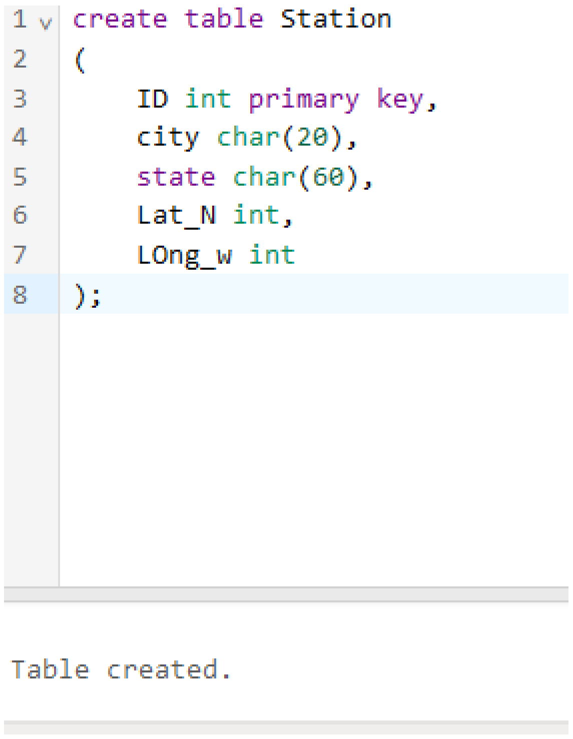
MYSQL

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

```
      create table Station (ID INT PRIMARY KEY,
 CITY CHAR(20),
 STATE CHAR(2),
 LAT_N INT, LONG_W INT
) ;
```

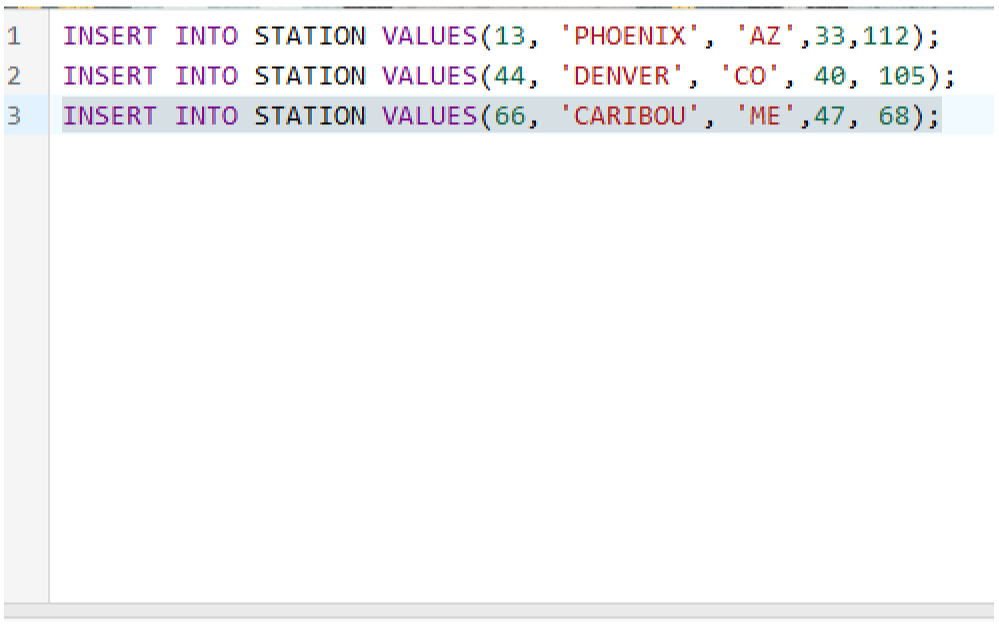


```
create table Station
(
    ID int primary key,
    city char(20),
    state char(60),
    Lat_N int,
    LOng_w int
);
```

```
Table created.
```

