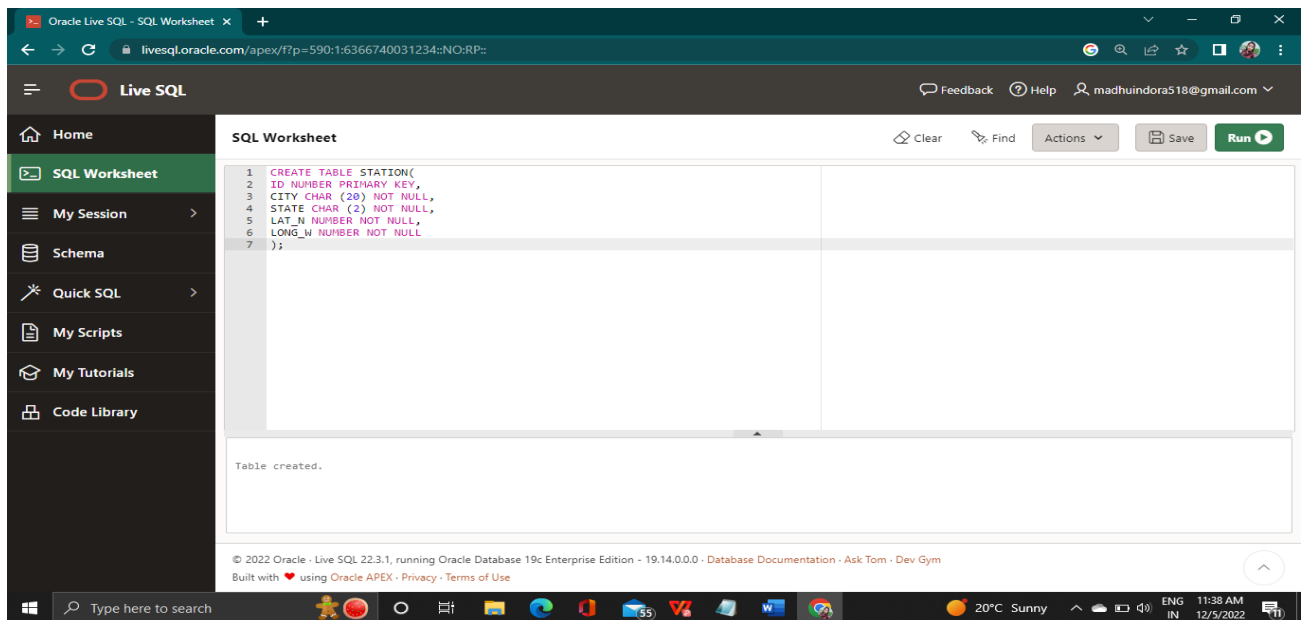


# SQL MAJOR ASSIGNMENT

- 1) Create a table "Station" to store information about weather observation stations:

## QUERY-

```
CREATE TABLE STATION(  
ID NUMBER PRIMARY KEY,  
CITY CHAR (20) NOT NULL,  
STATE CHAR (2) NOT NULL,  
LAT_N NUMBER NOT NULL,  
LONG_W NUMBER NOT NULL  
);
```



- 2) Insert the following records into the table:

## QUERY-

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

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

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

## OUTPUT-

The screenshot shows the Oracle Live SQL interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains the following SQL code:

```
1 CREATE TABLE STATION(  
2 ID NUMBER PRIMARY KEY,  
3 CITY CHAR (20) NOT NULL,  
4 STATE CHAR (2) NOT NULL,  
5 LAT_N NUMBER NOT NULL,  
6 LONG_W NUMBER NOT NULL  
7 );  
8 INSERT INTO STATION VALUES (13,'PHEONIX','AZ', 33,112);  
9 INSERT INTO STATION VALUES (44,'DENVER','CO',40,105);  
10 INSERT INTO STATION VALUES (66,'CAIBOU','ME',47,68);  
11
```

Below the code editor, a message states "1 row(s) inserted." The bottom status bar indicates "© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

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

QUERY-

SELECT \* FROM STATION;

The screenshot shows the Oracle Live SQL interface with the query "SELECT \* FROM STATION;" entered in the SQL Worksheet. The results are displayed in a table below the code editor:

