\_airport\_airport\_id = a.airport\_id

**JOIN** airport a2

**ON** f.destination\_airport\_airport\_id = a2.airport\_id

**JOIN** aircraft a3

**ON** f.aircraft\_aircraft\_id = a3.aircraft\_id

**JOIN** passenger p

**ON** p.flight\_flight\_id = f.flight\_id

**GROUP BY** f.flight\_id

123 ID	RBC Flight Number	RBC From	RBC To	RBC Departure time	RBC Arrival time	123 Flight charge	RBC Aircraft	RBC Available seats
5	dallas-dubai100	Dallas Love Field	Dubai Creek SPB	2023-10-04 08:00	2023-10-04 10:30	1,200	Boeing 307	97/100
6	dubai-dallas110	Dubai Creek SPB	Dallas Love Field	2023-10-04 10:20	2023-10-04 00:20	1,600	Boeing 307	99/100
33	dal - cal	Dallas Love Field	California Airport	2023-10-04 00:00	2023-10-04 21:00	500	Boeing 737	299/300
56	CHI-CLN-N	Chicago Airport	California Airport	2023-11-17 10:15	2023-11-17 15:50	435	Airbus A340	335/340

Query for all flights:

**SELECT** f.flight\_id **as** 'ID', f.flight\_number **as** 'Flight Number', a.airport\_name **as** 'From',  
a2.airport\_name **as** 'To',

**CONCAT\_WS**(' ', f.departure\_date, f.departure\_time) **as** 'Departure time',

**CONCAT\_WS**(' ', f.arrival\_date, f.arrival\_time) **as** 'Arrival time',

f.flight\_charge **as** 'Flight charge', a3.model **as** 'Aircraft',

/\*COUNT(p.passenger\_id) as 'Number of passengers'\*/

/\*a3.number\_of\_seats - COUNT(p.passenger\_id) as 'Number of Available seats',\*/

