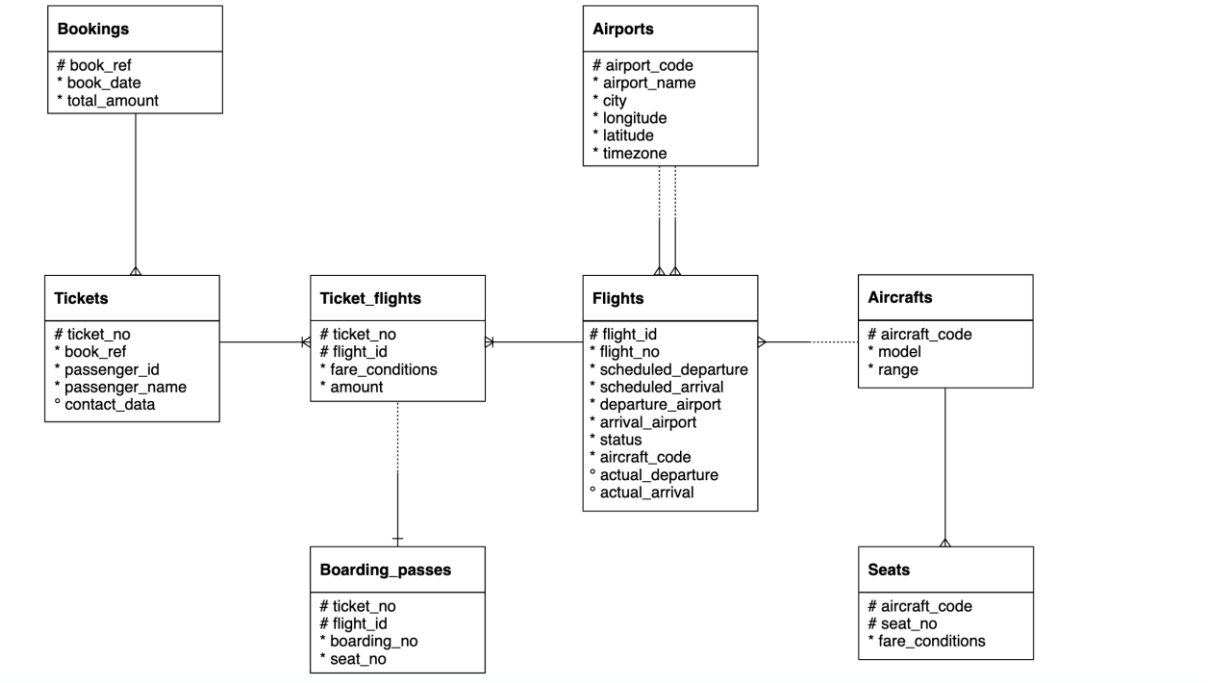
SQL Assignment: All concepts I

Download the following database file from the link:

AirlineDB:
https://drive.google.com/file/d/15ehp3FtyuYqExne3FaFcWHB4TFI_vtSR/view?usp=sharing

Table structure



Important Instructions:

- Download the database link and restore in postgres. For restoration, you can refer to the instructions in the first chapter of SQL
- The AirlineDB is quite big in size, hence restoration might take time. Once the restoration starts, wait for 15 to 20 mins and don't shut down the computer
- Table names in database has "**booking."** as prefix. For example, bookings.tickets, bookings.boarding_passes. Hence use the prefix in the query as well
    - Correct way of accessing tables: SELECT * FROM **bookings.tickets**
    - Wrong way of accessing tables: SELECT * FROM tickets
- Queries need to be submitted in a **word/text file**. CSV output of the queries will **NOT** be accepted
- Expected output written is written in some of the following question to make sure that you are getting the columns in the same sequence. It doesn't mean that you will get same values in the output. The exact values in your queries might be different depending on the values sorted in your copy of database.