2. Insert the following records into the table:

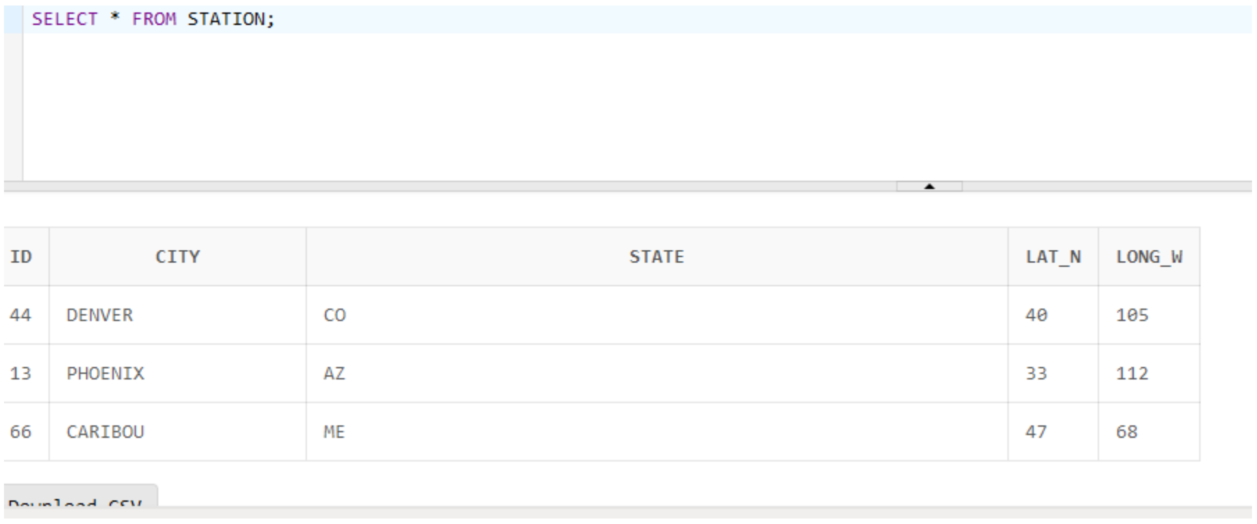
```
INSERT INTO Station values (13, 'PHOENIX', 'AZ', 33, 112);
INSERT INTO Station values (44, 'DENVER', 'CO', 40, 105);
 INSERT INTO Station values (66, 'CARIBOU', 'ME', 47, 68);
```


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

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

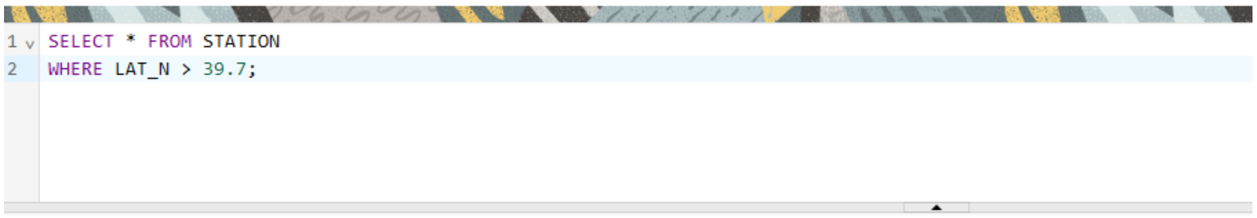
SELECT * FROM STATION;


```
SELECT * FROM STATION;
```

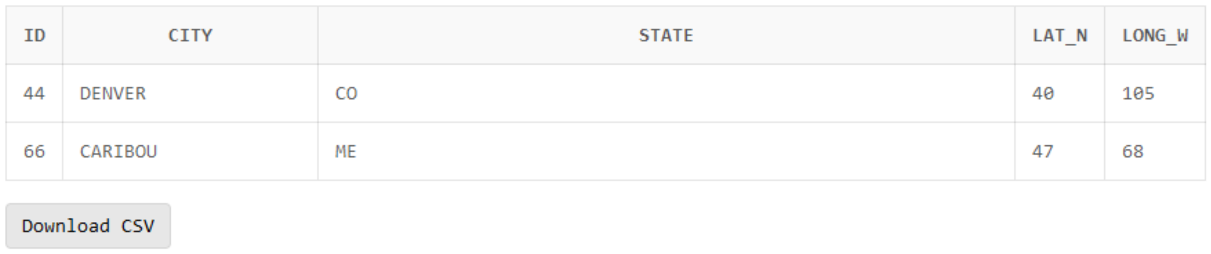
ID	CITY	STATE	LAT_N	LONG_W
44	DENVER	CO	40	105
13	PHOENIX	AZ	33	112
66	CARIBOU	ME	47	68

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

SELECT * FROM STATION WHERE LAT_N > 39.7;

