23K-6005

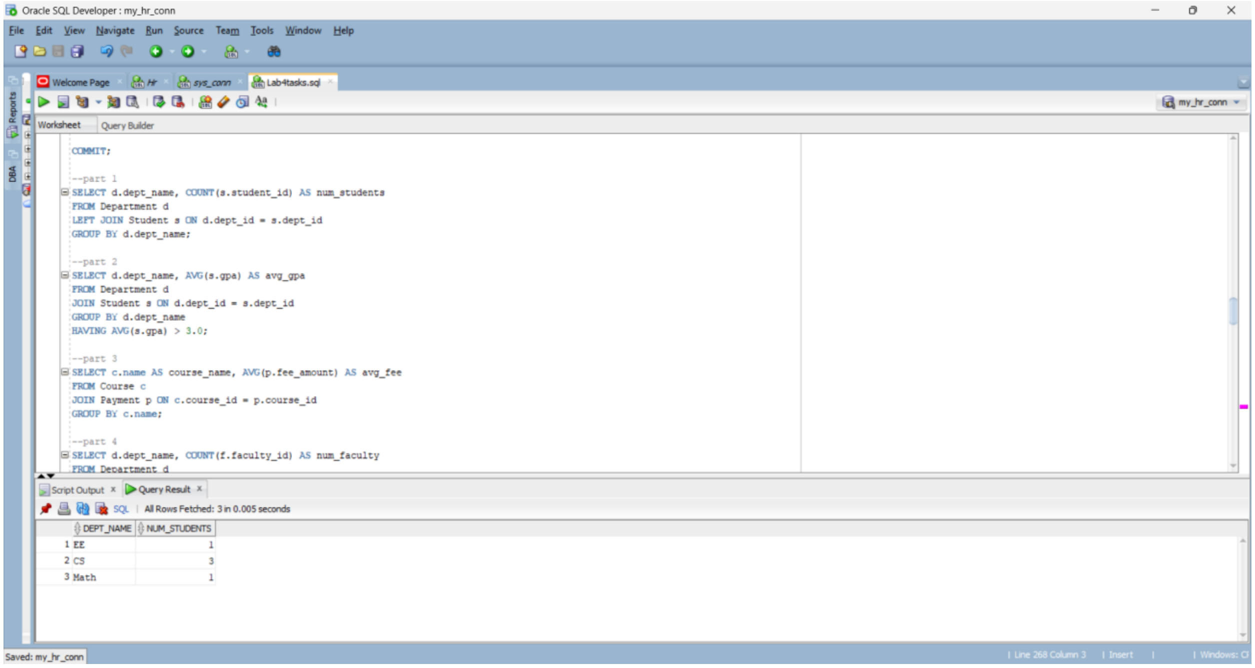
HARIS AHMED

BSAI-5A

DATABASE LAB 04:

IN LAB TASKS

1)



```
COMMIT;

--part 1
SELECT d.dept_name, COUNT(s.student_id) AS num_students
FROM Department d
LEFT JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name;

--part 2
SELECT d.dept_name, AVG(s.gpa) AS avg_gpa
FROM Department d
JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name
HAVING AVG(s.gpa) > 3.0;

--part 3
SELECT c.name AS course_name, AVG(p.fee_amount) AS avg_fee
FROM Course c
JOIN Payment p ON c.course_id = p.course_id
GROUP BY c.name;

--part 4
SELECT d.dept_name, COUNT(f.faculty_id) AS num_faculty
FROM Department d
```

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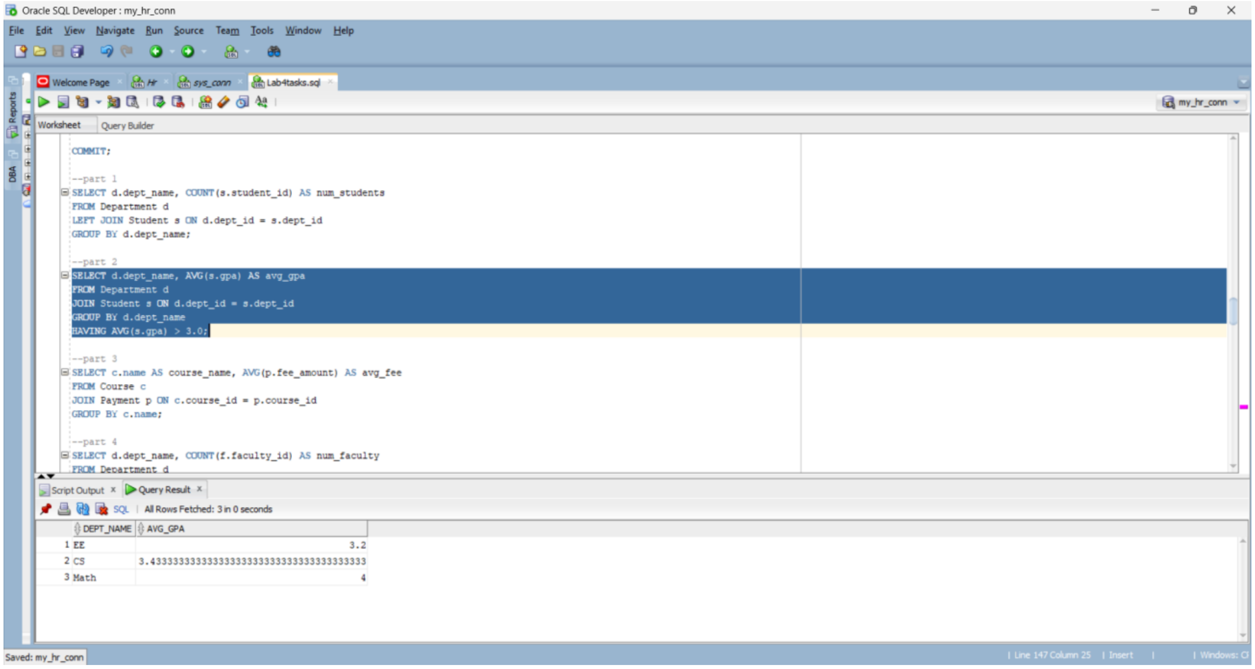
	DEPT_NAME	NUM_STUDENTS
1	EE	1
2	CS	3
3	Math	1

2)

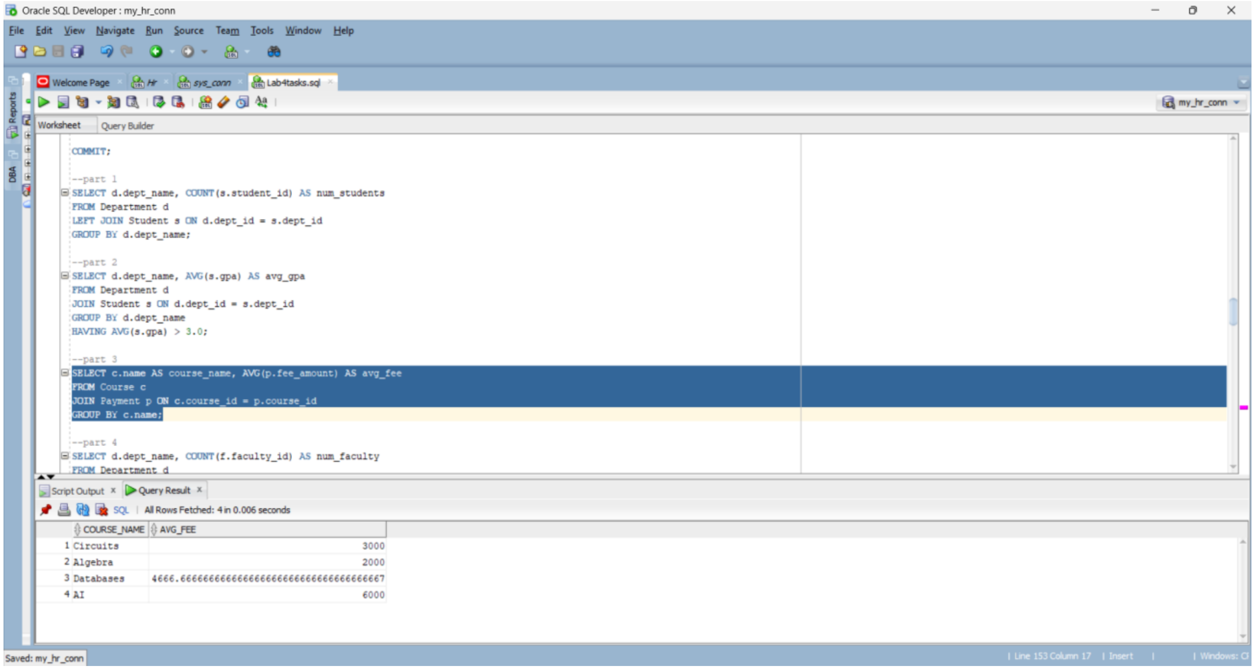


```
COMMIT;

--part 1
SELECT d.dept_name, COUNT(s.student_id) AS num_students
FROM Department d
LEFT JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name;

--part 2
SELECT d.dept_name, AVG(s.gpa) AS avg_gpa
FROM Department d
JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name
HAVING AVG(s.gpa) > 3.0;

--part 3
SELECT c.name AS course_name, AVG(p.fee_amount) AS avg_fee
FROM Course c
JOIN Payment p ON c.course_id = p.course_id
GROUP BY c.name;

--part 4
SELECT d.dept_name, COUNT(f.faculty_id) AS num_faculty
FROM Department d
```