1. Represent the “book_date” column in “yyyy-mmm-dd”. User Bookings table

Expected output

	book_ref [PK] character (6)	book_date text	total_amount numeric (10,2)
1	000004	2016-AUG-13	55800.00
2	00000F	2017-JUL-05	265700.00
3	000010	2017-JAN-08	50900.00

Solution:-

```
SELECT
        book_ref,
        to_char(book_date,'yyyy Mon dd') as book_date,
        total_amount
    FROM bookings.bookings
```

	book_ref [PK] character (6)	book_date text	total_amount numeric (10,2)
1	000004	2016 Aug 13	55800.00
2	00000F	2017 Jul 05	265700.00
3	000010	2017 Jan 08	50900.00
4	000012	2017 Jul 14	37900.00

2. Create a table having ticket_no, boarding_no, seat_number, passenger_id, passenger_name.
Expected output

Data Output | Explain | Messages | Notifications

	ticket_no character (13)	boarding_no integer	seat_no character varying (4)	passenger_id character varying (20)	passenger_name text
1	0005432208785	88	36D	7733 848087	RAISA GERASIMOVA
2	0005435637393	32	19F	1032 564545	NATALYA ZOTOVA
3	0005435504503	13	20E	8468 018053	PAVEL YAKOVLEV
4	0005433116489	8	4E	5273 148475	ALEKSANDR VOLKOV

Solution:-

```
CREATE TABLE IF NOT EXISTS bookings.Details (
 ticket_no    character(13),
 boarding_no  integer NOT NULL,
 seat_number  character varying(4),
```

```
    passenger_id character varying(20),
    passenger_name text
);
```

	ticket_no character (13)	boarding_no integer	seat_no character varying (4)	passenger_id character varying (20)	passenger_name text
1	5432208785	23	56D	7564848089	Shalini Nanda

3. Which seat number is least allocated among all the seats?

Solutions:-

```
SELECT
    seat_no,
    COUNT(seat_no) AS frequency
    FROM
    bookings.boarding_passes
    GROUP BY
     seat_no
    ORDER BY
    Frequency
    LIMIT 1;
```

	seat_no character varying (4)	frequency bigint
1	49C	2678

4. In the database, identify the month wise highest paying passenger name and passenger id

Expected output

	month_name text	passenger_id character varying (20)	passenger_name text	amount numeric
1	Apr-17	3012 131246	VALERIY PETROV	1062800.00
2	Apr-17	6333 454183	NIKITA GRIGOREV	1062800.00
3	Apr-17	8311 562715	VALENTINA SERGEEVA	1062800.00
4	Apr-17	9896 581108	ELENA ZAKHAROVA	1062800.00
5	Aug-16	2624 755249	VYACHESLAV KUDRYA...	1000200.00
6	Aug-16	5337 290970	LYUBOV MAKAROVA	1000200.00
7	Aug-16	6627 056208	VLADIMIR IVANOV	1000200.00

Solution:-

```
SELECT
        to_char(B.book_date,'Mon-dd') month_name,
        T.passenger_id,
        T.passenger_name,
         MAX(B.total_amount) Amount
    FROM bookings.bookings B
    FULL OUTER JOIN bookings.tickets T
     on B.book_ref = T.book_ref
     GROUP BY 1,2,3
     ORDER BY 4 DESC
```

	month_name text	passenger_id character varying (20)	passenger_name text	amount numeric
1	Nov-22	4351 484143	ALEKSANDR FRO...	1308700.00
2	Nov-22	2892 192730	EKATERINA POT...	1308700.00
3	Nov-22	0133 513819	OLESYA NAZARO...	1308700.00
4	Nov-22	9999 311678	NIKITA PAVLOV	1308700.00
5	Jan-22	9544 054358	DARYA MELNIKO...	1211000.00

5. In the database, identify the month wise least paying passenger name and passenger id?

Expected output

	month_name text	passenger_id character varying (20)	passenger_name text	amount numeric
79	Aug-17	4251 740929	GALINA AKIMOVA	3400.00
80	Aug-17	5788 451632	SERGEY FEDOROV	3400.00
81	Dec-16	9746 742248	VALENTINA EFREMOVA	3400.00
82	Dec-16	9513 691520	ANATOLIY KOROLEV	3400.00
83	Dec-16	9744 538368	TAMARA KUZNECOVA	3400.00
84	Dec-16	9839 269401	SVETLANA KAZAKOVA	3400.00

