SQL MAJOR ASSISGNMENT

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Q1.

1. Create a table “Station” to store information about weather observation stations:

ID	Number	Primary key
CITY	CHAR(20)	
STATE	CHAR(2)	
LAT_N	Number	
LONG_W	Number	

SOL 1.

```
create TABLE STATION
(ID NUMBER PRIMARY KEY,
CITY CHAR(20),
STATE CHAR(2),
LAT_N NUMBER,
LONG_W NUMBER)
```

```
Table created.
```

Q2.

2. Insert the following records into the table:

ID	CITY	STATE	LAT_N	LONG_W
13	PHOENIX	AZ	33	112
44	DENVER	CO	40	105
66	CARIBOU	ME	47	68

SOL 2.

```
INSERT INTO STATION VALUES(13,'PHOENIX','AZ',33,112)
```

```
1 row(s) inserted.
```

```
INSERT INTO STATION VALUES(44,'DENVER','CO',40,105)
```

```
1 row(s) inserted.
```

```
INSERT INTO STATION VALUES(66,'CARIBOU','ME',47,68)
```

```
1 row(s) inserted.
```

Q3. Execute a query to look at table STATION in undefined order.

SOL 3.

```
1   --3. Execute a query to look at table STATION in undefined order.
2
3   SELECT * FROM STATION
```

ID	CITY	STATE	LAT_N	LONG_W
13	PHOENIX	AZ	33	112
44	DENVER	CO	40	105
66	CARIBOU	ME	47	68

Q4. Execute a query to select Northern stations (Northern latitude > 39.7).

SOL 4.

```
1   --4. Execute a query to select Northern stations (Northern latitude > 39.7).
2
3   SELECT * FROM STATION
4   WHERE LAT_N > 39.7
```

ID	CITY	STATE	LAT_N	LONG_W
44	DENVER	CO	40	105
66	CARIBOU	ME	47	68

Q5.

5. Create another table, 'STATS', to store normalized temperature and precipitation data:

Column	Data type	Remark
ID	Number	must match some STATION table ID(so name & location will be known).
MONTH	Number	Range between 1 and 12
TEMP_F	Number	in Fahrenheit degrees,Range between -80 and 150
RAIN_I	Number	in inches, Range between 0 and 100

There will be no Duplicate ID and MONTH combination.

SOL 5.

```
CREATE TABLE STATS
(ID NUMBER,
MONTH NUMBER(2),
TEMP_FAH NUMBER,
RAIN_INCH NUMBER,
FOREIGN KEY (ID) REFERENCES STATION (ID))
```

Table created.

Q6.

6. Populate the table STATS with some statistics for January and July:

ID	MONTH	TEMP_F	RAIN_I
13	1	57.4	.31
13	7	91.7	5.15
44	1	27.3	.18
44	7	74.8	2.11
66	1	6.7	2.1
66	7	65.8	4.52

SOL 6.

```
INSERT INTO STATS VALUES (13,1,57.4,.31)
```

1 row(s) inserted.

```
INSERT INTO STATS VALUES (13,7,91.7,5.15)
```

1 row(s) inserted.

```
INSERT INTO STATS VALUES (44,1,27.3,.18)
```

1 row(s) inserted.

```
INSERT INTO STATS VALUES (44,7,74.8,2.11)
```

1 row(s) inserted.

```
INSERT INTO STATS VALUES (66,1,6.7,2.1)
```

1 row(s) inserted.

```
INSERT INTO STATS VALUES (66,7,65.8,4.52)
```

1 row(s) inserted.

Q7. Execute a query to display temperature stats (from STATS table) for each city (from Station table).

SOL 7.

```
1   --Execute a query to display temperature stats (from STATS table) for each city (from Station table).
2
3   SELECT STATION.CITY, STATS.TEMP_FAH
4   FROM STATION
5   LEFT JOIN STATS ON STATION.ID = STATS.ID
```

CITY	TEMP_FAH
PHOENIX	57.4
PHOENIX	91.7
DENVER	27.3
DENVER	74.8
CARIBOU	6.7
CARIBOU	65.8

Q8. Execute a query to look at the table STATS, ordered by month and greatest rainfall, with columns rearranged. It should also show the corresponding cities.

