IST 659: Lab 6

1. Alter table “AircraftSpecs” to add one more columns for number of cabins. Name the column as “cabinNumber”. The column data type is INT, and it can be null.

SQL:
```
/* STEP-1 */
ALTER TABLE AircraftSpecsTable ADD cabinNames INT;  /* Alter the table to add one more coloumn named cabinNames*/
SELECT * FROM AircraftSpecsTable /* display every coloumn from AircraftSpecs Table */
```

Output:

Results Messages

	aircraftTypeID	aircraftVersion	cabinNumOfSeats	fuelCapacity	cabinNames
1	AIR1	A321-200	200	7930	NULL
2	AIR2	737-600ER	132	6875	NULL
3	BOE1	747-400ER	416	63705	NULL
4	BOE2	767-300ER	350	23980	NULL
5	BOE3	737-600ER	132	6875	NULL

2. Update information in table “AircraftSpecs”. For planes whose “fuelCapacity” is 63705, change their “fuelCapacity” to be 73705.

SQL:
```
/* STEP-2 */
UPDATE AircraftSpecsTable SET fuelCapacity=73705 WHERE fuelCapacity=63705 /* Replace the fuel capacity value from 63705 to 73705 */
SELECT * FROM AircraftSpecsTable /* display every coloumn from AircraftSpecs Table */
```

Output:

Results Messages

	aircraftTypeID	aircraftVersion	cabinNumOfSeats	fuelCapacity	cabinNames
1	AIR1	A321-200	200	7930	NULL
2	AIR2	737-600ER	132	6875	NULL
3	BOE1	747-400ER	416	73705	NULL
4	BOE2	767-300ER	350	23980	NULL
5	BOE3	737-600ER	132	6875	NULL

3. Simple data questions
   a) Find out all flight schedule information of flight “3310”. Make sure to show all the fields.

SQL: /* STEP-3(a) */

```
SELECT * /* display every coloumn in FlightSchedule table */
FROM FlightScheduleTable /* select the table */
WHERE flightNumber=3310 /* indicating thee flight number */
```

Output:

Results Messages

	flightNumber	flightDate	statusID	airplaneID	delayDepartTime	delayArrivalTime
1	3310	2014-02-10	O	AP629342	NULL	NULL
2	3310	2014-02-11	O	AP629342	NULL	NULL

b) Find all flights departing from LAX airport. Show flight number, arrival airport, and depart time.

SQL: /* STEP-3(b) */

```
SELECT flightNumber, arriveAirport, scheduledDepartTime /* selecting the coloumn to display from the table */
FROM FlightRouteTable /* selecting the table */
WHERE departAirport= 'LAX' /* indicating the expression */
```

Output:

Results Messages

	flightNumber	arriveAirport	scheduledDepartTime
1	3426	ORD	11:15:00.0000000

c) Find all planes purchased in March 2013. Show airplane ID and purchase date only.

SQL: /* STEP-3(c) */

```
SELECT airplaneID, purchaseDate /* selecting the coloumn to display from the table */
FROM AirplaneTable /* selecting the table */
WHERE purchaseDate BETWEEN '2013-03-01' AND '2013-03-31' /* indicating the expression */
```

Output:

Results Messages

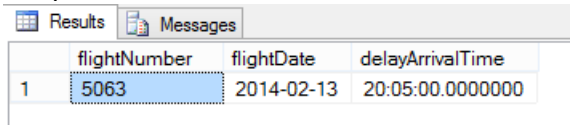
	airplaneID	purchaseDate
1	AP098640	2013-03-01

d) Find all flights that are of status “Delay”. Show flight number, flight date, and delay arrive time only.

SQL: /* STEP-3(d) */

```
SELECT flightNumber, flightDate, delayArrivalTime /* selecting the coloumn to display from the table */
FROM FlightScheduleTable /* selecting the table */
WHERE statusID='D' /* indicating the expression */
```

Output:



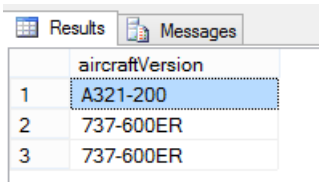
	flightNumber	flightDate	delayArrivalTime
1	5063	2014-02-13	20:05:00.0000000

e) Find all aircraft types whose number of seats is less than 250. Show aircraft version only.

