BAN 610 Problem set 2 - SQL

Edit your submission in this word document, attaching the screenshots of the codes used for each question. Include narrative descriptions, outputs screenshot, or short answers when requested.

Task 1

Use the frequent flyer database.

List all flights (Flight_no) for those that leaves HOU or SFO

```
84    -- Task 1 Use the frequent flyer database.
85    -- List all flights (Flight_no) for those that leaves HOU or SFO
86    select
87        distinct Flight_no
88    from flight
89    where Flight_Origin = 'HOU' or 'SFO';
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Flight_no
UA5466
UA6456

Task 2

Use the frequent flyer database.

Generate a list of all information about the frequently flyer whose **first name** starts with “D”.

```
92    -- Task 2 Use the frequent flyer database.
93    -- Generate a list of all information about the frequently flyer whose first name starts with “D”.
94
95    select
96        distinct *
97    from flyer
98    where regexp_like(Flyer_Name, '.+, D.');
99
100
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Frequent_Flyer_ID	Flyer_Name	Address
3200199	Wade, D.	Miami, FL
3921239	Rose, D.	Chicago, IL
4500891	Howard, D.	Orlando, FL

Task 3

Use the frequent flyer database.

Generate a list of all flight operators, along with the number of flights of each operator, and its average miles per flight. Order the output by the average miles per flight in descending order.

```
101     -- Task 3 Use the frequent flyer database.
102     -- Generate a list of all flight operators, along with the number of fligh
103     -- Order the output by the average miles per flight in descending order.
104     select
105         distinct Flight_operator,
106         count(distinct Flight_no) as num_flights,
107         avg(Miles_per_flight) as avg_miles_per_flight
108     from flight
109     group by Flight_operator
110     order by avg_miles_per_flight desc;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Flight_operator	num_flights	avg_miles_per_flight
US Airways	2	690.0000
United	6	617.8333
Continental	2	445.5000

Task 4

Use the frequent flyer database.

For each Flight_operator, calculate the number of trips commissioned by it with a fare greater than $300.

```
113     -- Task 4 Use the frequent flyer database.
114     -- For each Flight_operator, calculate the number of trips commiss
115     with trip_flight as (
116         select
117             f.Flight_operator,
118             f.Flight_no,
119             t.Flight_fare
120         from flight f
121         inner join trip t
122         on f.Flight_no = t.Flight_no
123     )
124     select
125         distinct Flight_operator,
126         count(Flight_no) as fare_greater_300
127     from trip_flight
128     where Flight_fare > 300
129     group by Flight_operator;
130
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Flight_operator	fare_greater_300
United	8
Continental	2
US Airways	2

Task 5

Use the frequent flyer database.

List the names of the flyers who ever went to Atlanta

```
146             f.Flight_Origin,
147             f.Flight_Destination,
148             f.Miles_per_flight
149         from flyer p
150         join trip t
151         on p.Frequent_Flyer_ID = t.Frequent_Flyer_ID
152         left join flight f
153         on t.Flight_no = f.Flight_no
154     )
155
156     select Flyer_Name
157     from (
158     select
159         distinct Flyer_Name,
160         count(Flight_Destination) as ATL_trips
161     from full_table
162     where Flight_Destination = 'ATL'
163     group by Flyer_Name
164     having ATL_trips >= 1) tbl;
165
166
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Flyer_Name
Wade, D.
Yao, M.

Task 6

Use the frequent flyer database.

Identify all the possible round trips from the flight table (e.g., there is an A to B trip and a B to A trip available). List the Flight_no, the origin, and the destination. Your result should look like the following:

```
166
167
168     -- Task 6 Use the frequent flyer database.
169     -- Identify all the possible round trips from the flight table (e
170     -- List the Flight_no, the origin, and the destination.
171     select distinct * from
172     (select
173         t1.Flight_no, t1.Flight_Origin, t1.Flight_Destination
174     from flight t1, flight t2
175     where t1.Flight_Origin = t2.Flight_Destination
176     and t1.Flight_Destination = t2.Flight_Origin) tbl;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Flight_no	Flight_Origin	Flight_Destination

Task 7

Use the frequent flyer database.

What is the most visited flight destination?

In case of a tie, list all of them.

```
180     -- Task 7 Use the frequent flyer database.
181     -- What is the most visited flight destination?
182     -- In case of a tie, list all of them
183     select Frequent_Dest
184     from
185     (select
186         Flight_Destination as Frequent_Dest,
187         dense_rank() over(order by count(Flight_Destination) desc) as rnk
188         from flight
189         group by Flight_Destination
190     ) tbl_rnk
191     where tbl_rnk.rnk = 1;
192
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Frequent_Dest
LAX
PDX

Task 8

Use the book loan database.

Extract the most popular author in the university (borrowed the most often by students)

In case of a tie, list all of them.

```
91      -- Task 8 Use the book loan database.
92      -- Extract the most popular author in the university (borrowed the most ofte
93      -- In case of a tie, list all of them.
94      with library_summary as (
95          select
96              b.Book_ISBN,
97              b.Book_Title,
98              b.Book_First_Author,
99              c.Book_Call_No
100         from book b inner join copy c
101         on b.Book_ISBN = c.Book_ISBN
102         inner join loan l
103         on c.Book_Call_No = l.Book_Call_No
104     )
105
106     select Most_Pop_Authors
107      from
108      (select
109         distinct Book_First_Author as Most_Pop_Authors,
110         dense_rank() over(order by count(Book_Call_no) desc) as rnk
111     from library_summary
112     group by Book_First_Author) auth_rank
113     where auth_rank.rnk = 1;
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Most_Pop_Authors
Nigel, T.
Sato, F.

Result 7

Task 9

Use the book loan database.

Use the loan table, for each student, calculate the total payment due for all books he/she borrowed. Assume that the university charges $0.1 per book per day for book loans.

```
116     -- Task 9 Use the book loan database.
117     -- Use the loan table, for each student, calculate the total payment due for all books he/she borrowe
118     -- Assume that the university charges $0.1 per book per day for book loans.
119     with student_loan as (
120         select
121             s.Stu_ID,
122             s.Stu_Name,
123             s.Stu_Dep,
124             l.Borrow_Date,
125             l.Due_Date,
126             l.Return_Date
127         from student s inner join loan l
128         on s.Stu_ID = l.Stu_ID
129     )
130
131     select
132         distinct Stu_ID,
133         sum(datediff(Borrow_Date, Return_Date)) * .10 as payment_due
134     from student_loan
135     group by Stu_ID
136     having payment_due > 0
137     order by payment_due desc;
138
```

Result Grid | Filter Rows: | Export: | Wrap Cell Content:

Stu_ID	payment_due
9123	8191.70
9251	8182.00
9323	4108.80
9118	4095.60
9331	4092.50