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

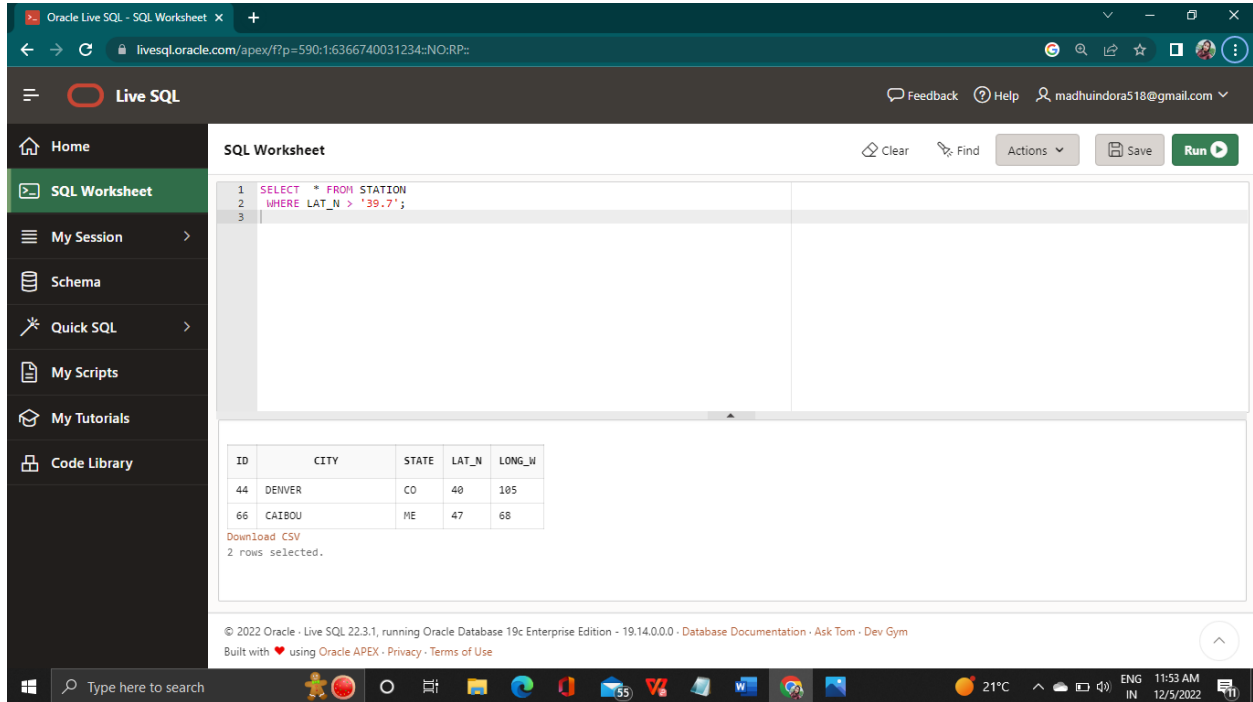
Below the table, a message states "3 rows selected." The bottom status bar indicates "© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym".

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

#### QUERY-

```
SELECT * FROM STATION
```

```
WHERE LAT_N > '39.7';
```



The screenshot shows the Oracle Live SQL web interface. The left sidebar contains navigation links: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL query:

```
1 SELECT * FROM STATION
2 WHERE LAT_N > '39.7';
3
```

Below the editor, the query results are displayed in a table:

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

Below the table, it says 'Download CSV' and '2 rows selected.' The bottom of the interface shows the Oracle Live SQL version (22.3.1) and the Oracle Database version (19c Enterprise Edition - 19.14.0.0.0).