Solution:-

```
SELECT
        to_char(B.book_date,'Mon-dd') month_name,
        T.passenger_id,
        T.passenger_name,
        MIN(B.total_amount) Amount
FROM bookings.bookings B
FULL OUTER JOIN bookings.tickets T
on B.book_ref = T.book_ref
GROUP BY 1,2,3
ORDER BY 4
```

	month_name text	passenger_id character varying (20)	passenger_name text	amount numeric
1	Oct-28	6374 963610	ANDREY TARASOV	3400.00
2	Oct-29	9520 838472	KSENIYA ZAYCEVA	3400.00
3	Oct-30	1971 865072	GALINA FILIPPOVA	3400.00
4	Oct-30	1962 000294	ALEKSEY PETROV	3400.00
5	Oct-29	5777 745965	ALEKSANDR GAVRILOV	3400.00

6. Identify the travel details of non no stop journeys or return journeys (having more than 1 flight).
   Expected output

	passenger_id character varying (20)	passenger_name text	ticket_no [PK] character (13)	flight_count bigint
1	2309 806202	YULIYA FROLOVA	0005435983725	6
2	3495 109263	ALEKSANDR FEDOTOV	0005435983726	6
3	8147 879136	OLGA MALYSHEVA	0005435654503	6
4	2580 191496	TATYANA GAVRILOVA	0005435654500	6
5	2356 011992	LYUDMILA BELOVA	0005435654501	6

Solution:-

```
SELECT
        T.passenger_id,
        T.passenger_name,
        T.ticket_no,
        COUNT(F.flight_no)  Flight_count
FROM bookings.tickets T
INNER JOIN bookings.ticket_flights TF
ON T.ticket_no = TF.ticket_no
INNER JOIN bookings.flights F
ON TF.flight_id = F.flight_id
GROUP BY 1,2,3
HAVING COUNT(F.flight_no) > 1
```

	passenger_id character varying (20)	passenger_name text	ticket_no [PK] character (13)	flight_count bigint
1	2129 326630	VASILIY SOLOVEV	0005432001355	2
2	3977 501700	LARISA FOMINA	0005432001356	2
3	7859 509936	MIKHAIL VASILEV	0005432001357	2
4	2686 743456	DMITRIY ORLOV	0005432001358	2
5	8221 089807	AIDA MIKHAYLO...	0005432001359	2

7. How many tickets are there without boarding passes?

Solution :-

```
SELECT
        COUNT(T.ticket_no)
```

```
    FROM bookings.tickets T
    LEFT JOIN bookings.boarding_passes B
    ON T.ticket_no = B.ticket_no
    WHERE B.boarding_no IS NULL
```

	count bigint
1	127899

8. Identify details of the longest flight (using flights table) ?

Solution:-

```
SELECT
   flight_id,
   flight_no,
   departure_airport,
   arrival_airport,
   status,
   aircraft_code,
   EXTRACT(hour FROM (scheduled_arrival - scheduled_departure)) AS duration
FROM
   bookings.flights
ORDER BY
   duration DESC
LIMIT 1;
```

	flight_id [PK] integer	flight_no character (6)	departure_airport character (3)	arrival_airport character (3)	status character varying (20)	aircraft_code character (3)	longest numeric
1	56917	PG0243	LED	YKS	Scheduled	319	18
2	56916	PG0243	LED	YKS	Arrived	319	18
3	56915	PG0243	LED	YKS	Arrived	319	18
4	56914	PG0243	LED	YKS	Arrived	319	18
5	56913	PG0243	LED	YKS	Arrived	319	18
6	56912	PG0243	LED	YKS	Scheduled	319	18

9. Categorize flights using following logic (using flights table) :
    a. Early morning flights: 2 AM to 6AM
    b. Morning flights: 6 AM to 11 AM
    c. Noon flights: 11 AM to 4 PM
    d. Evening flights: 4 PM to 7 PM
    e. Night flights: 7 PM to 11 PM
    f. Late Night flights: 11 PM to 2 AM