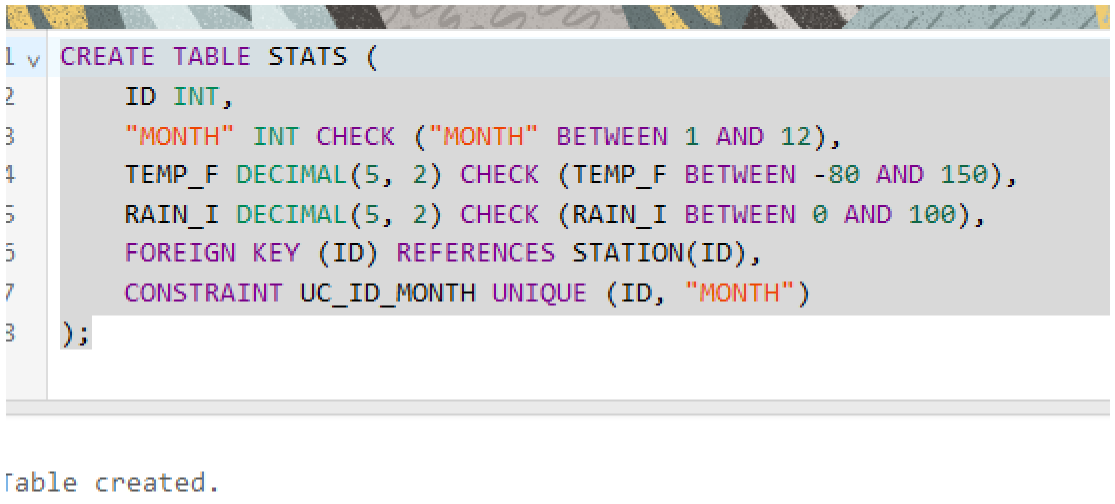


```
SELECT * FROM STATION
WHERE LAT_N > 39.7;
```



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

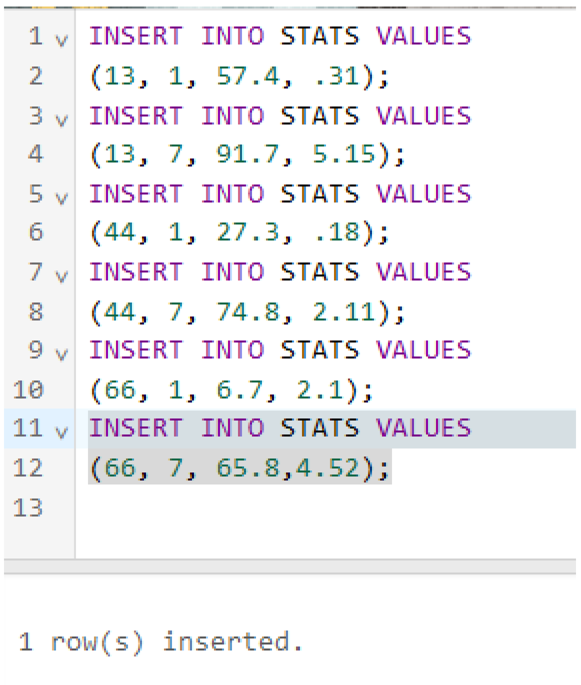
5. Create another table, 'STATS', to store normalized temperature and precipitation data:
CREATE TABLE STATS (ID INT, "MONTH" INT CHECK ("MONTH" BETWEEN 1 AND 12),
TEMP_F DECIMAL(5, 2) CHECK (TEMP_F BETWEEN -80 AND 150),
RAIN_I DECIMAL(5, 2) CHECK (RAIN_I BETWEEN 0 AND 100),
FOREIGN KEY (ID) REFERENCES STATION(ID),
CONSTRAINT UC_ID_MONTH UNIQUE (ID, "MONTH")
);



```
CREATE TABLE STATS (
    ID INT,
    "MONTH" INT CHECK ("MONTH" BETWEEN 1 AND 12),
    TEMP_F DECIMAL(5, 2) CHECK (TEMP_F BETWEEN -80 AND 150),
    RAIN_I DECIMAL(5, 2) CHECK (RAIN_I BETWEEN 0 AND 100),
    FOREIGN KEY (ID) REFERENCES STATION(ID),
    CONSTRAINT UC_ID_MONTH UNIQUE (ID, "MONTH")
);
```

```
Table created.
```