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

#### QUERY-

```
CREATE TABLE STATS(
```

```
ID NUMBER(10) NOT NULL,
```

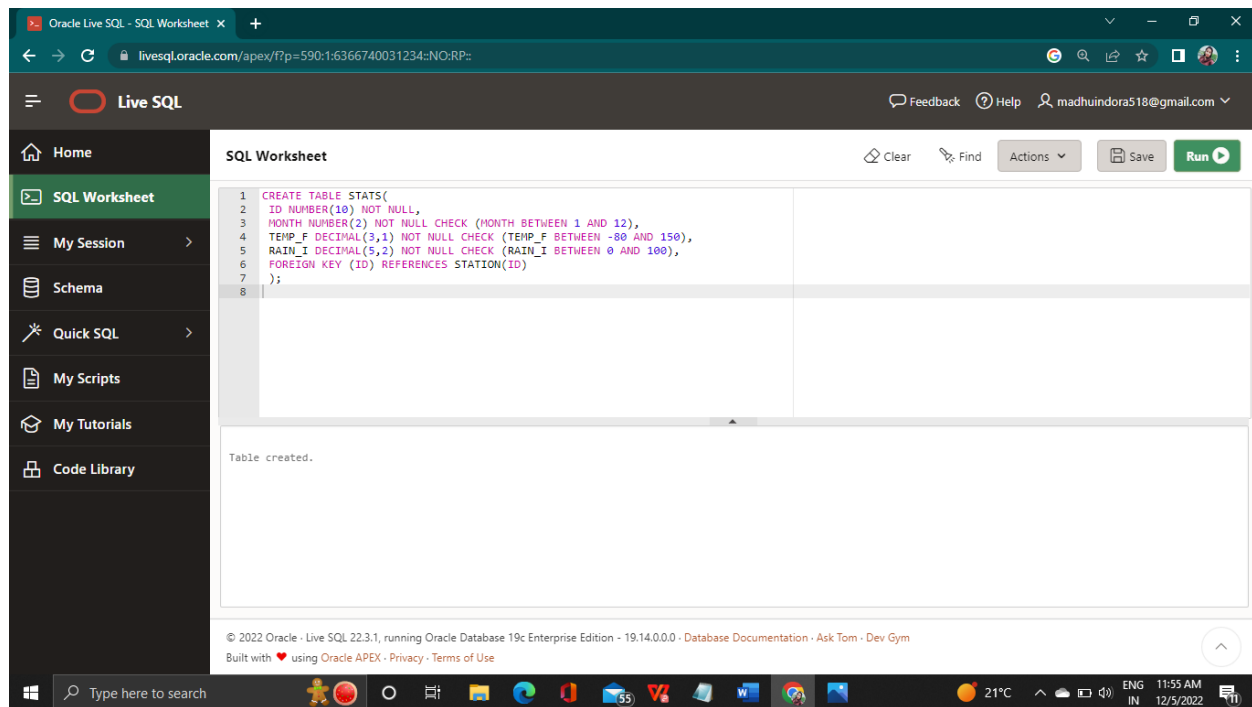
```
MONTH NUMBER(2) NOT NULL CHECK (MONTH BETWEEN 1 AND 12),
```

```
TEMP_F DECIMAL(3,1) NOT NULL CHECK (TEMP_F BETWEEN -80 AND 150),
```

```
RAIN_I DECIMAL(5,2) NOT NULL CHECK (RAIN_I BETWEEN 0 AND 100),
```

```
FOREIGN KEY (ID) REFERENCES STATION(ID)
```

```
);
```



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

#### QUERY-

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

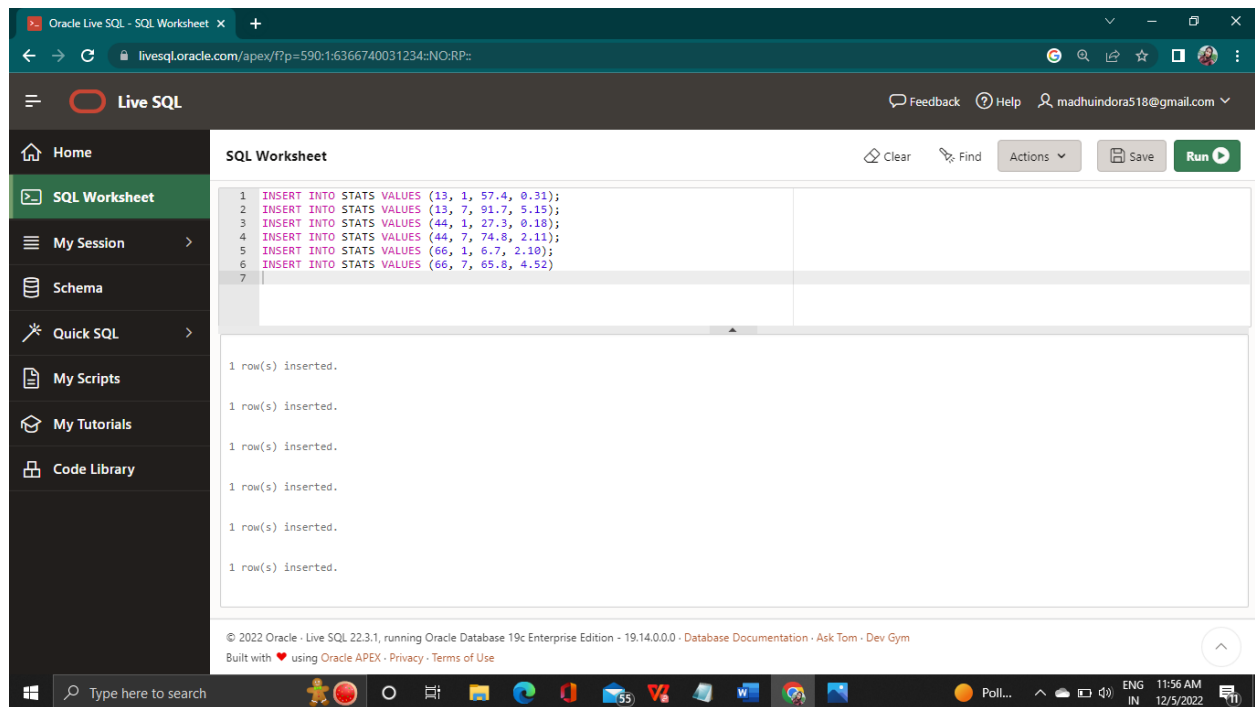
INSERT INTO STATS VALUES (13, 7, 91.7, 5.15);