All Rows Fetched: 3 in 0 seconds

	DEPT_NAME	AVG_GPA
1	EE	3.2
2	CS	3.4333333333333333333333333333333333333
3	Math	4

3)

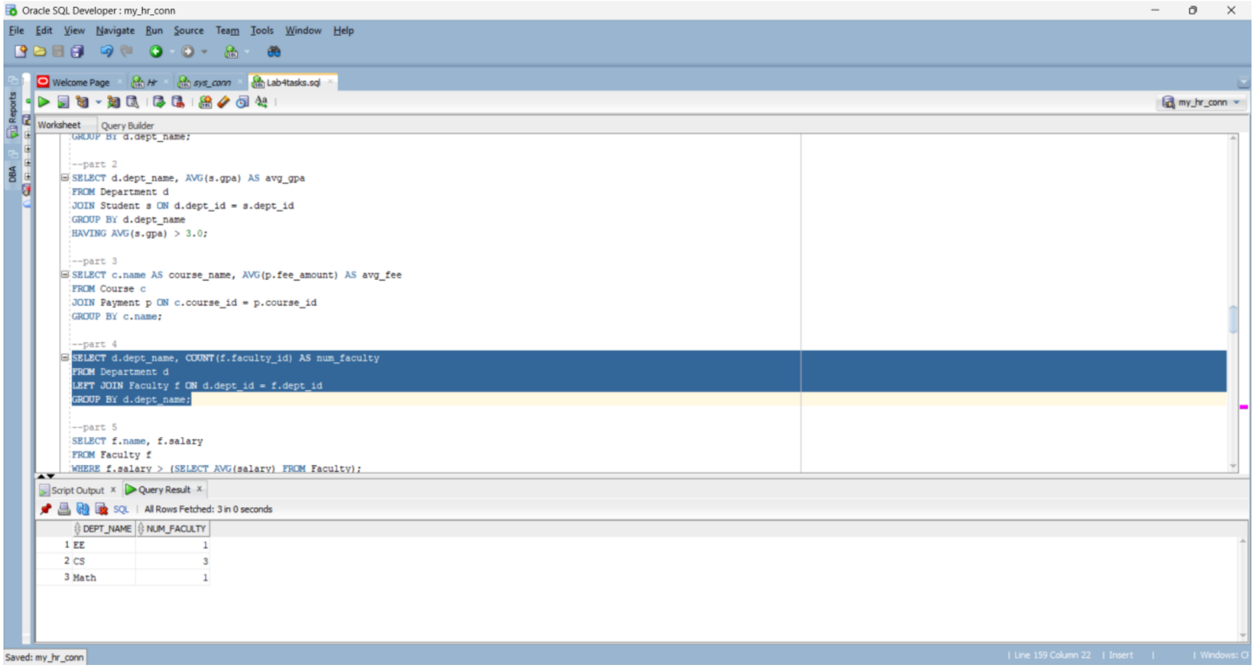


```
COMMIT;

--part 1
SELECT d.dept_name, COUNT(s.student_id) AS num_students
FROM Department d
LEFT JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name;

--part 2
SELECT d.dept_name, AVG(s.gpa) AS avg_gpa
FROM Department d
JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name
HAVING AVG(s.gpa) > 3.0;

--part 3
SELECT c.name AS course_name, AVG(p.fee_amount) AS avg_fee
FROM Course c
JOIN Payment p ON c.course_id = p.course_id
GROUP BY c.name;

--part 4
SELECT d.dept_name, COUNT(f.faculty_id) AS num_faculty
FROM Department d
```

All Rows Fetched: 4 in 0.006 seconds

	COURSE_NAME	AVG_FEE
1	Circuits	3000
2	Algebra	2000
3	Databases	4666.6666666666666666666666666666666667
4	AI	6000

4)

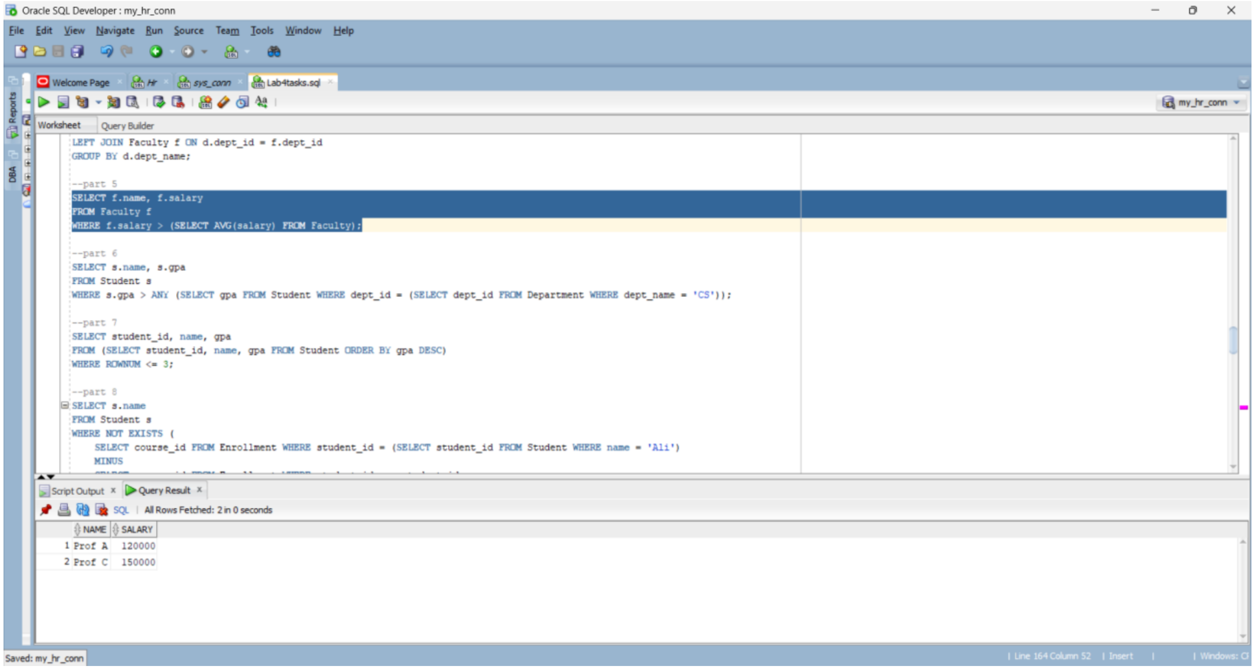


```
GROUP BY d.dept_name;

--part 2
SELECT d.dept_name, AVG(s.gpa) AS avg_gpa
FROM Department d
JOIN Student s ON d.dept_id = s.dept_id
GROUP BY d.dept_name
HAVING AVG(s.gpa) > 3.0;

--part 3
SELECT c.name AS course_name, AVG(p.fee_amount) AS avg_fee
FROM Course c
JOIN Payment p ON c.course_id = p.course_id
GROUP BY c.name;

--part 4
SELECT d.dept_name, COUNT(f.faculty_id) AS num_faculty
FROM Department d
LEFT JOIN Faculty f ON d.dept_id = f.dept_id
GROUP BY d.dept_name;

--part 5
SELECT f.name, f.salary
FROM Faculty f
WHERE f.salary > (SELECT AVG(salary) FROM Faculty);
```

All Rows Fetched: 3 in 0 seconds

```
    DEPT_NAME  NUM_FACULTY
  1 EE                   1
  2 CS                   3
  3 Math                 1
```

5)