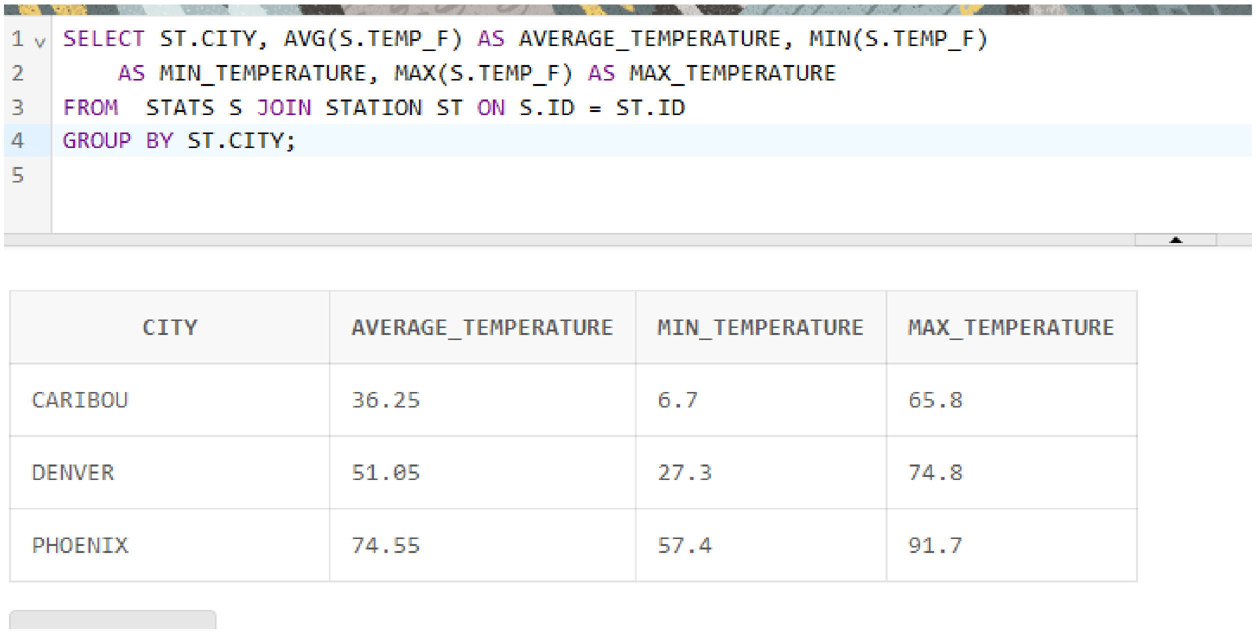
6. Populate the table STATS with some statistics for January and July:
INSERT INTO STATS VALUES (13, 1, 57.4, .31);
INSERT INTO STATS VALUES (13, 7, 91.7, 5.15);
INSERT INTO STATS VALUES (44, 1, 27.3, .18);
INSERT INTO STATS VALUES (44, 7, 74.8, 2.11);
INSERT INTO STATS VALUES (66, 1, 6.7, 2.1);
INSERT INTO STATS VALUES (66, 7, 65.8, 4.52);



```
INSERT INTO STATS VALUES
(13, 1, 57.4, .31);
INSERT INTO STATS VALUES
(13, 7, 91.7, 5.15);
INSERT INTO STATS VALUES
(44, 1, 27.3, .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);
```

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

7. Execute a query to display temperature stats (from STATS table) for each city (from Station table).
SELECT ST.CITY, AVG(S.TEMP_F) AS AVERAGE_TEMPERATURE, MIN(S.TEMP_F)
 AS MIN_TEMPERATURE, MAX(S.TEMP_F) AS MAX_TEMPERATURE
 FROM STATS S JOIN STATION ST ON S.ID = ST.ID
 GROUP BY ST.CITY;

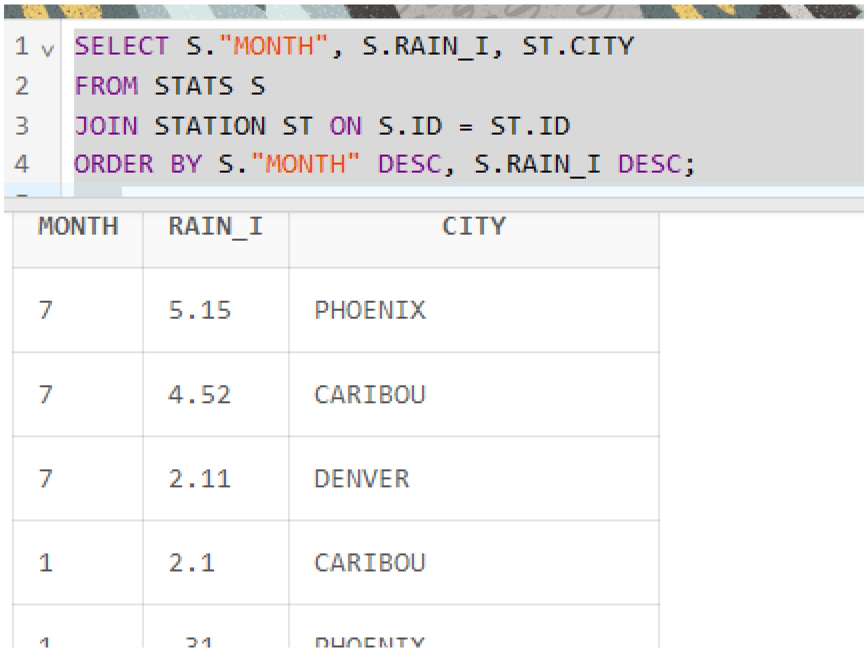


```
SELECT ST.CITY, AVG(S.TEMP_F) AS AVERAGE_TEMPERATURE, MIN(S.TEMP_F)
    AS MIN_TEMPERATURE, MAX(S.TEMP_F) AS MAX_TEMPERATURE
FROM  STATS S JOIN STATION ST ON S.ID = ST.ID
GROUP BY ST.CITY;
```