SQL: /* STEP-3(e) */

```
SELECT aircraftVersion /* selecting the coloumn to display from the table */
FROM AircraftSpecsTable /* selecting the table */
WHERE cabinNumofSeats<250 /* indicating the expression */
```

Output:



	aircraftVersion
1	A321-200
2	737-600ER
3	737-600ER

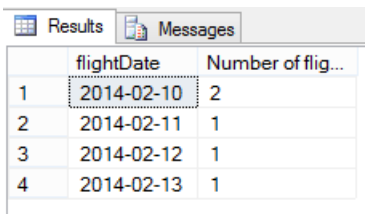
4. Use aggregate functions to answer data questions

a) Count the number of flights departing each day. Show the date and the number of flights.

SQL: /* STEP-4(a) */

```
SELECT flightDate, count(flightDate) 'Number of flights' /* selecting the coloumn to display from the table */
FROM FlightScheduleTable /* selecting the table */
GROUP BY flightDate /* display results by grouping flight date */
```

Output:



	flightDate	Number of flig...
1	2014-02-10	2
2	2014-02-11	1
3	2014-02-12	1
4	2014-02-13	1

b) Sort AircraftSpecs table by fuel capacity in ascending order. Show the result with aircraft version and fuel capacity.

SQL: /* STEP-4(b) */

```
SELECT aircraftVersion, fuelCapacity /* selecting the coloumn to display from the table */
FROM AircraftSpecsTable /* selecting the table */
ORDER BY fuelCapacity /* display results by ordering fuel capacity in ascending order */
```

Output:

Results Messages

	aircraftVersion	fuelCapacity
1	737-600ER	6875
2	737-600ER	6875
3	A321-200	7930
4	767-300ER	23980
5	747-400ER	73705

c) Calculate the average, min, and max value of cabin seats numbers for aircraft spec. Show average seat numbers, min seat numbers, and max seat numbers.

SQL: /* STEP-4(c) */

```
SELECT MIN(CabinNumOfSeats) 'Minimum Cabin Seat Numbers', MAX(CabinNumOfSeats) 'Maximum Cabin Seat
Numbers', AVG(CabinNumOfSeats) 'Average Cabin Seat Numbers' /* selecting the coloumn to display from the table */
FROM AircraftSpecsTable /* selecting the table */
```

Output:

Results Messages

	Minimum Cabin Seat Numbers	Maximum Cabin Seat Numbers	Average Cabin Seat Numbers
1	132	416	246

d) Show the average fuel capacity of airplanes from Boeing and Airbus separately.

SQL: /* STEP-4(d) */

```
SELECT SUBSTRING(aircraftTypeID, 1, 3) AS 'Aircraft Type', AVG(fuelCapacity) AS 'Average
fuel capacity'
FROM AircraftSpecsTable
GROUP BY SUBSTRING(aircraftTypeID, 1, 3);
```

Output:

Results Messages

	Aircraft Type	Average fuel capa...
1	AIR	7402
2	BOE	34853

5(a): Show the number of flights that are on-time and delayed

SQL: /* STEP-5(a) */

```
SELECT statusID, count(statusID) 'Number of flights' /* selecting the coloumn to display from the table */
FROM FlightScheduleTable /* selecting the table */
GROUP BY statusID /* display results by grouping status ID */
```

Output:

Results Messages

	statusID	Number of flights
1	D	1
2	O	4

5(b): show the state that have more than one airport

SQL: /* STEP-5(b) */

```
SELECT stateAbbr, count(stateAbbr) 'Number of airports' /* selecting the coloumn to display from the table */
FROM CityTable /* selecting the table */
GROUP BY (stateAbbr) /* display results by grouping State Abbreviation */
HAVING COUNT(stateAbbr)>1; /* display results only if stateAbbr > 1 */
```

Output:

Results Messages

	stateAbbr	Number of airports
1	CA	2
2	FL	2
3	NY	2