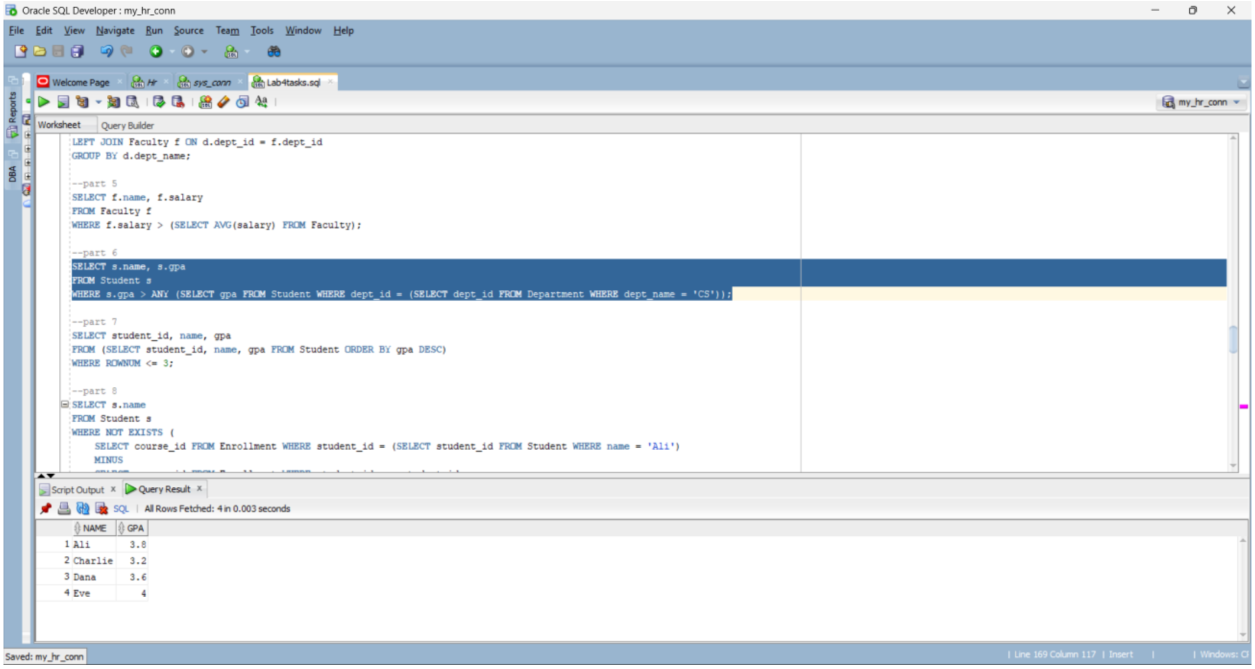


```
LEFT JOIN Faculty f ON d.dept_id = f.dept_id
GROUP BY d.dept_name;

--part 5
SELECT f.name, f.salary
FROM Faculty f
WHERE f.salary > (SELECT AVG(salary) FROM Faculty);

--part 6
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > ANY (SELECT gpa FROM Student WHERE dept_id = (SELECT dept_id FROM Department WHERE dept_name = 'CS'));

--part 7
SELECT student_id, name, gpa
FROM (SELECT student_id, name, gpa FROM Student ORDER BY gpa DESC)
WHERE ROWNUM <= 3;

--part 8
SELECT s.name
FROM Student s
WHERE NOT EXISTS (
    SELECT course_id FROM Enrollment WHERE student_id = (SELECT student_id FROM Student WHERE name = 'Ali')
    MINUS
```

All Rows Fetched: 2 in 0 seconds

```
    NAME    SALARY
  1 Prof A  120000
  2 Prof C  150000
```

6)


Oracle SQL Developer : my_hr_conn
File Edit View Navigate Run Source Team Tools Window Help
Welcome Page
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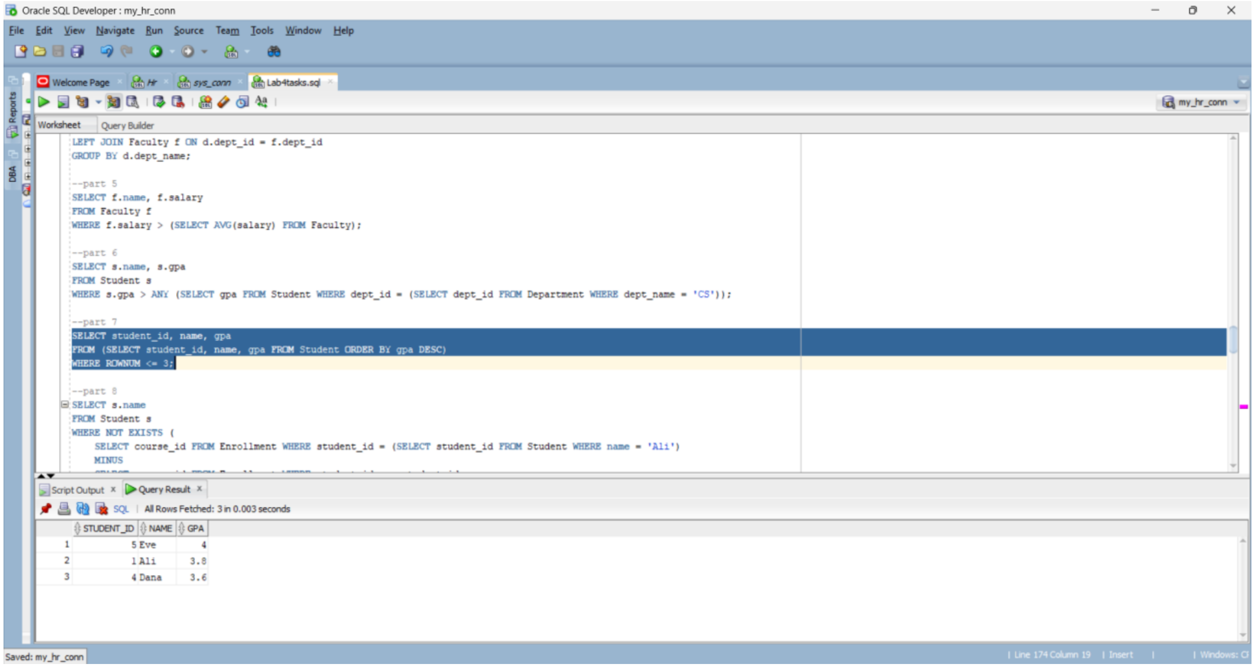
sys_conn
Lab4tasks.sql
my_hr_conn
Worksheet
Query Builder
Script Output
Query Result
SQL
Saved: my_hr_conn
Line 169 Column 117 | Insert | Windows: Cl

```
LEFT JOIN Faculty f ON d.dept_id = f.dept_id
GROUP BY d.dept_name;

--part 5
SELECT f.name, f.salary
FROM Faculty f
WHERE f.salary > (SELECT AVG(salary) FROM Faculty);

--part 6
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > ANY (SELECT gpa FROM Student WHERE dept_id = (SELECT dept_id FROM Department WHERE dept_name = 'CS'));

--part 7
SELECT student_id, name, gpa
FROM (SELECT student_id, name, gpa FROM Student ORDER BY gpa DESC)
WHERE ROWNUM <= 3;

--part 8
SELECT s.name
FROM Student s
WHERE NOT EXISTS (
    SELECT course_id FROM Enrollment WHERE student_id = (SELECT student_id FROM Student WHERE name = 'Ali')
    MINUS
```

All Rows Fetched: 4 in 0.003 seconds

	NAME	GPA
1	Ali	3.8
2	Charlie	3.2
3	Dana	3.6
4	Eve	4

7)


Oracle SQL Developer : my_hr_conn
File Edit View Navigate Run Source Team Tools Window Help
Welcome Page
Hr
sys_conn
Lab4tasks.sql
my_hr_conn
Worksheet
Query Builder
Script Output
Query Result
SQL
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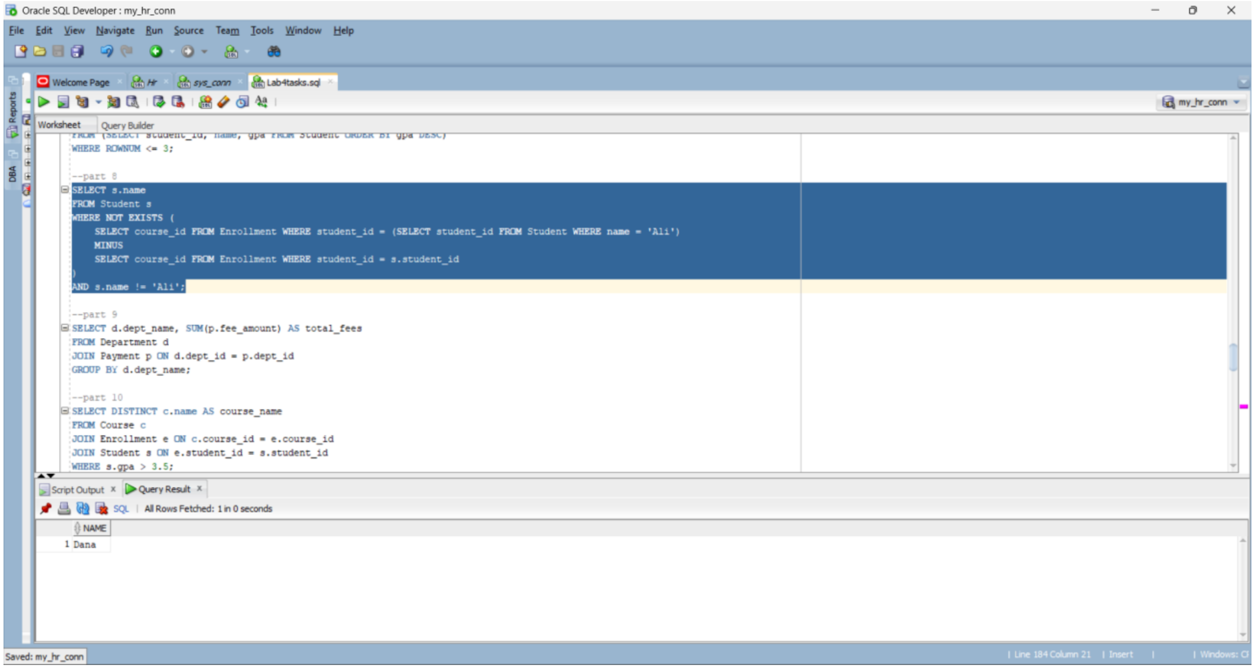
```
LEFT JOIN Faculty f ON d.dept_id = f.dept_id
GROUP BY d.dept_name;

--part 5
SELECT f.name, f.salary
FROM Faculty f
WHERE f.salary > (SELECT AVG(salary) FROM Faculty);

--part 6
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > ANY (SELECT gpa FROM Student WHERE dept_id = (SELECT dept_id FROM Department WHERE dept_name = 'CS'));

--part 7
SELECT student_id, name, gpa
FROM (SELECT student_id, name, gpa FROM Student ORDER BY gpa DESC)
WHERE ROWNUM <= 3;

--part 8
SELECT s.name
FROM Student s
WHERE NOT EXISTS (
    SELECT course_id FROM Enrollment WHERE student_id = (SELECT student_id FROM Student WHERE name = 'Ali')
    MINUS
```

