

### EXISTING STUDENTS TABLE

	STUDE...	FIRST_NAME	LAST_NAME	DATE_OF_BIRTH	ENROLLMENT_DATE	SEMESTER	FEE	PROGRAM_ID	AGE	DUE_STATUS	RANKING
1	105	Hassan	Ali	25-NOV-02	01-APR-24	2	50290	3	22	cleared	1
2	110	Nida	Malik	30-JUN-03	18-MAR-24	2	52000	5	21	cleared	6
3	106	Aisha	Khan	15-MAR-03	01-SEP-23	4	48000	1	21	cleared	2
4	107	Ali	Raza	22-JUL-01	15-AUG-22	6	55000	2	23	cleared	3
5	108	Sara	Ahmed	10-JAN-04	10-FEB-24	2	60000	3	20	cleared	4
6	109	Bilal	Shah	05-DEC-02	12-JAN-23	4	45000	4	22	cleared	5

### EXISTING PROGRAMS TABLE

	PROGRA...	PROGRAM_NAME
1	1	Computer Science
2	2	Data Analytics
3	3	Software Engineering
4	4	Business Administration
5	5	Information Technology

### LAB#04 – TASK#01

Query Builder

```
SELECT PROGRAM_NAME,  
       (SELECT COUNT(*) FROM STUDENTS WHERE PROGRAM_ID = P.PROGRAM_ID) AS NUM_STUDENTS,  
       (SELECT MAX(FEE) FROM STUDENTS WHERE PROGRAM_ID = P.PROGRAM_ID) AS HIGHEST_FEE,  
       (SELECT MAX(FEE) - MIN(FEE) FROM STUDENTS WHERE PROGRAM_ID = P.PROGRAM_ID) AS FEE_DIFFERENCE  
FROM PROGRAMS P;
```

Task completed in 0.095 seconds

PROGRAM_NAME	NUM_STUDENTS	HIGHEST_FEE	FEE_DIFFERENCE
Information Technology	1	52000	0
Computer Science	1	48000	0
Data Analytics	1	55000	0
Software Engineering	2	60000	9710
Business Administration	1	45000	0

### LAB#04 – TASK#02

Query Builder

```
SELECT PROGRAM_NAME  
FROM PROGRAMS P  
WHERE (SELECT AVG(AGE) FROM STUDENTS WHERE PROGRAM_ID=P.PROGRAM_ID) > (SELECT AVG(AGE) FROM STUDENTS);
```

Task completed in 0.066 seconds

PROGRAM_NAME
Data Analytics
Business Administration

### LAB#04 – TASK#03

The screenshot shows the SQL Developer interface with a query in the Query Builder. The query is:

```
SELECT *  
FROM STUDENTS S  
WHERE FEE = (SELECT MAX(FEE) FROM STUDENTS WHERE PROGRAM_ID=S.PROGRAM_ID);
```

The Query Result pane shows the following data:

STUDENT_ID	FIRST_NAME
110	Nida
106	Aisha
107	Ali
108	Sara
109	Bilal

### LAB#04 – TASK#04

The screenshot shows the SQL Developer interface with a query in the Query Builder. The query is:

```
SELECT *  
FROM STUDENTS  
WHERE ENROLLMENT_DATE < (SELECT MIN(ENROLLMENT_DATE) FROM STUDENTS WHERE PROGRAM_ID=4);
```

The Query Result pane shows the following data:

STUDENT_ID	FIRST_NAME
107	Ali

### LAB#04 – TASK#05

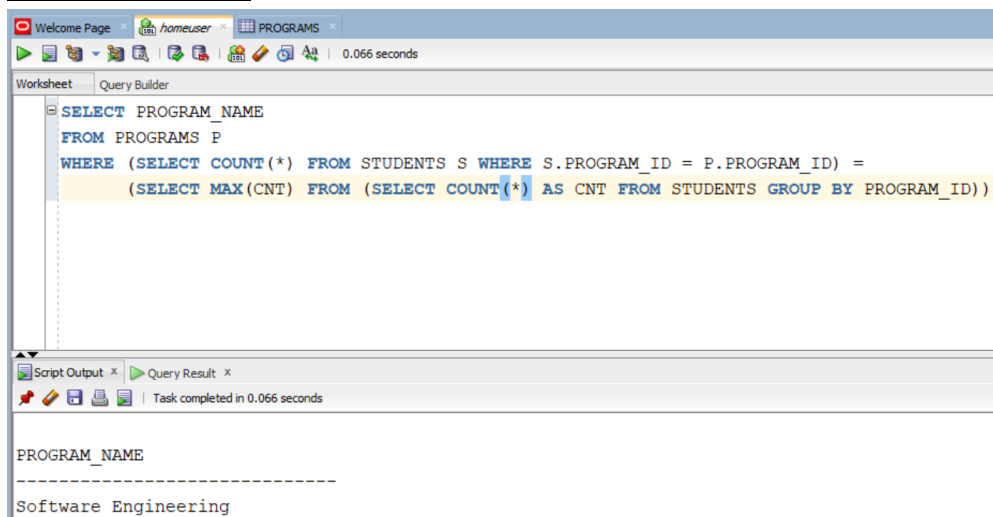
The screenshot shows the SQL Developer interface with a query in the Query Builder. The query is:

```
SELECT PROGRAM_NAME,  
(SELECT AVG(FEE) FROM STUDENTS WHERE PROGRAM_ID=P.PROGRAM_ID) AS AVG_FEE  
FROM PROGRAMS P  
WHERE (SELECT AVG(FEE) FROM STUDENTS WHERE PROGRAM_ID=P.PROGRAM_ID) BETWEEN 40000 AND 60000;
```

The Query Result pane shows the following data:

PROGRAM_NAME	AVG_FEE
Information Technology	52000
Computer Science	48000
Data Analytics	55000
Software Engineering	55145
Business Administration	45000

### LAB#04 – TASK#06



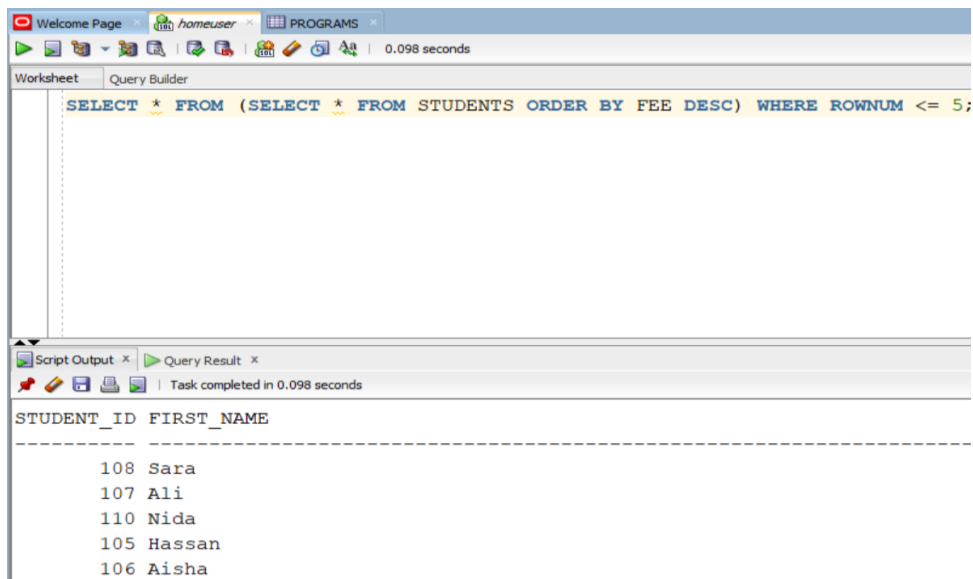
The screenshot shows the Oracle SQL Developer interface. The top toolbar includes icons for running, saving, and other database operations. The 'Query Builder' tab is active, displaying the following SQL query:

```
SELECT PROGRAM_NAME  
FROM PROGRAMS P  
WHERE (SELECT COUNT(*) FROM STUDENTS S WHERE S.PROGRAM_ID = P.PROGRAM_ID) =  
(SELECT MAX(CNT) FROM (SELECT COUNT(*) AS CNT FROM STUDENTS GROUP BY PROGRAM_ID));
```

Below the query editor, the 'Query Result' window shows the output of the query:

PROGRAM_NAME
Software Engineering

### LAB#04 – TASK#07



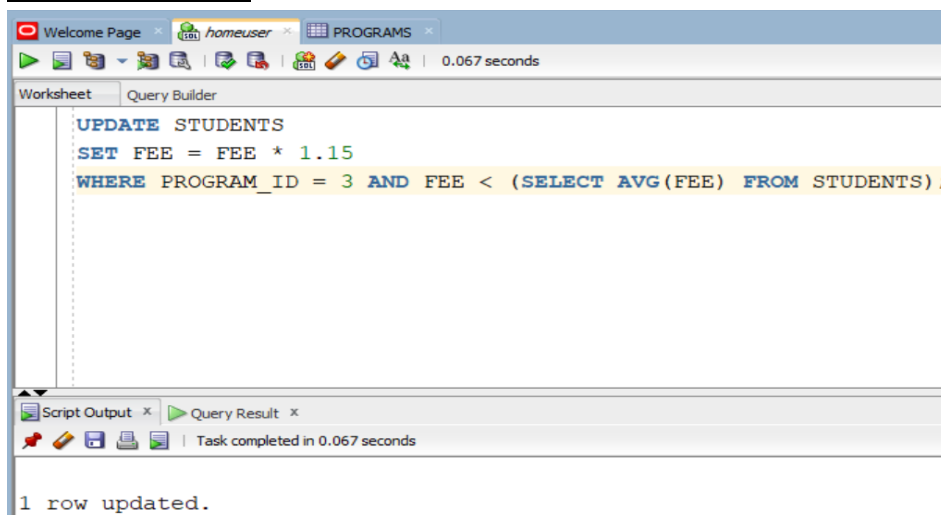
The screenshot shows the Oracle SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL query:

```
SELECT * FROM (SELECT * FROM STUDENTS ORDER BY FEE DESC) WHERE ROWNUM <= 5;
```

Below the query editor, the 'Query Result' window shows the output of the query:

STUDENT_ID	FIRST_NAME
108	Sara
107	Ali
110	Nida
105	Hassan
106	Aisha

### LAB#04 – TASK#08



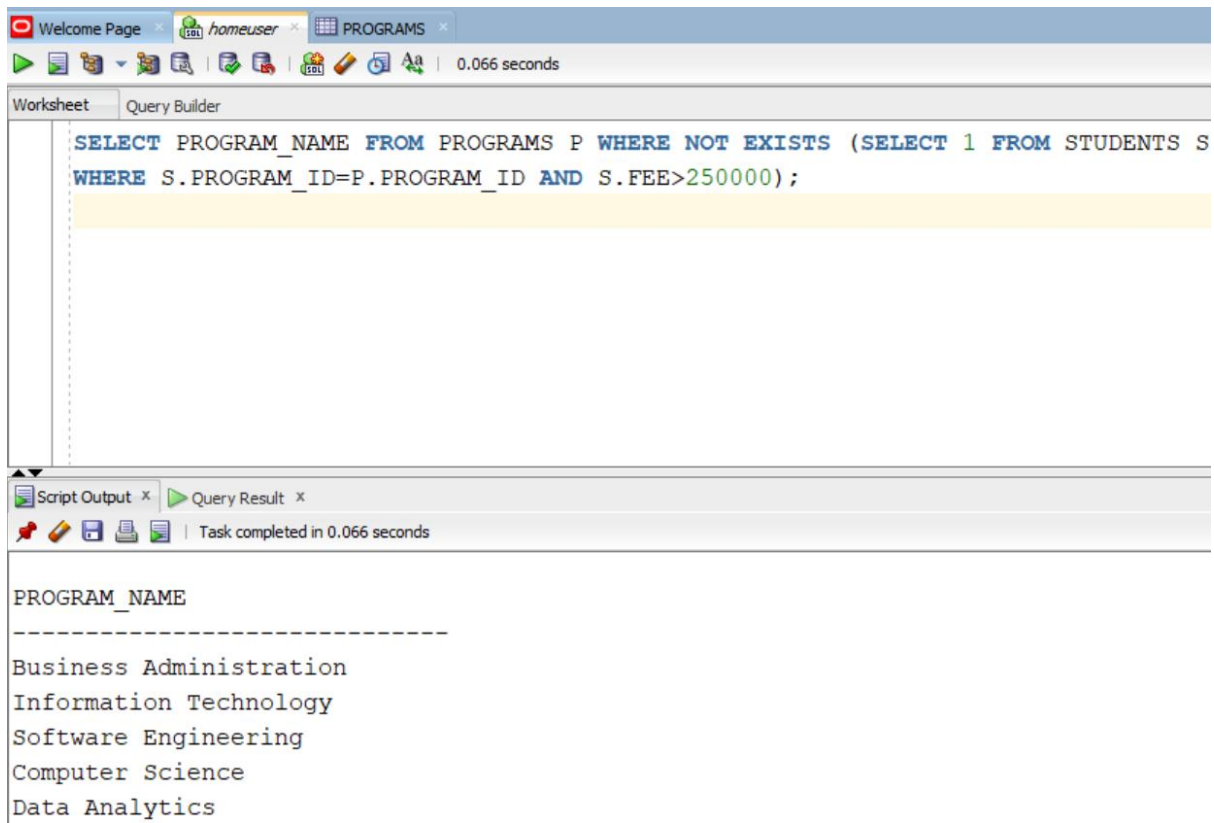
The screenshot shows the Oracle SQL Developer interface. The 'Query Builder' tab is active, displaying the following SQL query:

```
UPDATE STUDENTS  
SET FEE = FEE * 1.15  
WHERE PROGRAM_ID = 3 AND FEE < (SELECT AVG(FEE) FROM STUDENTS);
```