SOL 8.

```
4   SELECT *
5   FROM(Select STATS.ID, STATS.MONTH, STATS.TEMP_FAH, STATS.RAIN_INCH AS "RAINFALL", STATION.CITY
6   from STATS INNER JOIN STATION ON STATION.ID = STATS.ID
7   ORDER BY MONTH)
8   order by rainfall desc
```

ID	MONTH	TEMP_FAH	RAINFALL	CITY
13	7	91.7	5.15	PHOENIX
66	7	65.8	4.52	CARIBOU
44	7	74.8	2.11	DENVER
66	1	6.7	2.1	CARIBOU
13	1	57.4	.31	PHOENIX
44	1	27.3	.18	DENVER

Q9. Execute a query to look at temperatures for July from table STATS, lowest temperatures first, picking up city name and latitude.

SOL 9.

```
SELECT CITY, MONTH, LAT_N, TEMP_FAH
FROM STATION
INNER JOIN STATS ON STATION.ID = STATS.ID
WHERE MONTH = 7
ORDER BY TEMP_FAH
```

CITY	MONTH	LAT_N	TEMP_FAH
CARIBOU	7	47	65.8
DENVER	7	40	74.8
PHOENIX	7	33	91.7

Q10. Execute a query to show MAX and MIN temperatures as well as average rainfall for each city.

SOL 10.

```
SELECT MAX(TEMP_FAH) AS "MAXIMUM TEMPERATURE", MIN(TEMP_FAH) AS "MINIMUM TEMPERATURE", AVG(RAIN_INCH) AS "AVERAGE RAINFALL", CITY
FROM STATION
INNER JOIN STATS ON STATION.ID = STATS.ID
GROUP BY CITY
```

MAXIMUM TEMPERATURE	MINIMUM TEMPERATURE	AVERAGE RAINFALL	CITY
65.8	6.7	3.31	CARIBOU
74.8	27.3	1.145	DENVER
91.7	57.4	2.73	PHOENIX

Q11. Execute a query to display each city's monthly temperature in Celcius and rainfall in Centimeter.

SOL 11.

```
1   --Execute a query to display each city's monthly temperature in Celcius and rainfall in Centimeter
2   SELECT CITY, MONTH, round(RAIN_INCH*2.54,2) AS "RAIN IN CM", round(((TEMP_FAH-32)*5/9),2) AS "TEMP IN CELCIUS"
3   FROM STATION
4   INNER JOIN STATS ON STATION.ID = STATS.ID
```

CITY	MONTH	RAIN IN CM	TEMP IN CELCIUS
PHOENIX	1	.79	14.11
PHOENIX	7	13.08	33.17
DENVER	1	.46	-2.61
DENVER	7	5.36	23.78
CARIBOU	1	5.33	-14.06
CARIBOU	7	11.48	18.78

Q12. Update all rows of table STATS to compensate for faulty rain gauges known to read 0.01 inches low.

SOL 12.

```
1    --Update all rows of table STATS to compensate for faulty rain gauges known to read 0.01 inches low.
2    UPDATE STATS SET RAIN_INCH = RAIN_INCH + 0.01;
3    SELECT * FROM STATS
```

6 row(s) updated.

ID	MONTH	TEMP_FAH	RAIN_INCH
13	1	57.4	.32
13	7	91.7	5.16
44	1	27.3	.19
44	7	74.8	2.12
66	1	6.7	2.11
66	7	65.8	4.53

Q13. Update Denver's July temperature reading as 74.9

SOL 13.

```
1    --Update Denver's July temperature reading as 74.9
2    UPDATE STATS SET TEMP_FAH = 74.9
3    WHERE MONTH = 7  AND ID = 44;
4
5    SELECT * FROM STATS
```

1 row(s) updated.

ID	MONTH	TEMP_FAH	RAIN_INCH
13	1	57.4	.32
13	7	91.7	5.16
44	1	27.3	.19
44	7	74.9	2.12
66	1	6.7	2.11
66	7	65.8	4.53