Expected output

	flight_id [PK] integer	flight_no character (6)	scheduled_departure timestamp with time zone	scheduled_arrival timestamp with time zone	timings text
1	2880	PG0216	2017-09-14 16:40:00+05:30	2017-09-14 17:45:00+05:30	Noon Flight
2	3940	PG0212	2017-09-04 20:50:00+05:30	2017-09-04 22:05:00+05:30	Night Flight
3	4018	PG0416	2017-09-13 21:50:00+05:30	2017-09-13 22:25:00+05:30	Night Flight
4	4587	PG0055	2017-09-03 16:40:00+05:30	2017-09-03 17:55:00+05:30	Noon Flight
5	5694	PG0341	2017-08-31 13:20:00+05:30	2017-08-31 14:25:00+05:30	Noon Flight
6	6428	PG0335	2017-08-24 12:00:00+05:30	2017-08-24 14:05:00+05:30	Noon Flight
7	6664	PG0335	2017-09-07 12:00:00+05:30	2017-09-07 14:05:00+05:30	Noon Flight

Solution:-

```
SELECT
        flight_id,flight_no,scheduled_departure,scheduled_arrival,
CASE
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '02' AND '06' THEN 'Early morning flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '06' AND '11' THEN 'Morning flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '11' AND '16' THEN 'Noon flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '16' AND '19' THEN 'Evening flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '19' AND '23' THEN 'Night flights'
ELSE 'Late Night flights'
END AS Timings
FROM bookings.flights
LIMIT 15
```

	flight_id [PK] integer	flight_no character (6)	scheduled_departure timestamp with time zone	scheduled_arrival timestamp with time zone	timings text
1	2880	PG0216	2017-09-14 16:40:00+05:30	2017-09-14 17:45:00+05:30	Noon flig...
2	3940	PG0212	2017-09-04 20:50:00+05:30	2017-09-04 22:05:00+05:30	Night flig...
3	4018	PG0416	2017-09-13 21:50:00+05:30	2017-09-13 22:25:00+05:30	Night flig...
4	4587	PG0055	2017-09-03 16:40:00+05:30	2017-09-03 17:55:00+05:30	Noon flig...
5	5694	PG0341	2017-08-31 13:20:00+05:30	2017-08-31 14:25:00+05:30	Noon flig...
6	6428	PG0335	2017-08-24 12:00:00+05:30	2017-08-24 14:05:00+05:30	Noon flig...
7	6664	PG0335	2017-09-07 12:00:00+05:30	2017-09-07 14:05:00+05:30	Noon flig...
8	7455	PG0136	2017-09-10 18:00:00+05:30	2017-09-10 20:00:00+05:30	Evening fl...
9	9994	PG0210	2017-09-01 20:30:00+05:30	2017-09-01 22:20:00+05:30	Night flig...

10. Identify details of all the morning flights (morning means between 6AM to 11 AM, using flights table) ?

Solutions:-

```
WITH Morning_Time AS
(SELECT
flight_id,flight_no,scheduled_departure,scheduled_arrival,
CASE
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '02' AND '06' THEN 'Early morning flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '06' AND '11' THEN 'Morning flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '11' AND '16' THEN 'Noon flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '16' AND '19' THEN 'Evening flights'
WHEN TO_CHAR(scheduled_departure,'HH24')
BETWEEN '19' AND '23' THEN 'Night flights'
ELSE 'Late Night flights'
END AS Timings
FROM bookings.flights
```

)