CITY	AVERAGE_TEMPERATURE	MIN_TEMPERATURE	MAX_TEMPERATURE
CARIBOU	36.25	6.7	65.8
DENVER	51.05	27.3	74.8
PHOENIX	74.55	57.4	91.7

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 S."MONTH", S.RAIN_I, ST.CITY
 FROM STATS S

JOIN STATION ST ON S.ID = ST.ID
ORDER BY S."MONTH" DESC, S.RAIN_I DESC;

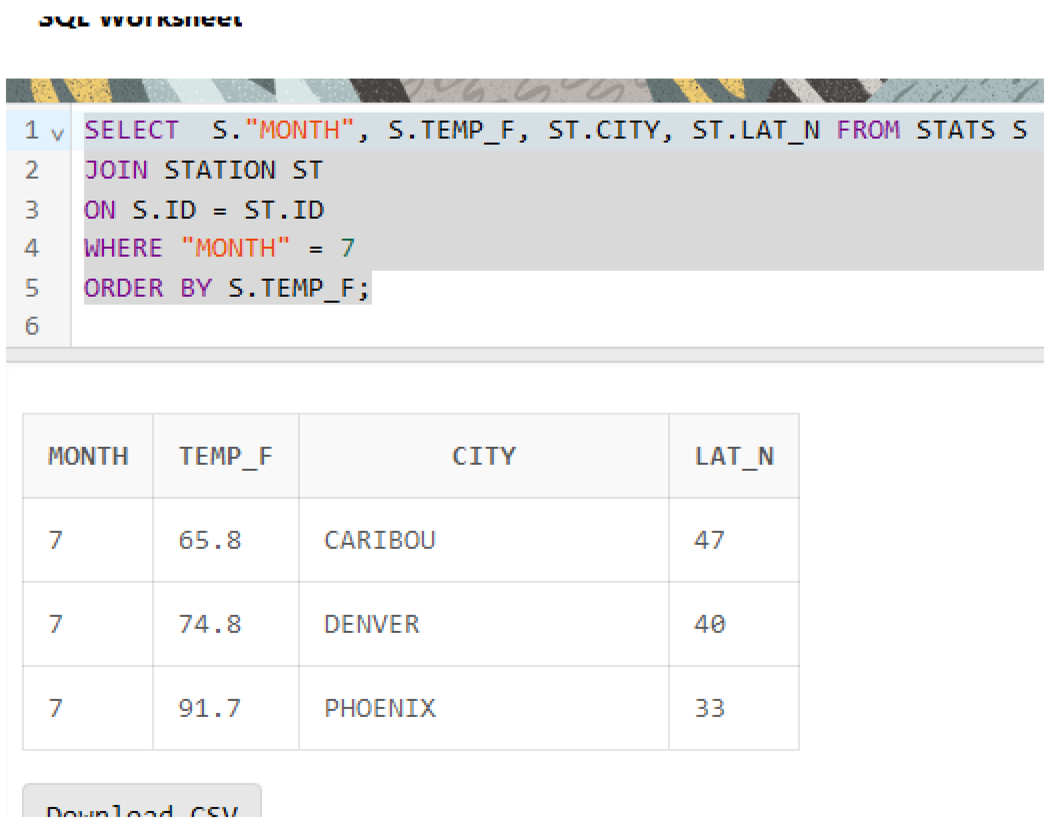


```
SELECT S."MONTH", S.RAIN_I, ST.CITY
FROM STATS S
JOIN STATION ST ON S.ID = ST.ID
ORDER BY S."MONTH" DESC, S.RAIN_I DESC;
```

MONTH	RAIN_I	CITY
7	5.15	PHOENIX
7	4.52	CARIBOU
7	2.11	DENVER
1	2.1	CARIBOU
1	.31	PHOENIX

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

SELECT S."MONTH", S.TEMP_F, ST.CITY,
ST.LAT_N FROM STATS S JOIN STATION ST
ON S.ID = ST.ID WHERE "MONTH"=7 ORDER BY S.TEMP_F,