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):

### QUERY-

SELECT STATS.TEMP\_F,STATION.CITY

FROM STATS,STATION

WHERE STATS.ID = STATION.ID;

The screenshot shows the Oracle Live SQL web interface. The browser address bar displays the URL: `livesql.oracle.com/apex/?p=590:1:6366740031234::NO:RP::`. The interface includes a sidebar with navigation options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains a SQL query editor with the following code:

```
1 SELECT STATS.TEMP_F,STATION.CITY
2 FROM STATS,STATION
3 WHERE STATS.ID = STATION.ID;
4
```

Below the editor, the results are displayed in a table:

TEMP_F	CITY
57.4	PHEONIX
91.7	PHEONIX
27.3	DENVER
74.8	DENVER
6.7	CAIBOU
65.8	CAIBOU

Below the table, it says "Download CSV" and "6 rows selected." The footer of the interface includes copyright information: "© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym" and "Built with using Oracle APEX - Privacy - Terms of Use". The Windows taskbar at the bottom shows the search bar, task view, and various application icons, including AQL...

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:

#### QUERY-

SELECT STATS.\*,STATION.CITY

FROM STATS,STATION

WHERE STATS.ID = STATION.ID

ORDER BY STATS.MONTH,RAIN\_I DESC;

The screenshot shows the Oracle Live SQL web interface. The left sidebar contains navigation links: Home, SQL Worksheet (active), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains an SQL query in a text editor. Below the editor, the query results are displayed in a table. The table has columns: ID, MONTH, TEMP\_F, RAIN\_I, and CITY. The results show 6 rows of data for July. Below the table, there is a 'Download CSV' link and a message '6 rows selected.' The footer of the interface shows the copyright information: '© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym' and 'Built with using Oracle APEX - Privacy - Terms of Use'.

```
1 SELECT STATS.*,STATION.CITY
2 FROM STATS,STATION
3 WHERE STATS.ID = STATION.ID
4 ORDER BY STATS.MONTH,RAIN_I DESC;
5
```

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

Download CSV  
6 rows selected.

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

#### QUERY-

```
SELECT STATS.TEMP_F,STATION.CITY,STATION.LAT_N,STATS.MONTH
```

```
FROM STATS, STATION
```

```
WHERE STATS.ID = STATION. ID AND MONTH= '7'
```

```
ORDER BY STATS.TEMP_F ASC;
```

The screenshot shows the Oracle Live SQL web interface. The browser address bar displays `livesql.oracle.com/apex/?p=590:1:6366740031234::NO:RP::`. The interface includes a sidebar with navigation options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains a text editor with the following SQL query:

```
1 SELECT STATS.TEMP_F,STATION.CITY,STATION.LAT_N,STATS.MONTH
2 FROM STATS, STATION
3 WHERE STATS.ID = STATION.ID AND MONTH= '7'
4 ORDER BY STATS.TEMP_F ASC;
5
```

Below the editor, the query results are displayed in a table:

TEMP_F	CITY	LAT_N	MONTH
65.8	CAIBOU	47	7
74.8	DENVER	40	7
91.7	PHEONIX	33	7

Below the table, it says "Download CSV" and "3 rows selected." The footer of the interface includes copyright information: "© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym" and "Built with using Oracle APEX - Privacy - Terms of Use". The Windows taskbar at the bottom shows the system clock as 12:01 PM on 12/5/2022.