SELECT * FROM Morning_Time

WHERE Timings = 'Morning flights'

	flight_id [PK] integer	flight_no character (6)	scheduled_departure timestamp with time zone	scheduled_arrival timestamp with time zone	timings text
1	11283	PG0239	2017-08-22 11:35:00+05:30	2017-08-22 14:10:00+05:30	Morning fligh...
2	11476	PG0239	2017-09-14 11:35:00+05:30	2017-09-14 14:10:00+05:30	Morning fligh...
3	46278	PG0591	2017-08-25 11:30:00+05:30	2017-08-25 15:25:00+05:30	Morning fligh...
4	70592	PG0226	2017-08-31 10:40:00+05:30	2017-08-31 12:25:00+05:30	Morning fligh...
5	89270	PG0148	2017-08-17 10:45:00+05:30	2017-08-17 11:10:00+05:30	Morning fligh...
6	90821	PG0207	2017-09-07 10:05:00+05:30	2017-09-07 12:10:00+05:30	Morning fligh...
7	92046	PG0689	2017-08-29 09:55:00+05:30	2017-08-29 12:15:00+05:30	Morning fligh...
8	94027	PG0673	2017-08-20 11:40:00+05:30	2017-08-20 14:05:00+05:30	Morning fligh...
9	97384	PG0683	2017-09-01 09:45:00+05:30	2017-09-01 10:35:00+05:30	Morning fligh...
10	117783	PG0399	2017-09-11 11:10:00+05:30	2017-09-11 13:05:00+05:30	Morning fligh...

Total rows: 1000 of 32024 Query complete 00:00:01.101

Solution :-

```
WITH Morning_Time AS (
  SELECT
    flight_id,
    flight_no,
    scheduled_departure,
    scheduled_arrival,
    departure_airport,
    CASE
      WHEN TO_CHAR(scheduled_departure, 'HH24') BETWEEN '02' AND '06' THEN 'Early morning flights'
      WHEN TO_CHAR(scheduled_departure, 'HH24') BETWEEN '06' AND '11' THEN 'Morning flights'
      WHEN TO_CHAR(scheduled_departure, 'HH24') BETWEEN '11' AND '16' THEN 'Noon flights'
      WHEN TO_CHAR(scheduled_departure, 'HH24') BETWEEN '16' AND '19' THEN 'Evening flights'
      WHEN TO_CHAR(scheduled_departure, 'HH24') BETWEEN '19' AND '23' THEN 'Night flights'
```

```
        ELSE 'Late Night flights'
    END AS Timings
  FROM
    bookings.flights
)
SELECT
  departure_airport,
  MIN(scheduled_departure) AS earliest_departure,
  flight_id,
  flight_no
FROM
  Morning_Time
WHERE
  Timings = 'Morning flights'
GROUP BY
  departure_airport, flight_id, flight_no;
```

	flight_id [PK] integer	flight_no character (6)	scheduled_departure timestamp with time zone	scheduled_arrival timestamp with time zone	departure_airport character (3)	timings text
1	11283	PG0239	2017-08-22 11:35:00+05:30	2017-08-22 14:10:00+05:30	DME	Morning f...
2	11476	PG0239	2017-09-14 11:35:00+05:30	2017-09-14 14:10:00+05:30	DME	Morning f...
3	46278	PG0591	2017-08-25 11:30:00+05:30	2017-08-25 15:25:00+05:30	SVO	Morning f...
4	70592	PG0226	2017-08-31 10:40:00+05:30	2017-08-31 12:25:00+05:30	SVX	Morning f...
5	89270	PG0148	2017-08-17 10:45:00+05:30	2017-08-17 11:10:00+05:30	UFA	Morning f...
6	90821	PG0207	2017-09-07 10:05:00+05:30	2017-09-07 12:10:00+05:30	KJA	Morning f...
7	92046	PG0689	2017-08-29 09:55:00+05:30	2017-08-29 12:15:00+05:30	KJA	Morning f...
8	94027	PG0673	2017-08-20 11:40:00+05:30	2017-08-20 14:05:00+05:30	KJA	Morning f...
9	97384	PG0683	2017-09-01 09:45:00+05:30	2017-09-01 10:35:00+05:30	PEE	Morning f...
10	117783	PG0399	2017-09-11 11:10:00+05:30	2017-09-11 13:05:00+05:30	UUS	Morning f...

Total rows: 1000 of 32024 | Query complete 00:00:00.660