All Rows Fetched: 3 in 0.003 seconds

	STUDENT_ID	NAME	GPA
1	5	Eve	4
2	1	Ali	3.8
3	4	Dana	3.6

8)

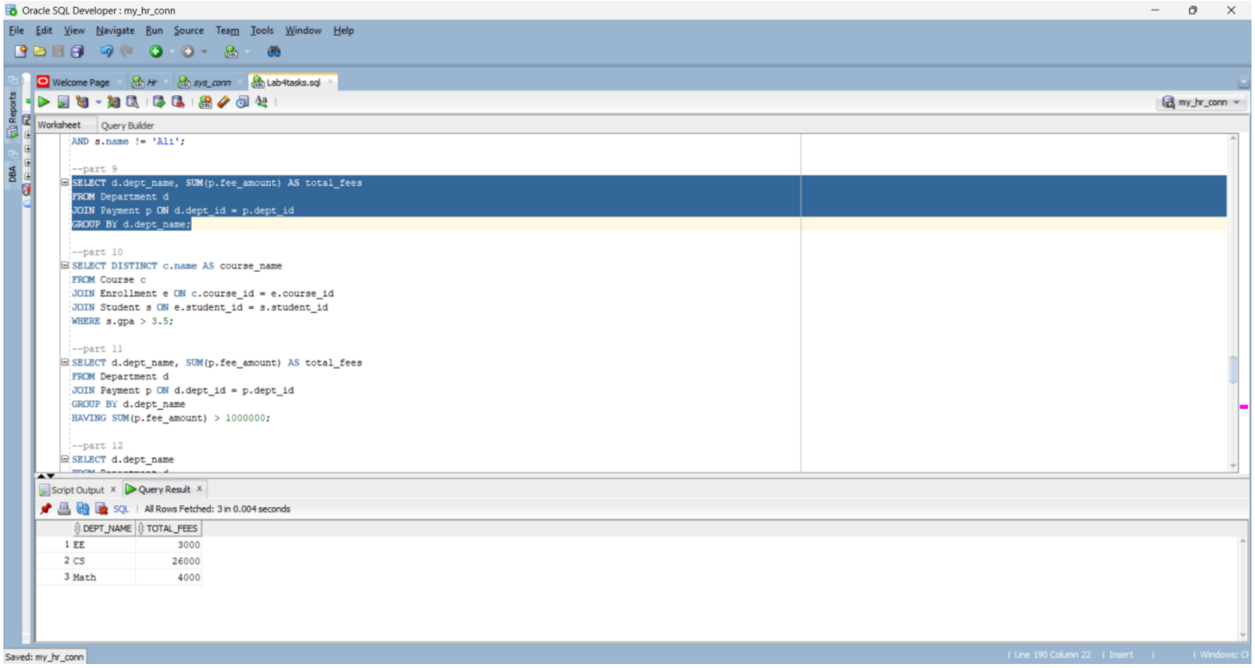


```
FROM (SELECT student_id, name, gpa FROM Student ORDER BY gpa DESC)
WHERE ROWNUM <= 3;

--part 8
SELECT s.name
FROM Student s
WHERE NOT EXISTS (
    SELECT course_id FROM Enrollment WHERE student_id = (SELECT student_id FROM Student WHERE name = 'Ali')
    MINUS
    SELECT course_id FROM Enrollment WHERE student_id = s.student_id
)
AND s.name != 'Ali';

--part 9
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name;

--part 10
SELECT DISTINCT c.name AS course_name
FROM Course c
JOIN Enrollment e ON c.course_id = e.course_id
JOIN Student s ON e.student_id = s.student_id
WHERE s.gpa > 3.5;
```

All Rows Fetched: 1 in 0 seconds

	NAME
1	Dana

9)

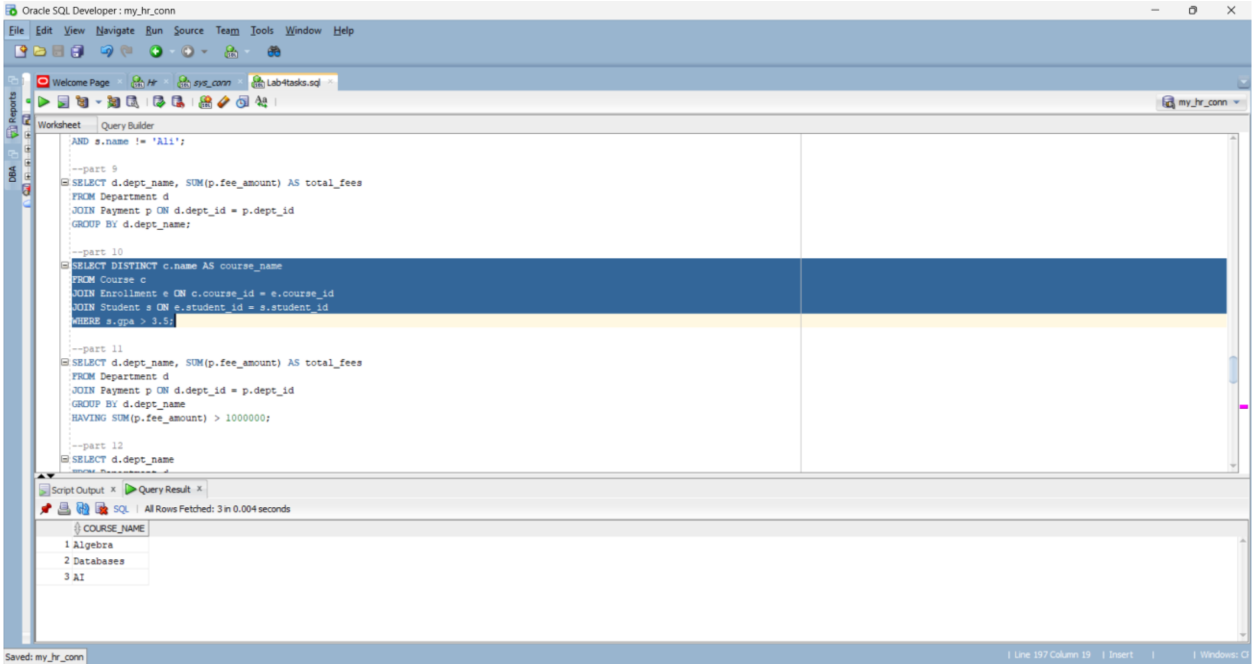


```
AND s.name != 'Ali';

--part 9
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name;

--part 10
SELECT DISTINCT c.name AS course_name
FROM Course c
JOIN Enrollment e ON c.course_id = e.course_id
JOIN Student s ON e.student_id = s.student_id
WHERE s.gpa > 3.5;

--part 11
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
FROM Department d
```

All Rows Fetched: 3 in 0.004 seconds

	DEPT_NAME	TOTAL_FEES
1	EE	3000
2	CS	26000
3	Math	4000

10)



```
AND s.name != 'Ali';

--part 9
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name;

--part 10
SELECT DISTINCT c.name AS course_name
FROM Course c
JOIN Enrollment e ON c.course_id = e.course_id
JOIN Student s ON e.student_id = s.student_id
WHERE s.gpa > 3.5;

--part 11
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
```