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

#### QUERY-

```
SELECT STATION.CITY,MAX(STATS.TEMP_F) AS MAXIMUM_TEMP,
MIN(STATS.TEMP_F) AS MINIMUM_TEMP,
AVG(RAIN_I) AS AVRAGE_RAINFALL
FROM STATION,STATS
WHERE STATION.ID = STATS.ID
GROUP BY STATION.CITY;
```



The screenshot shows the Oracle Live SQL web interface. The left sidebar contains navigation links: Home, SQL Worksheet (active), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled 'SQL Worksheet' and contains a text editor with the following SQL query:

```

1 SELECT STATION.CITY, MAX(STATS.TEMP_F) AS MAXIMUM_TEMP,
2    MIN(STATS.TEMP_F) AS MINIMUM_TEMP,
3    AVG(RAIN_I) AS AVERAGE_RAINFALL
4 FROM STATION, STATS
5 WHERE STATION.ID = STATS.ID
6 GROUP BY STATION.CITY;
7

```

Below the query editor, the results are displayed in a table:

CITY	MAXIMUM_TEMP	MINIMUM_TEMP	AVERAGE_RAINFALL
PHEONIX	91.7	57.4	2.74
CAIBOU	65.8	6.7	3.32
DENVER	74.9	27.3	1.155

Below the table, it says 'Download CSV' and '3 rows selected.' The footer of the interface shows copyright information for Oracle and the version of the Live SQL tool.

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

### QUERY-

```

SELECT STATION.CITY, STATS.MONTH,
ROUND((STATS.TEMP_F-32)*5/9,2) AS TEMP_IN_C,
ROUND(STATS.RAIN_I*2.54,2) AS RAIN_IN_CM
FROM STATION, STATS
WHERE STATION.ID = STATS.ID;

```

Oracle Live SQL - SQL Worksheet

livesql.oracle.com/apex/?p=590:1:6913082394789::LEVEL1:RP::

Live SQL

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SQL Worksheet

```

1 SELECT STATION,CITY,STATS.MONTH,
2 ROUND((STATS.TEMP_F-32)*5/9,2) AS TEMP_IN_C,
3 ROUND(STATS.RAIN_I*2.54,2) AS RAIN_IN_CM
4 FROM STATION,STATS
5 WHERE STATION.ID = STATS.ID;
6

```

CITY	MONTH	TEMP_IN_C	RAIN_IN_CM
PHEONIX	1	14.11	.81
PHEONIX	7	33.17	13.11
DENVER	1	-2.61	.48
DENVER	7	23.83	5.38
CAIBOU	1	-14.06	5.36
CAIBOU	7	18.78	11.51

Download CSV

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12) Update all rows of table STATS to compensate for faulty rain gauges known to read 0.01 inches low:

QUERY-

UPDATE STATS

SET RAIN\_I = RAIN\_I + 0.01;

Oracle Live SQL - SQL Worksheet

livesql.oracle.com/apex/?p=590:1:6913082394789::LEVEL1:RP::

Live SQL

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Home SQL Worksheet My Session Schema Quick SQL My Scripts My Tutorials Code Library

SQL Worksheet

```

1 UPDATE STATS
2 SET RAIN_I = RAIN_I + 0.01;
3

```

6 row(s) updated.

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13) Update Denver's July temperature reading as 74.9:

### QUERY-

UPDATE STATS

SET TEMP\_F = 74.9

WHERE ID=44 AND MONTH=7;

The screenshot displays the Oracle Live SQL web interface. The browser address bar shows the URL: `livesql.oracle.com/apex/f?p=590:1:6913082394789::LEVEL1:RP:`. The interface includes a sidebar with navigation options: Home, SQL Worksheet (selected), My Session, Schema, Quick SQL, My Scripts, My Tutorials, and Code Library. The main area is titled "SQL Worksheet" and contains the following SQL query:

```
1 UPDATE STATS
2 SET TEMP_F = 74.9
3 WHERE ID=44 AND MONTH=7;
4
```

Below the query editor, the execution result is displayed: "1 row(s) updated." The footer of the interface provides copyright information: "© 2022 Oracle - Live SQL 22.3.1, running Oracle Database 19c Enterprise Edition - 19.14.0.0.0 - Database Documentation - Ask Tom - Dev Gym" and mentions it is built with Oracle APEX. The Windows taskbar at the bottom shows the date and time as 12:56 PM on 12/5/2022.