SQL Project presentation

Presented by Vaibhav Pawar

Create Database and 1'st table “STATION”

```
/*1. Create a table “STATION” to store information about weather observation stations:*/
CREATE DATABASE weather_obeservations;
USE weather_obeservations;
CREATE TABLE STATION (
    ID INT NOT NULL PRIMARY KEY,
    CITY CHAR(20),
    STATE CHAR(2),
    LAT_N FLOAT,
    LONG_W FLOAT
);

/*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
*/
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);
```

Insert the records into the table

```
/*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
*/
```

```
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);
```

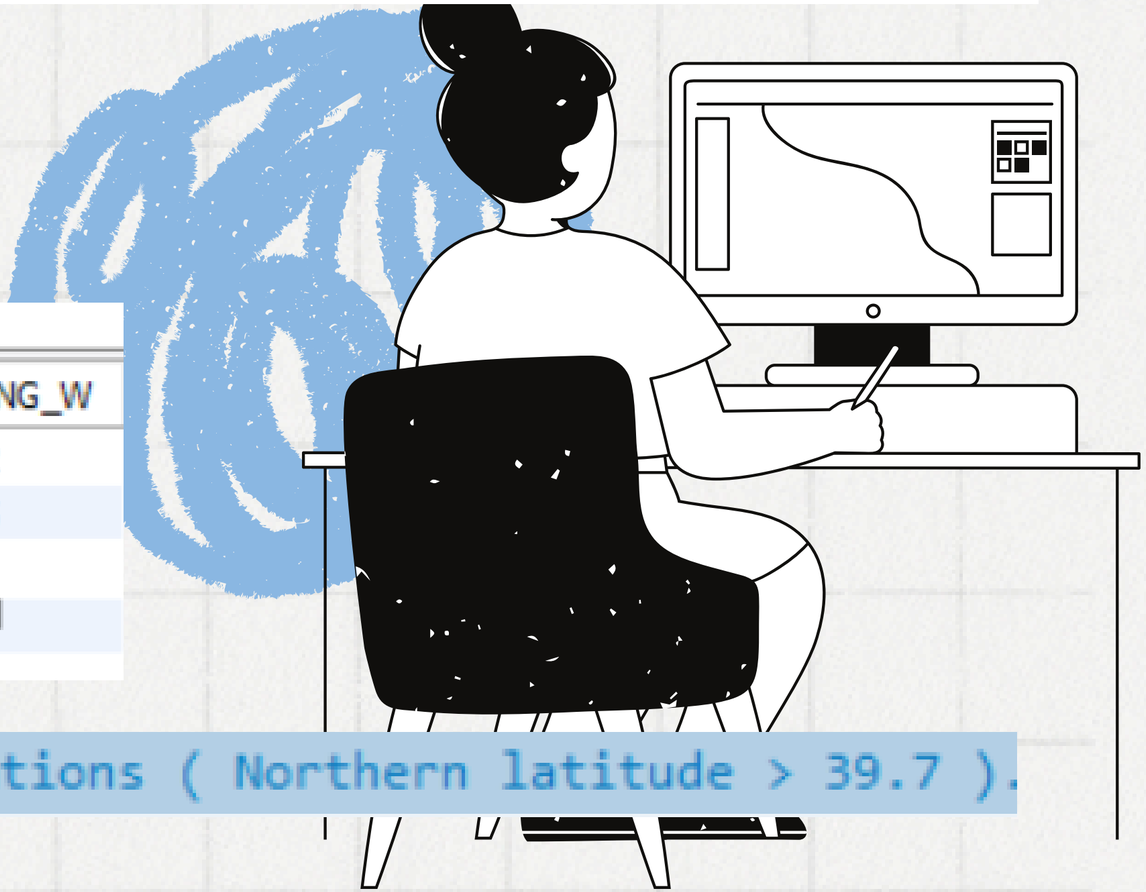
✓	1	10:54:58	INSERT into STATION values (13,'PHOENIX','AZ',33,112)
✓	2	10:54:58	INSERT into STATION values(44,'DENVER','CO',40,105)
✓	3	10:54:58	INSERT into STATION values(66,'CARIBOU','ME',47,68)

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

```
SELECT
    *
FROM
    STATION;
```

Result Grid | Filter Rows:

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



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

```
SELECT
    *
FROM
    STATION
WHERE
    LAT_N > 39.7;
```

Result Grid | Filter Rows:

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

5. Create another table “STATS”

```
/*5. Create another table,‘STATS’,to store normalized temperature and precipitation data:
Column      Datatype        Remark
ID          Number          ID must match with some ID from the STATION table
                            (so name & location will be known).
MONTH       Number          The range of months is between (1 and 12)
TEMP_F      Number          Temperature is in Fahrenheit degrees ,
                            Ranging between (-80 and 150)
RAIN_I      Number          Rain is in inches,Ranging between (0 and 100)
There will be no Duplicate ID and MONTH combination.
*/
```

```
CREATE TABLE STATS (
    ID INT NOT NULL,
    MONTH INT,
    TEMP_F FLOAT,
    RAIN_I FLOAT,
    Primary key (ID,Month)
);
```

6. Populate the table STATS

```
/*6. Populate the table STATS with some statistics for January and July:
ID      MONTH   TEMP_F  RAIN_I
13      1       57.4    0.31
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
```

```
INSERT INTO STATS Values (13,1,57.4,0.310);
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 (66,1,6.7,2.1);
INSERT INTO STATS Values (66,7,65.8,4.52);
```

7. Execute a query to display temperature stats (from the STATS table) for each city (from the STATION table)

01 QUERY

```
SELECT
    STATION.CITY, STATS.MONTH, STATS.TEMP_F
FROM
    STATION
        INNER JOIN
    STATS ON STATION.ID = STATS.ID;
```

02 RESULT

Result Grid | Filter Rows

CITY	MONTH	TEMP_F
PHOENIX	1	57.4
PHOENIX	7	91.7
DENVER	1	27.3
DENVER	7	74.8
CARIBOU	1	6.7
CARIBOU	7	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.

01 QUERY

```
SELECT
    STATION.ID, STATION.city, STATS.MONTH, STATS.RAIN_I
FROM
    STATION
        INNER JOIN
    STATS ON STATION.ID = STATS.ID
ORDER BY RAIN_I DESC;
```

02 RESULT

Result Grid | Filter Rows:

ID	city	MONTH	RAIN_I
13	PHOENIX	7	5.15
66	CARIBOU	7	4.52
44	DENVER	7	2.11
66	CARIBOU	1	2.1
13	PHOENIX	1	0.31
44	DENVER	1	0.18

QUESTION

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

QUERY

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

RESULT

Result Grid | Filter Rows:

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

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

```sql
SELECT
    STATION.ID,
    STATION.CITY,
    MAX(TEMP_F),
    MIN(TEMP_F),
    round(AVG(RAIN_I),2)
FROM
    STATS
        LEFT JOIN
    STATION ON STATION.ID = STATS.ID
GROUP BY STATION.CITY;
```

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

ID	CITY	MAX(TEMP_F)	MIN(TEMP_F)	round(AVG(RAIN_I),2)
13	PHOENIX	91.7	57.4	2.73
44	DENVER	74.8	27.3	1.14
66	CARIBOU	65.8	6.7	3.31

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

```sql
SELECT
    STATION.ID,
    STATION.CITY,
    STATION.STATE,
    CASE
        WHEN STATS.MONTH <= 2 OR STATS.MONTH >= 11
        THEN ROUND((STATS.TEMP_F - 32) * (5 / 9), 2)
        ELSE ROUND((STATS.TEMP_F - 32) * (5 / 9), 2)
    END AS TEMP_C,
    ROUND((STATS.RAIN_I * 2.5), 2) AS RAIN_CM
FROM
    STATION
        JOIN
    STATS ON STATION.ID = STATS.ID;
```

Result Grid | Filter Rows:

ID	CITY	STATE	TEMP_C	RAIN_CM
13	PHOENIX	AZ	14.11	0.78
13	PHOENIX	AZ	33.17	12.88
44	DENVER	CO	-2.61	0.45
44	DENVER	CO	23.78	5.27
66	CARIBOU	ME	-14.06	5.25
66	CARIBOU	ME	18.78	11.3

Q12) 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
```

Result Grid | Filter Rows:

ID	MONTH	TEMP_F	RAIN_I
13	1	57.4	0.32
13	7	91.7	5.16
44	1	27.3	0.19
44	7	74.8	2.12
66	1	6.7	2.11
66	7	65.8	4.53
NULL	NULL	NULL	NULL

Q13) Update Denver's July temperature readingas 74.9

```
UPDATE STATS
SET
    TEMP_F = 74.9
WHERE
    ID = (SELECT
            ID
        FROM
            STATION
        WHERE
            CITY = 'DENVER')
        AND MONTH = 7;
```

```
SELECT * FROM STATS ;
```

Result Grid | Filter Rows:

ID	MONTH	TEMP_F	RAIN_I
13	1	57.4	0.32
13	7	91.7	5.16
44	1	27.3	0.19
44	7	74.9	2.12
66	1	6.7	2.11
66	7	65.8	4.53
NULL	NULL	NULL	NULL

Thank you very much!

www.linkedin.com/in/vaibhavpawar000