All Rows Fetched: 3 in 0.004 seconds

	COURSE_NAME
1	Algebra
2	Databases
3	AI

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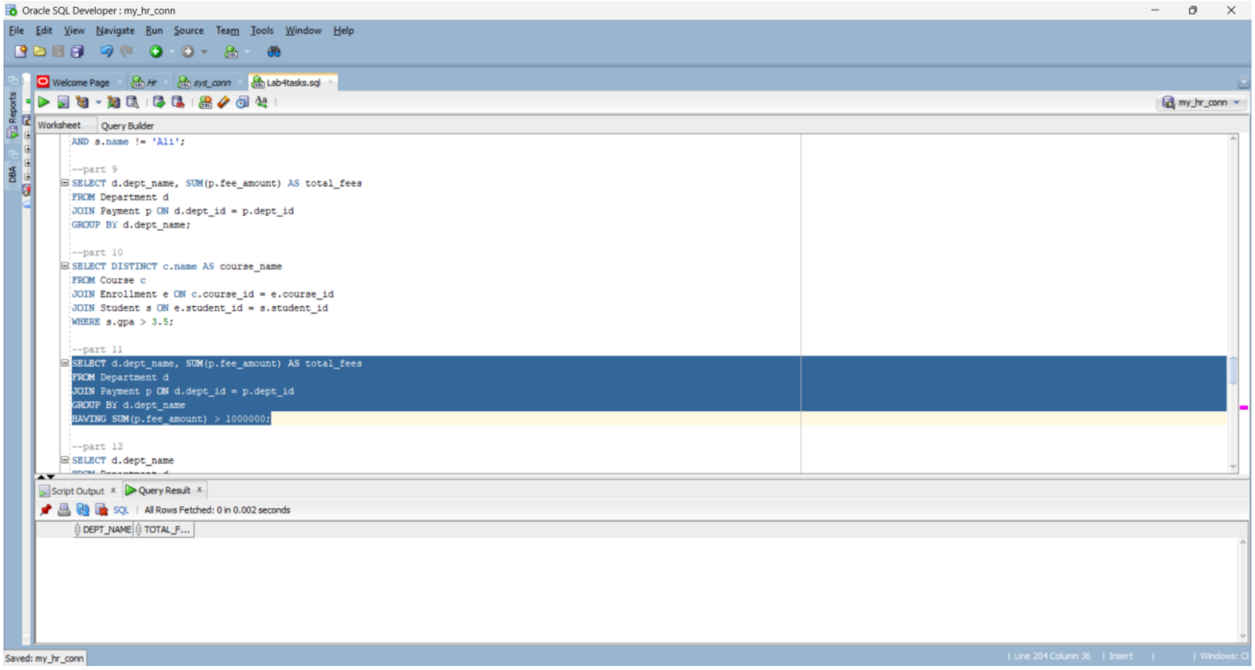
POST LAB TASKS

11)



```
AND s.name != 'Ali';

--part 9
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name;

--part 10
SELECT DISTINCT c.name AS course_name
FROM Course c
JOIN Enrollment e ON c.course_id = e.course_id
JOIN Student s ON e.student_id = s.student_id
WHERE s.gpa > 3.5;

--part 11
SELECT d.dept_name, SUM(p.fee_amount) AS total_fees
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
```

All Rows Fetched: 0 in 0.002 seconds

DEPT_NAME	TOTAL_F...

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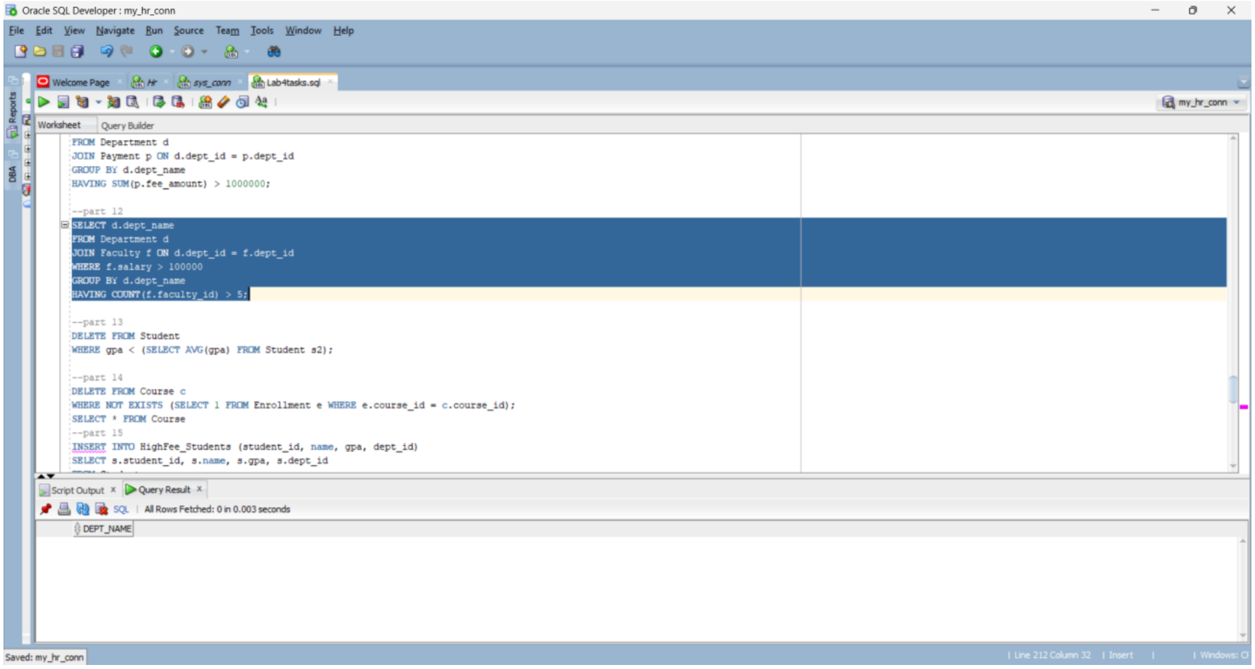
Line 204 Column 36 | Insert | Windows: CI

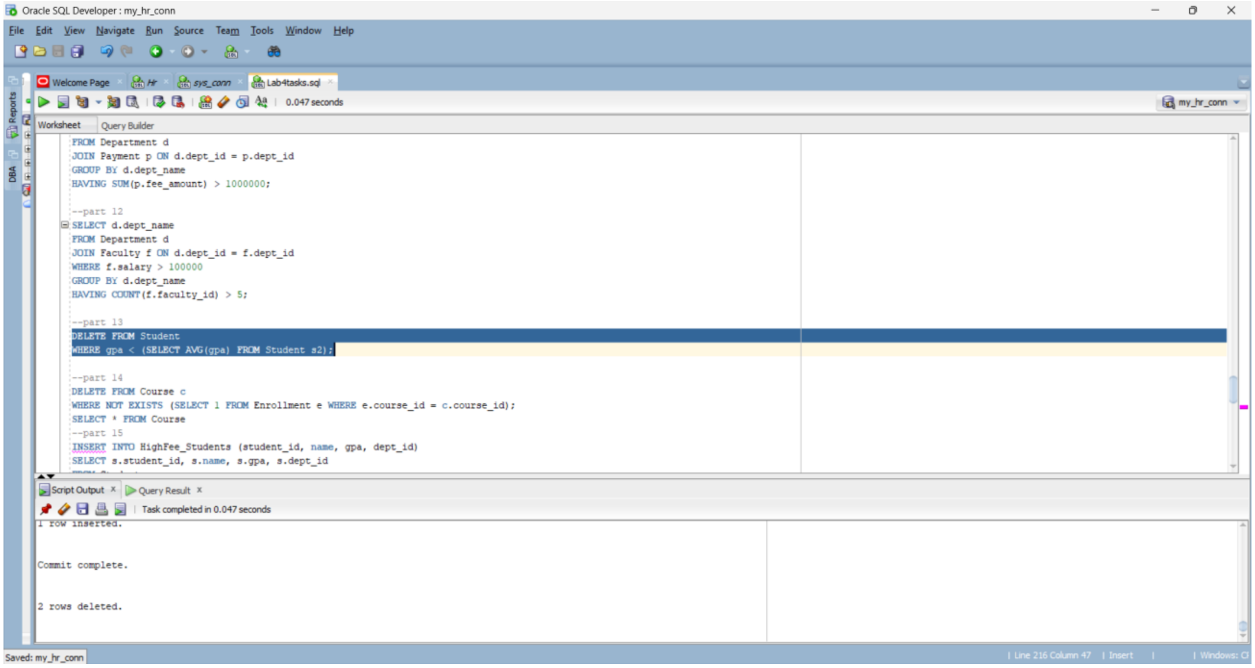
12)



```sql
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
FROM Department d
JOIN Faculty f ON d.dept_id = f.dept_id
WHERE f.salary > 100000
GROUP BY d.dept_name
HAVING COUNT(f.faculty_id) > 5;

--part 13
DELETE FROM Student
WHERE gpa < (SELECT AVG(gpa) FROM Student s2);

--part 14
DELETE FROM Course c
WHERE NOT EXISTS (SELECT 1 FROM Enrollment e WHERE e.course_id = c.course_id);
SELECT * FROM Course
--part 15
INSERT INTO HighFee_Students (student_id, name, gpa, dept_id)
SELECT s.student_id, s.name, s.gpa, s.dept_id
```

```
All Rows Fetched: 0 in 0.003 seconds

DEPT_NAME
```