**CONCAT**(a3.number\_of\_seats - **COUNT**(p.passenger\_id), '/', a3.number\_of\_seats) **as**  
'Available seats'

**FROM** flight f

**JOIN** airport a

**ON** f.departure\_airport\_airport\_id = a.airport\_id

**JOIN** airport a2

**ON** f.destination\_airport\_airport\_id = a2.airport\_id

**JOIN** aircraft a3

**ON** f.aircraft\_aircraft\_id = a3.aircraft\_id

**LEFT JOIN** passenger p

ON p.flight\_flight\_id = f.flight\_id

GROUP BY f.flight\_id

	ID	Flight Number	From	To	Departure time	Arrival time	Flight charge	Aircraft	Available seats
1	6	dubai-dalas110	Dubai Creek SPB	Dallas Love Field	2023-10-04 10:20	2023-10-04 00:20	1,600	Boeing 307	99/100
2	39	dubai-dalas110	Dubai Creek SPB	Dallas Love Field	2023-10-05 10:20	2023-10-05 00:20	1,500	Boeing 307	100/100
3	45	dubai-dalas110	Dubai Creek SPB	Dallas Love Field	2023-10-06 10:20	2023-10-06 00:20	1,500	Boeing 307	100/100
4	51	dubai-dalas110	Dubai Creek SPB	Dallas Love Field	2023-10-07 10:20	2023-10-07 00:20	1,200	Boeing 307	100/100
5	5	dallas-dubai100	Dallas Love Field	Dubai Creek SPB	2023-10-04 08:00	2023-10-04 10:30	1,200	Boeing 307	97/100
6	38	dallas-dubai100	Dallas Love Field	Dubai Creek SPB	2023-10-05 08:00	2023-10-05 10:30	1,100	Boeing 307	100/100
7	44	dallas-dubai100	Dallas Love Field	Dubai Creek SPB	2023-10-06 08:00	2023-10-06 10:30	1,100	Boeing 307	100/100
8	50	dallas-dubai100	Dallas Love Field	Dubai Creek SPB	2023-10-07 08:00	2023-10-07 10:30	1,000	Boeing 307	100/100
9	25	chi-cedar01	Chicago Airport	Cedar Rapid Airpo	2023-10-04 07:00	2023-10-04 09:00	250	Boeing 307	100/100
10	40	chi-cedar01	Chicago Airport	Cedar Rapid Airpo	2023-10-05 07:00	2023-10-05 09:00	150	Boeing 307	100/100
11	46	chi-cedar01	Chicago Airport	Cedar Rapid Airpo	2023-10-06 07:00	2023-10-06 09:00	140	Boeing 307	100/100
12	52	chi-cedar01	Chicago Airport	Cedar Rapid Airpo	2023-10-07 07:00	2023-10-07 09:00	90	Boeing 307	100/100
13	26	ced-chi05	Cedar Rapid Airpo	Chicago Airport	2023-10-04 14:00	2023-10-04 16:00	180	Airbus A220	200/200
14	41	ced-chi05	Cedar Rapid Airpo	Chicago Airport	2023-10-05 14:00	2023-10-05 16:00	110	Airbus A220	200/200
15	47	ced-chi05	Cedar Rapid Airpo	Chicago Airport	2023-10-06 14:00	2023-10-06 16:00	100	Airbus A220	200/200
16	53	ced-chi05	Cedar Rapid Airpo	Chicago Airport	2023-10-07 14:00	2023-10-07 16:00	90	Airbus A220	200/200
17	33	dal - cal	Dallas Love Field	California Airport	2023-10-04 00:00	2023-10-04 21:00	500	Boeing 737	299/300
18	42	dal - cal	Dallas Love Field	California Airport	2023-10-05 00:00	2023-10-05 21:00	400	Boeing 737	300/300
19	48	dal - cal	Dallas Love Field	California Airport	2023-10-06 00:00	2023-10-06 21:00	400	Boeing 737	300/300
20	54	dal - cal	Dallas Love Field	California Airport	2023-10-07 00:00	2023-10-07 21:00	400	Boeing 737	300/300
21	56	CHI-CLN-N	Chicago Airport	California Airport	2023-11-17 10:15	2023-11-17 15:50	435	Airbus A340	335/340
22	37	IA-TEX101	Cedar Rapid Airpo	Texas Airport	2023-10-04 08:00	2023-10-04 14:40	650	Boeing 201	180/180
23	43	IA-TEX101	Cedar Rapid Airpo	Texas Airport	2023-10-05 08:00	2023-10-05 14:40	550	Boeing 201	180/180

Refresh Save Cancel

Export data 200

25 25 row(s) fetched - 72ms, on 2023-11-22 at 23:10:25

The “same” information we can see on the UI: (Actually on the UI there is a problem – some flights we see doubled and some flights we don’t see at all)

## Flights

ID	Flight Number	From	To	Departure	Arrival	Flight Charge	Aircraft	Available Seats
5	dallas-dubai100	Dallas Love Field \ DAL	Dubai Creek SPB / DCG	2023-10-04 08:00	2023-10-04 10:30	1200.0	Boeing 307	97/100
33	dal - cal	Dallas Love Field \ DAL	California Airport / CLN	2023-10-04 00:00	2023-10-04 21:00	500.0	Boeing 737	299/300
38	dallas-dubai100	Dallas Love Field \ DAL	Dubai Creek SPB / DCG	2023-10-05 08:00	2023-10-05 10:30	1100.0	Boeing 307	100/100
42	dal - cal	Dallas Love Field \ DAL	California Airport / CLN	2023-10-05 00:00	2023-10-05 21:00	400.0	Boeing 737	300/300
44	dallas-dubai100	Dallas Love Field \ DAL	Dubai Creek SPB / DCG	2023-10-06 08:00	2023-10-06 10:30	1100.0	Boeing 307	100/100