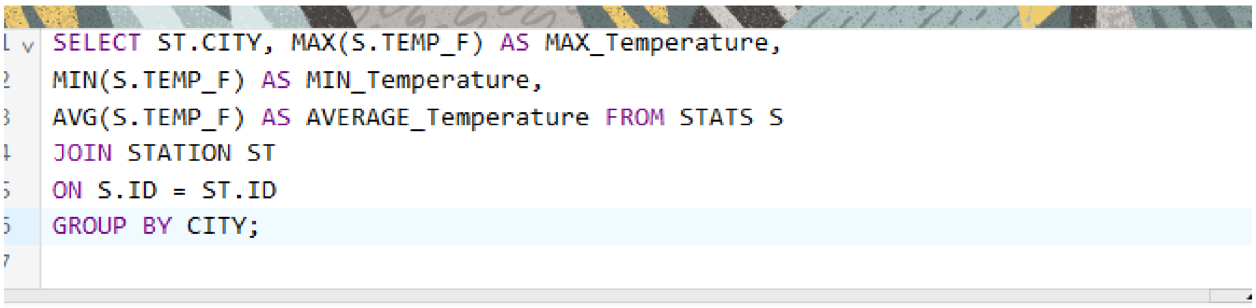


SQL Worksheet

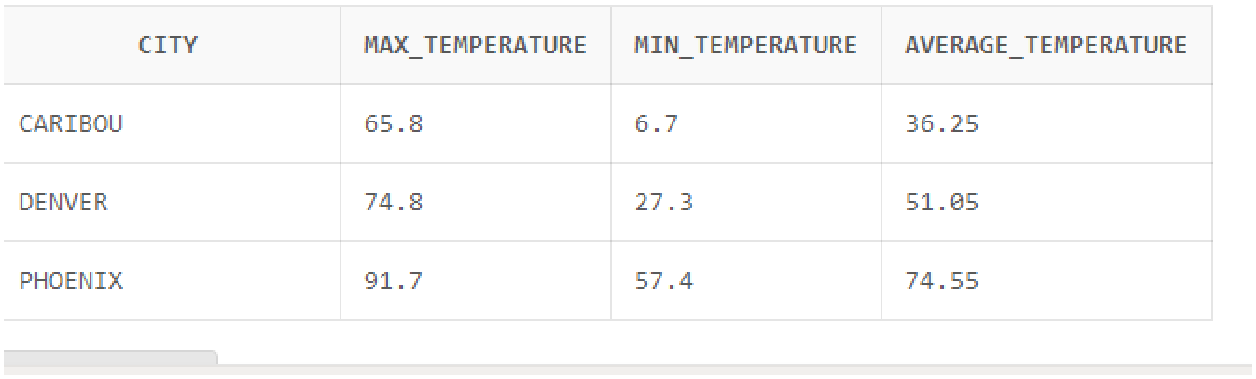
```
SELECT  S."MONTH", S.TEMP_F, ST.CITY, ST.LAT_N FROM STATS S
JOIN STATION ST
ON S.ID = ST.ID
WHERE "MONTH" = 7
ORDER BY S.TEMP_F;
```

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

10. Execute a query to show MAX and MIN temperatures as well as average rainfall for each city.
SELECT ST.CITY, MAX(S.TEMP_F) AS MAX_Temperature,
 MIN(S.TEMP_F) AS MIN_Temperature,
 AVG(S.TEMP_F) AS AVERAGE_Temperature FROM STATS S
JOIN STATION ST
 ON S.ID = ST.ID
GROUP BY CITY;