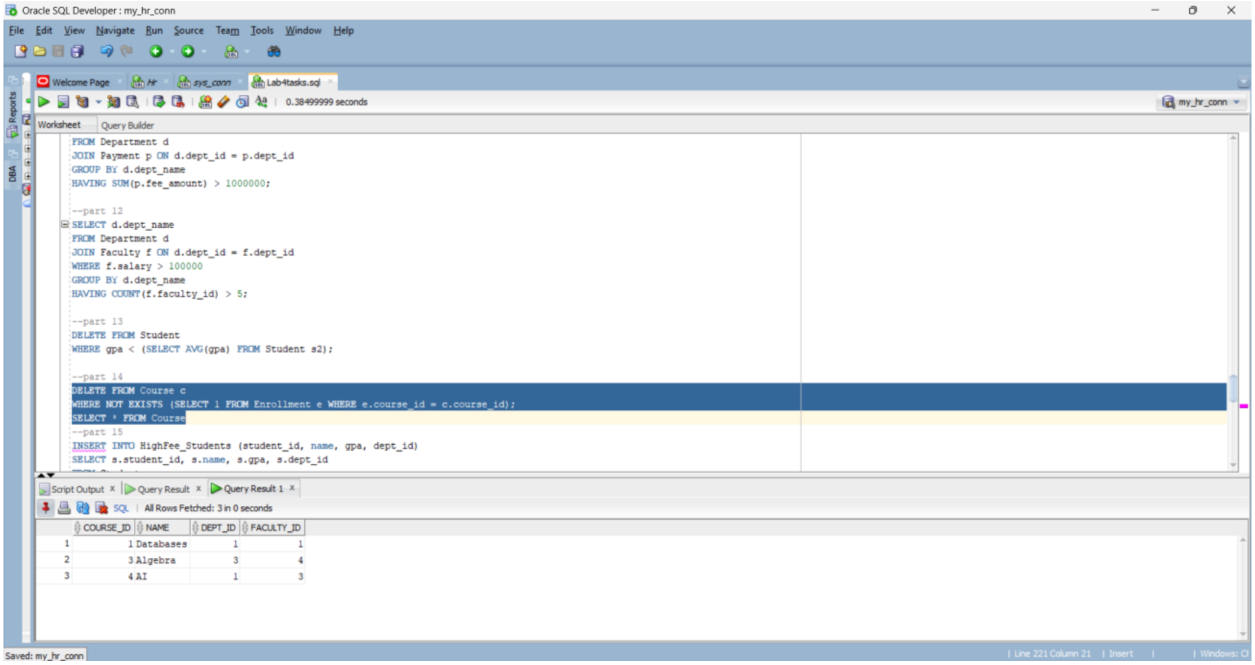
13)



```sql
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
FROM Department d
JOIN Faculty f ON d.dept_id = f.dept_id
WHERE f.salary > 100000
GROUP BY d.dept_name
HAVING COUNT(f.faculty_id) > 5;

--part 13
DELETE FROM Student
WHERE gpa < (SELECT AVG(gpa) FROM Student s2);

--part 14
DELETE FROM Course c
WHERE NOT EXISTS (SELECT 1 FROM Enrollment e WHERE e.course_id = c.course_id);
SELECT * FROM Course
--part 15
INSERT INTO HighFee_Students (student_id, name, gpa, dept_id)
SELECT s.student_id, s.name, s.gpa, s.dept_id
```

```
Task completed in 0.047 seconds
1 row inserted.


Commit complete.


2 rows deleted.
```

14)

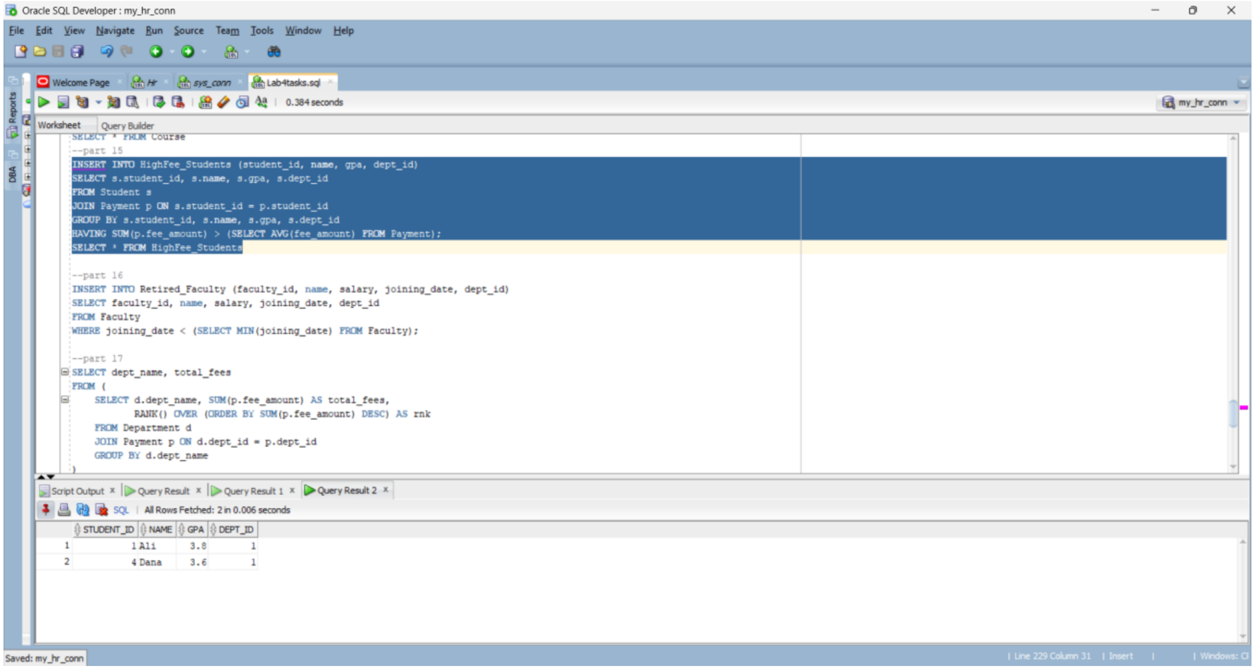


```sql
FROM Department d
JOIN Payment p ON d.dept_id = p.dept_id
GROUP BY d.dept_name
HAVING SUM(p.fee_amount) > 1000000;

--part 12
SELECT d.dept_name
FROM Department d
JOIN Faculty f ON d.dept_id = f.dept_id
WHERE f.salary > 100000
GROUP BY d.dept_name
HAVING COUNT(f.faculty_id) > 5;

--part 13
DELETE FROM Student
WHERE gpa < (SELECT AVG(gpa) FROM Student s2);

--part 14
DELETE FROM Course c
WHERE NOT EXISTS (SELECT 1 FROM Enrollment e WHERE e.course_id = c.course_id);
SELECT * FROM Course
--part 15
INSERT INTO HighFee_Students (student_id, name, gpa, dept_id)
SELECT s.student_id, s.name, s.gpa, s.dept_id
```

All Rows Fetched: 3 in 0 seconds

```
     COURSE_ID NAME       DEPT_ID FACULTY_ID
  1          1 Databases        1          1
  2          3 Algebra          3          4
  3          4 AI               1          3
```

15)

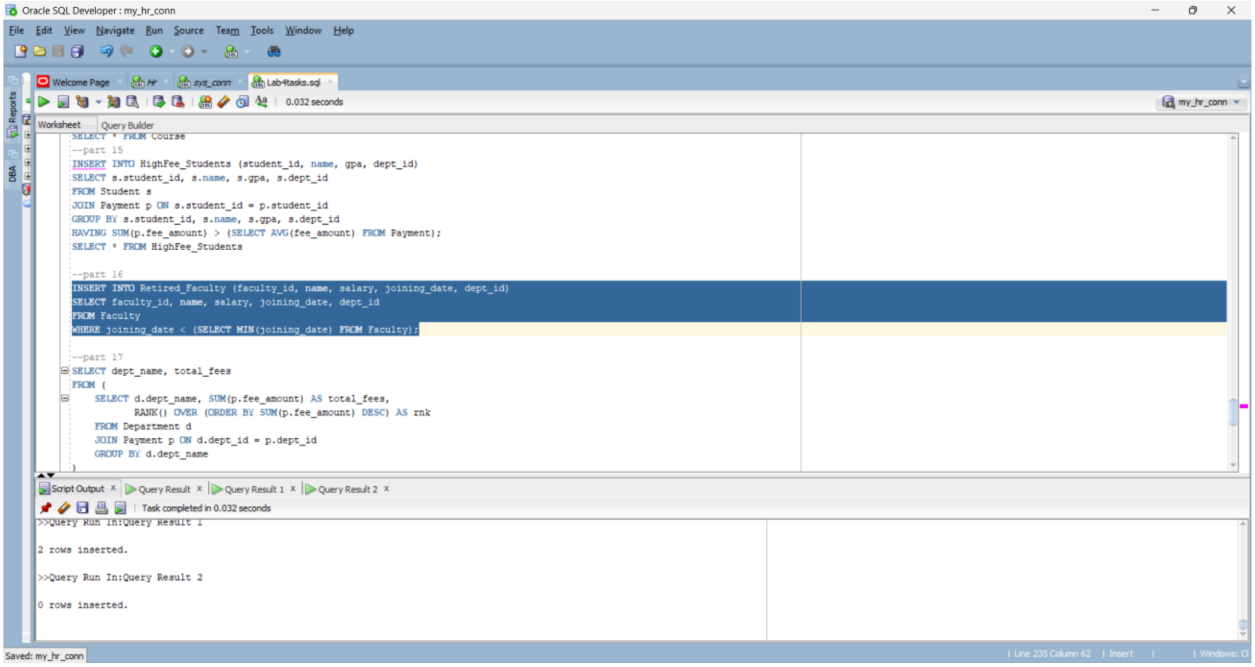


```sql
SELECT * FROM Course
--part 15
INSERT INTO HighFee_Students (student_id, name, gpa, dept_id)
SELECT s.student_id, s.name, s.gpa, s.dept_id
FROM Student s
JOIN Payment p ON s.student_id = p.student_id
GROUP BY s.student_id, s.name, s.gpa, s.dept_id
HAVING SUM(p.fee_amount) > (SELECT AVG(fee_amount) FROM Payment);
SELECT * FROM HighFee_Students

--part 16
INSERT INTO Retired_Faculty (faculty_id, name, salary, joining_date, dept_id)
SELECT faculty_id, name, salary, joining_date, dept_id
FROM Faculty
WHERE joining_date < (SELECT MIN(joining_date) FROM Faculty);

--part 17
SELECT dept_name, total_fees
FROM (
    SELECT d.dept_name, SUM(p.fee_amount) AS total_fees,
           RANK() OVER (ORDER BY SUM(p.fee_amount) DESC) AS rnk
    FROM Department d
    JOIN Payment p ON d.dept_id = p.dept_id
    GROUP BY d.dept_name
)
```