# 1 2 3 4 5

## Flights

ID	Flight Number	From	To	Departure	Arrival	Flight Charge	Aircraft	Available Seats
33	dal - cal	Dallas Love Field \ DAL	California Airport / CLN	2023-10-04 00:00	2023-10-04 21:00	500.0	Boeing 737	299/300
5	dallas-dubai100	Dallas Love Field \ DAL	Dubai Creek SPB / DCG	2023-10-04 08:00	2023-10-04 10:30	1200.0	Boeing 307	97/100
54	dal - cal	Dallas Love Field \ DAL	California Airport / CLN	2023-10-07 00:00	2023-10-07 21:00	400.0	Boeing 737	300/300
45	dubai-dalas110	Dubai Creek SPB \ DCG	Dallas Love Field / DAL	2023-10-06 10:20	2023-10-06 00:20	1500.0	Boeing 307	100/100
51	dubai-dalas110	Dubai Creek SPB \ DCG	Dallas Love Field / DAL	2023-10-07 10:20	2023-10-07 00:20	1200.0	Boeing 307	100/100

# 1 2 3 4 5

## Flights

ID	Flight Number	From	To	Departure	Arrival	Flight Charge	Aircraft	Available Seats
45	dubai-dalas110	Dubai Creek SPB \ DCG	Dallas Love Field / DAL	2023-10-06 10:20	2023-10-06 00:20	1500.0	Boeing 307	100/100
39	dubai-dalas110	Dubai Creek SPB \ DCG	Dallas Love Field / DAL	2023-10-05 10:20	2023-10-05 00:20	1500.0	Boeing 307	100/100
43	IA-TEX101	Cedar Rapid Airport \ CID	Texas Airport / TEX	2023-10-05 08:00	2023-10-05 14:40	550.0	Boeing 201	180/180
41	ced-chi05	Cedar Rapid Airport \ CID	Chicago Airport / CHI	2023-10-05 14:00	2023-10-05 16:00	110.0	Airbus A220	200/200
47	ced-chi05	Cedar Rapid Airport \ CID	Chicago Airport / CHI	2023-10-06 14:00	2023-10-06 16:00	100.0	Airbus A220	200/200

# 1 2 3 4 5



## Flights

ID	Flight Number	From	To	Departure	Arrival	Flight Charge	Aircraft	Available Seats	
49	IA-TEX101	Cedar Rapid Airport \ CID	Texas Airport / TEX	2023-10-06 08:00	2023-10-06 14:40	600.0	Boeing 201	180/180	✕
37	IA-TEX101	Cedar Rapid Airport \ CID	Texas Airport / TEX	2023-10-04 08:00	2023-10-04 14:40	650.0	Boeing 201	180/180	✕
26	ced-chi05	Cedar Rapid Airport \ CID	Chicago Airport / CHI	2023-10-04 14:00	2023-10-04 16:00	180.0	Airbus A220	200/200	✕
53	ced-chi05	Cedar Rapid Airport \ CID	Chicago Airport / CHI	2023-10-07 14:00	2023-10-07 16:00	90.0	Airbus A220	200/200	✕
55	IA-TEX101	Cedar Rapid Airport \ CID	Texas Airport / TEX	2023-10-07 08:00	2023-10-07 14:40	600.0	Boeing 201	180/180	✕

# 1 2 3 4 5

## Flights

ID	Flight Number	From	To	Departure	Arrival	Flight Charge	Aircraft	Available Seats	
40	chi-cedar01	Chicago Airport \ CHI	Cedar Rapid Airport / CID	2023-10-05 07:00	2023-10-05 09:00	150.0	Boeing 307	100/100	✕
46	chi-cedar01	Chicago Airport \ CHI	Cedar Rapid Airport / CID	2023-10-06 07:00	2023-10-06 09:00	140.0	Boeing 307	100/100	✕
52	chi-cedar01	Chicago Airport \ CHI	Cedar Rapid Airport / CID	2023-10-07 07:00	2023-10-07 09:00	90.0	Boeing 307	100/100	✕
25	chi-cedar01	Chicago Airport \ CHI	Cedar Rapid Airport / CID	2023-10-04 07:00	2023-10-04 09:00	250.0	Boeing 307	100/100	✕
56	CHI-CLN-N	Chicago Airport \ CHI	California Airport / CLN	2023-11-17 10:15	2023-11-17 15:50	435.0	Airbus A340	335/340	✕

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