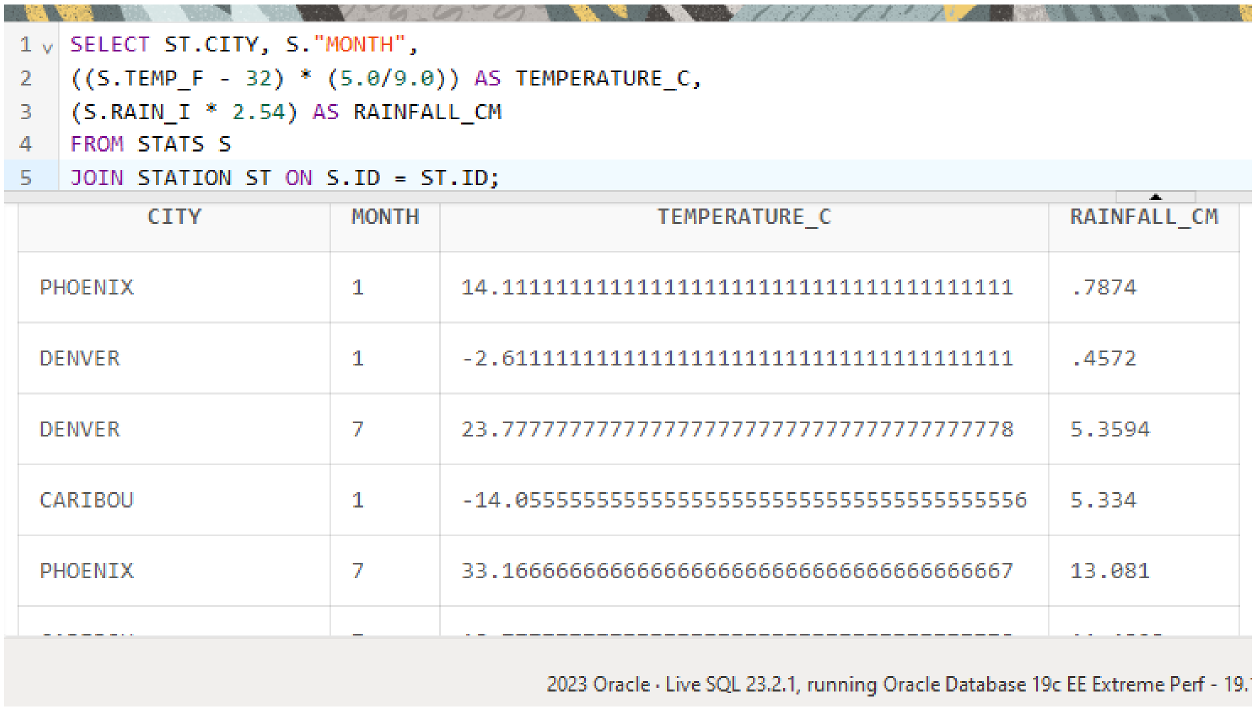
```
SELECT ST.CITY, MAX(S.TEMP_F) AS MAX_Temperature,
MIN(S.TEMP_F) AS MIN_Temperature,
AVG(S.TEMP_F) AS AVERAGE_Temperature FROM STATS S
JOIN STATION ST
ON S.ID = ST.ID
GROUP BY CITY;
```



CITY	MAX_TEMPERATURE	MIN_TEMPERATURE	AVERAGE_TEMPERATURE
CARIBOU	65.8	6.7	36.25
DENVER	74.8	27.3	51.05
PHOENIX	91.7	57.4	74.55

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

```
SELECT ST.CITY, S."MONTH",
 ((S.TEMP_F - 32) * (5.0/9.0)) AS TEMPERATURE_C,
 (S.RAIN_I * 2.54) AS RAINFALL_CM
 FROM STATS S
 JOIN STATION S;
```



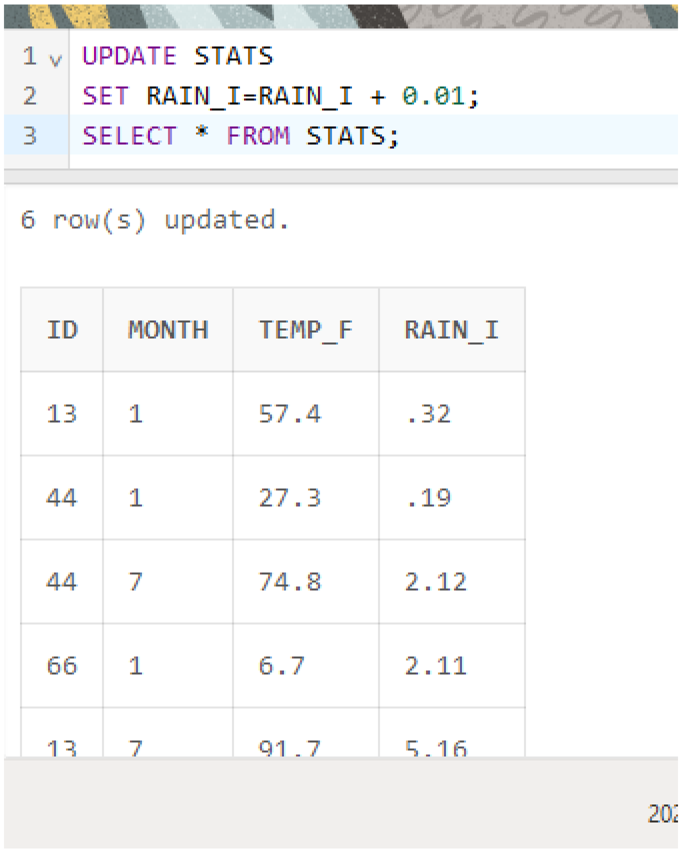
```sql
SELECT ST.CITY, S."MONTH",
((S.TEMP_F - 32) * (5.0/9.0)) AS TEMPERATURE_C,
(S.RAIN_I * 2.54) AS RAINFALL_CM
FROM STATS S
JOIN STATION ST ON S.ID = ST.ID;
```

```
CITY        MONTH   TEMPERATURE_C                              RAINFALL_CM
PHOENIX     1       14.11111111111111111111111111111111111     .7874
DENVER      1       -2.61111111111111111111111111111111111     .4572
DENVER      7       23.77777777777777777777777777777777778     5.3594
CARIBOU     1       -14.05555555555555555555555555555555556    5.334
PHOENIX     7       33.16666666666666666666666666666666667     13.081
```