All Rows Fetched: 2 in 0.006 seconds

```
     STUDENT_ID NAME  GPA DEPT_ID
  1           1 Ali   3.8       1
  2           4 Dana  3.6       1
```

16)

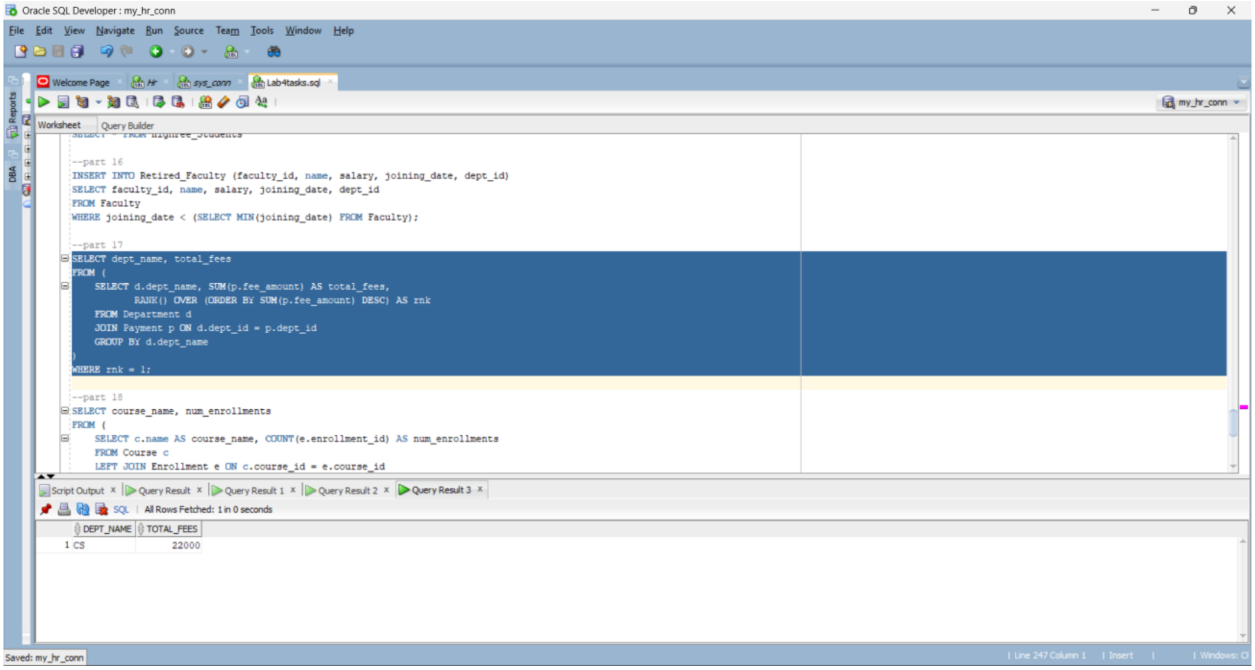


```
SELECT * FROM Course
--part 15
INSERT INTO HighFee_Students (student_id, name, gpa, dept_id)
SELECT s.student_id, s.name, s.gpa, s.dept_id
FROM Student s
JOIN Payment p ON s.student_id = p.student_id
GROUP BY s.student_id, s.name, s.gpa, s.dept_id
HAVING SUM(p.fee_amount) > (SELECT AVG(fee_amount) FROM Payment);
SELECT * FROM HighFee_Students

--part 16
INSERT INTO Retired_Faculty (faculty_id, name, salary, joining_date, dept_id)
SELECT faculty_id, name, salary, joining_date, dept_id
FROM Faculty
WHERE joining_date < (SELECT MIN(joining_date) FROM Faculty);

--part 17
SELECT dept_name, total_fees
FROM (
    SELECT d.dept_name, SUM(p.fee_amount) AS total_fees,
           RANK() OVER (ORDER BY SUM(p.fee_amount) DESC) AS rnk
    FROM Department d
    JOIN Payment p ON d.dept_id = p.dept_id
    GROUP BY d.dept_name
)
```

Task completed in 0.032 seconds

```
>>Query Run In:Query Result 1

2 rows inserted.

>>Query Run In:Query Result 2

0 rows inserted.
```

17)

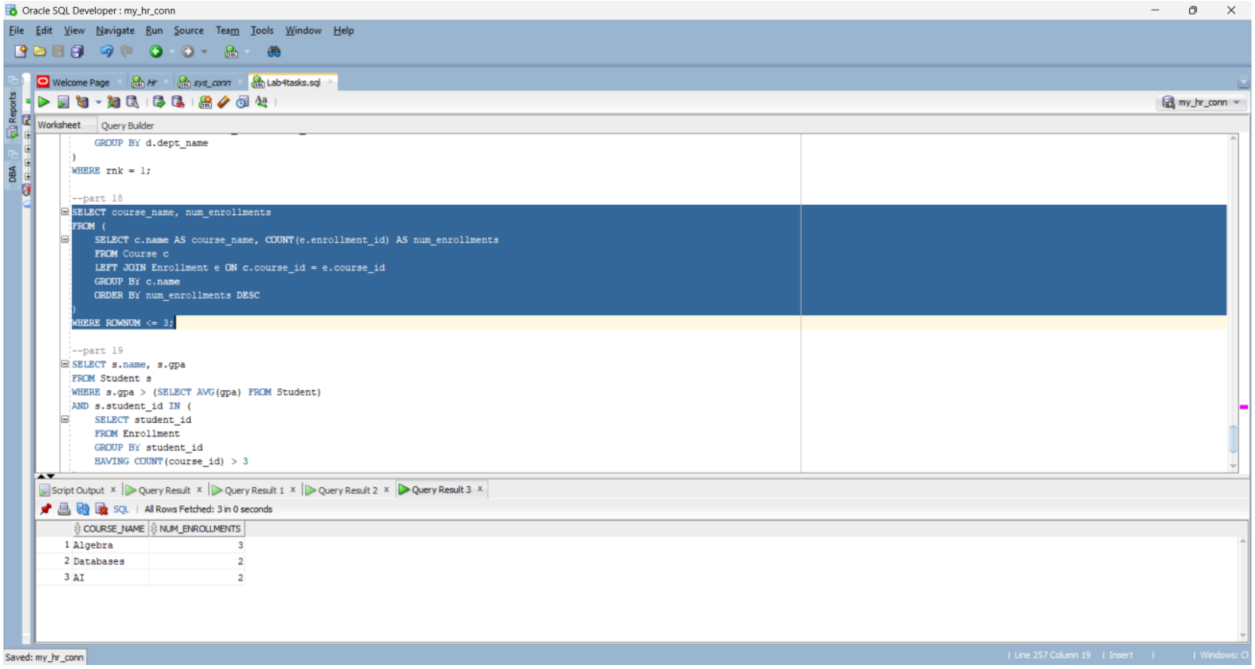


```
SELECT * FROM HighFee_Students

--part 16
INSERT INTO Retired_Faculty (faculty_id, name, salary, joining_date, dept_id)
SELECT faculty_id, name, salary, joining_date, dept_id
FROM Faculty
WHERE joining_date < (SELECT MIN(joining_date) FROM Faculty);

--part 17
SELECT dept_name, total_fees
FROM (
    SELECT d.dept_name, SUM(p.fee_amount) AS total_fees,
           RANK() OVER (ORDER BY SUM(p.fee_amount) DESC) AS rnk
    FROM Department d
    JOIN Payment p ON d.dept_id = p.dept_id
    GROUP BY d.dept_name
)
WHERE rnk = 1;

--part 18
SELECT course_name, num_enrollments
FROM (
    SELECT c.name AS course_name, COUNT(e.enrollment_id) AS num_enrollments
    FROM Course c
    LEFT JOIN Enrollment e ON c.course_id = e.course_id
```