Below the query editor, the 'Query Result' window shows the output of the query:

1 row updated.

#### LAB#04 – TASK#09



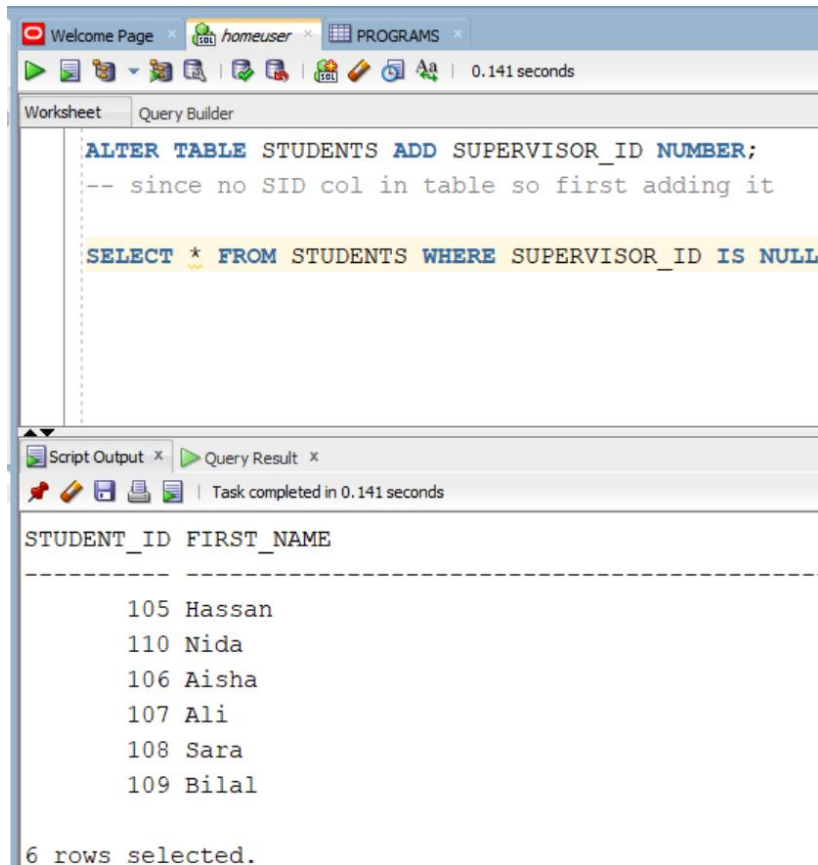
The screenshot shows a database query tool interface. The top bar includes tabs for 'Welcome Page', 'homeuser', and 'PROGRAMS'. Below the toolbar, the 'Query Builder' tab is active, displaying the following SQL query:

```
SELECT PROGRAM_NAME FROM PROGRAMS P WHERE NOT EXISTS (SELECT 1 FROM STUDENTS S WHERE S.PROGRAM_ID=P.PROGRAM_ID AND S.FEE>250000);
```

The 'Script Output' and 'Query Result' tabs are visible at the bottom. The 'Query Result' tab shows the output of the query:

PROGRAM_NAME
Business Administration
Information Technology
Software Engineering
Computer Science
Data Analytics

#### LAB#04 – TASK#10



The screenshot shows a database query tool interface. The top bar includes tabs for 'Welcome Page', 'homeuser', and 'PROGRAMS'. Below the toolbar, the 'Query Builder' tab is active, displaying the following SQL commands:

```
ALTER TABLE STUDENTS ADD SUPERVISOR_ID NUMBER;  
-- since no SID col in table so first adding it  
SELECT * FROM STUDENTS WHERE SUPERVISOR_ID IS NULL;
```

The 'Script Output' and 'Query Result' tabs are visible at the bottom. The 'Query Result' tab shows the output of the query:

STUDENT_ID	FIRST_NAME
105	Hassan
110	Nida
106	Aisha
107	Ali
108	Sara
109	Bilal

6 rows selected.