**SQL MAJOR ASSIGNMENT SOLUTION**

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

observation stations:

**CREATE TABLE STATION**

**(ID INTEGER PRIMARY KEY,**

**CITY CHAR(20),**

**STATE CHAR(2),**

**LAT\_N NUMBER,**

**LONG\_W NUMBER);**

2. Insert the following records into the table:

**INSERT INTO STATION VALUES (13, 'Phoenix', 'AZ', 33, 112);**

**INSERT INTO STATION VALUES (44, 'Denver', 'CO', 40, 105);**

**INSERT INTO STATION VALUES (66, 'Caribou', 'ME', 47, 68);**

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

**SELECT \* FROM STATION**

**OUTPUT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **CITY** | **STATE** | **LAT\_N** | **LONG\_W** |
| 13 | Phoenix | AZ | 33 | 112 |
| 44 | Denver | CO | 40 | 105 |
| 66 | Caribou | ME | 47 | 68 |

4. Execute a query to select Northern stations (Northern latitude >

39.7).

**SELECT \* FROM STATION**

**WHERE LAT\_N > 39.7 ;**

**OUTPUT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **CITY** | **STATE** | **LAT\_N** | **LONG\_W** |
| 44 | Denver | CO | 40 | 105 |
| 66 | Caribou | ME | 47 | 68 |

5. Create another table, ‘STATS’, to store normalized temperature and

precipitation data:

**CREATE TABLE STATS**

**(**

**ID NUMBER,**

**MONTH NUMBER NOT NULL,**

**TEMP\_F NUMBER NOT NULL,**

**RAIN\_I NUMBER NOT NULL**

**);**

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

**INSERT INTO STATS VALUES (13, 1, 57.4, 0.31);**

**INSERT INTO STATS VALUES (13, 7, 91.7, 5.15);**

**INSERT INTO STATS VALUES (44, 1, 27.3, 0.18);**

**INSERT INTO STATS VALUES (44, 7, 74.8, 2.11);**

**INSERT INTO STATS VALUES (66, 1, 6.7, 2.10);**

**INSERT INTO STATS VALUES (66, 7, 65.8, 4.52);**

7. Execute a query to display temperature stats (from STATS table) for

each city (from Station table).

**SELECT S.City, T.TEMP\_F FROM STATS T**

**INNER JOIN STATION S**

**ON T.ID = S.ID;**

**OUTPUT**

|  |  |
| --- | --- |
| **CITY** | **TEMP\_F** |
| Phoenix | 57.4 |
| Phoenix | 91.7 |
| Denver | 27.3 |
| Denver | 74.8 |
| Caribou | 6.7 |
| Caribou | 65.8 |

8. 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.

**SELECT T.MONTH , S.city, T.ID, T.RAIN\_I, T.TEMP\_F**

**FROM STATS T**

**INNER JOIN STATION S**

**ON T.ID = S.ID**

**ORDER BY T.MONTH, T.RAIN\_I DESC ;**

**OUTPUT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **MONTH** | **CITY** | **ID** | **RAIN\_I** | **TEMP\_F** |
| 1 | Caribou | 66 | 2.1 | 6.7 |
| 1 | Phoenix | 13 | .31 | 57.4 |
| 1 | Denver | 44 | .18 | 27.3 |
| 7 | Phoenix | 13 | 5.15 | 91.7 |
| 7 | Caribou | 66 | 4.52 | 65.8 |
| 7 | Denver | 44 | 2.11 | 74.8 |

9. Execute a query to look at temperatures for July from table STATS,

lowest temperatures first, picking up city name and latitude.

**SELECT S.LAT\_N, S.CITY, T.TEMP\_F**

**FROM STATS T , STATION s**

**WHERE MONTH = 7**

**AND T.ID = S.ID**

**ORDER BY TEMP\_F;**

**OUTPUT**

|  |  |  |
| --- | --- | --- |
| **LAT\_N** | **CITY** | **TEMP\_F** |
| 47 | Caribou | 65.8 |
| 40 | Denver | 74.8 |
| 33 | Phoenix | 91.7 |

10. Execute a query to show MAX and MIN temperatures as well as

average rainfall for each city.

**SELECT ID, MAX(TEMP\_F), MIN(TEMP\_F), AVG(RAIN\_I)**

**FROM STATS**

**GROUP BY ID;**

**OUTPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **MAX(TEMP\_F)** | **MIN(TEMP\_F)** | **AVG(RAIN\_I)** |
| 44 | 74.8 | 27.3 | 1.145 |
| 66 | 65.8 | 6.7 | 3.31 |
| 13 | 91.7 | 57.4 | 2.73 |

11. Execute a query to display each city’s monthly temperature in

Celcius and rainfall in Centimeter.

**SELECT S.ID, S.City,**

**T.MONTH,**

**ROUND((TEMP\_F - 32) \* 5 /9) As TEMP\_CELCIUS,**

**Round(RAIN\_I \* 0.3937) As RAINFALL\_CENTIMETER**

**From STATS T**

**JOIN STATION S**

**ON S.ID = T.ID ;**

**OUTPUT**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **ID** | **CITY** | **MONTH** | **TEMP\_CELCIUS** | **RAINFALL\_CENTIMETER** |
| 13 | Phoenix | 1 | 14 | 0 |
| 13 | Phoenix | 7 | 33 | 2 |
| 44 | Denver | 1 | -3 | 0 |
| 44 | Denver | 7 | 24 | 1 |
| 66 | Caribou | 1 | -14 | 1 |
| 66 | Caribou | 7 | 19 | 2 |

12. Update all rows of table STATS to compensate for faulty rain gauges

known to read 0.01 inches low.

**UPDATE STATS SET RAIN\_I = RAIN\_I + 0.01;**

**SELECT \* FROM STATS**

**OUTPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **MONTH** | **TEMP\_F** | **RAIN\_I** |
| 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 |

13. Update Denver's July temperature reading as 74.9

**UPDATE STATS SET TEMP\_F = 74.9**

**WHERE ID = 44 AND MONTH = 7;**

**SELECT \* FROM STATS**

**OUTPUT**

|  |  |  |  |
| --- | --- | --- | --- |
| **ID** | **MONTH** | **TEMP\_F** | **RAIN\_I** |
| 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 |

**THANK YOU RISHABH CHAUDHARY**

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