All Rows Fetched: 1 in 0 seconds

	DEPT_NAME	TOTAL_FEES
1	CS	22000

18)



Oracle SQL Developer : my_hr_conn
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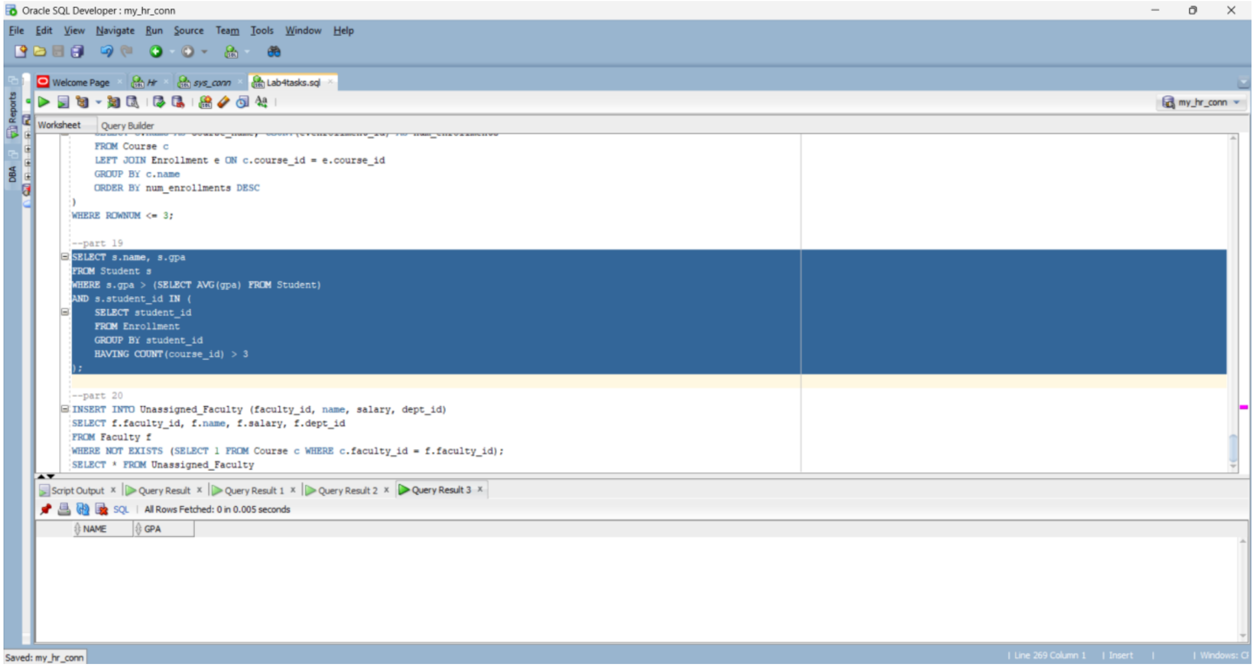
Welcome Page
Hr
sys_conn
Lab4tasks.sql
my_hr_conn
Reports
DBA
Worksheet
Query Builder

```
    GROUP BY d.dept_name
)
WHERE rnk = 1;

--part 18
SELECT course_name, num_enrollments
FROM (
    SELECT c.name AS course_name, COUNT(e.enrollment_id) AS num_enrollments
    FROM Course c
    LEFT JOIN Enrollment e ON c.course_id = e.course_id
    GROUP BY c.name
    ORDER BY num_enrollments DESC
)
WHERE ROWNUM <= 3;

--part 19
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > (SELECT AVG(gpa) FROM Student)
AND s.student_id IN (
    SELECT student_id
    FROM Enrollment
    GROUP BY student_id
    HAVING COUNT(course_id) > 3
```

All Rows Fetched: 3 in 0 seconds

	COURSE_NAME	NUM_ENROLLMENTS
1	Algebra	3
2	Databases	2
3	AI	2

19)



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Welcome Page
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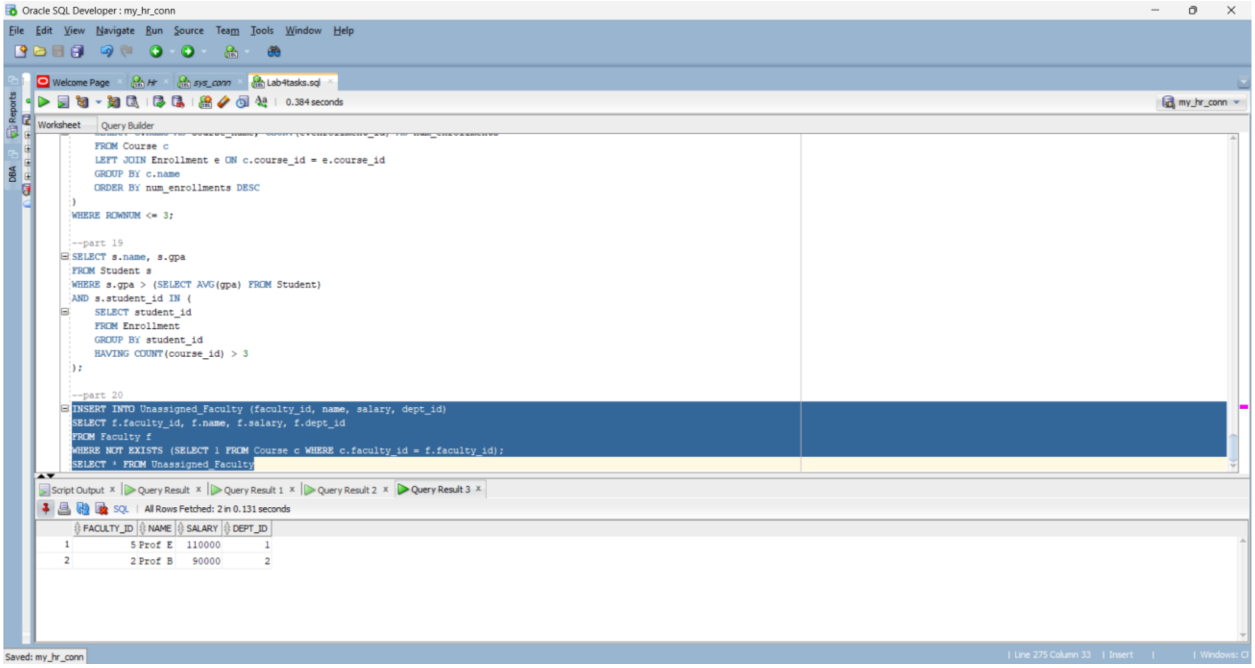
Lab4tasks.sql
my_hr_conn
Reports
DBA
Worksheet
Query Builder

```
    FROM Course c
    LEFT JOIN Enrollment e ON c.course_id = e.course_id
    GROUP BY c.name
    ORDER BY num_enrollments DESC
)
WHERE ROWNUM <= 3;

--part 19
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > (SELECT AVG(gpa) FROM Student)
AND s.student_id IN (
    SELECT student_id
    FROM Enrollment
    GROUP BY student_id
    HAVING COUNT(course_id) > 3
);

--part 20
INSERT INTO Unassigned_Faculty (faculty_id, name, salary, dept_id)
SELECT f.faculty_id, f.name, f.salary, f.dept_id
FROM Faculty f
WHERE NOT EXISTS (SELECT 1 FROM Course c WHERE c.faculty_id = f.faculty_id);
SELECT * FROM Unassigned_Faculty
```

All Rows Fetched: 0 in 0.005 seconds

NAME	GPA

20)



```
    SELECT c.name AS course_name, COUNT(e.enrollment_id) AS num_enrollments
    FROM Course c
    LEFT JOIN Enrollment e ON c.course_id = e.course_id
    GROUP BY c.name
    ORDER BY num_enrollments DESC
)
WHERE ROWNUM <= 3;

--part 19
SELECT s.name, s.gpa
FROM Student s
WHERE s.gpa > (SELECT AVG(gpa) FROM Student)
AND s.student_id IN (
    SELECT student_id
    FROM Enrollment
    GROUP BY student_id
    HAVING COUNT(course_id) > 3
);

--part 20
INSERT INTO Unassigned_Faculty (faculty_id, name, salary, dept_id)
SELECT f.faculty_id, f.name, f.salary, f.dept_id
FROM Faculty f
WHERE NOT EXISTS (SELECT 1 FROM Course c WHERE c.faculty_id = f.faculty_id);
SELECT * FROM Unassigned_Faculty
```

All Rows Fetched: 2 in 0.131 seconds

```
     FACULTY_ID  NAME    SALARY  DEPT_ID
1             5  Prof E  110000        1
2             2  Prof B   90000        2
```

Saved: my_hr_conn