2023 Oracle · Live SQL 23.2.1, running Oracle Database 19c EE Extreme Perf - 19.

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



```
UPDATE STATS
SET RAIN_I=RAIN_I + 0.01;
SELECT * FROM STATS;
```

```
6 row(s) updated.
```

ID	MONTH	TEMP_F	RAIN_I
13	1	57.4	.32
44	1	27.3	.19
44	7	74.8	2.12
66	1	6.7	2.11
13	7	91.7	5.16

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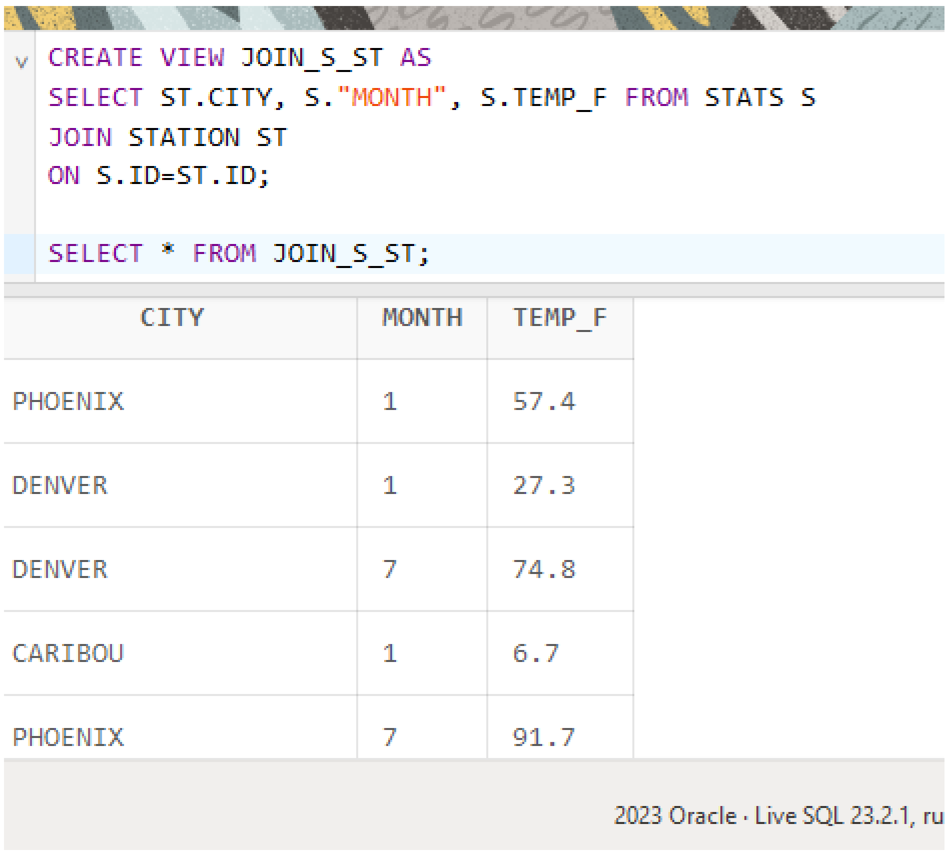
13. Update Denver's July temperature reading as 74.9

STEP 1 (TABLE BEFORE UPDATE)

```
 CREATE VIEW JOIN_S_ST AS SELECT ST.CITY, S."MONTH", S.TEMP_F
 FROM STATS S
JOIN STATION ST ON S.ID=ST.ID;
 SELECT * FROM JOIN_S_ST;
```



```
CREATE VIEW JOIN_S_ST AS
SELECT ST.CITY, S."MONTH", S.TEMP_F FROM STATS S
JOIN STATION ST
ON S.ID=ST.ID;

SELECT * FROM JOIN_S_ST;
```

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

ANKIT SINGH