

Department: Computer Engineering & Applications

Subject: Database Management System
Lab (CSE3083)

ASSIGNMENT 05

NAME -- ROHAN KUMAR

SEC -- C

ROLL NO -- 52

UNI.ROLL NO -191500669

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SUBMITTED TO - DR. NEERAJ GUPTA

Q1. IDs and names of students who have applied to major in CS at some college.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q1. IDs and names of students who have applied to major in CS at some college. sID
SELECT sID, sName FROM STUDENT
WHERE sID IN (
  SELECT sID FROM APPLY
  WHERE major = 'CS'
);
```

The results table displays 5 rows:

SID	SNAME
123	Any
345	Craig
543	Craig
876	Irene
987	Helen

Download CSV
5 rows selected.

2. Find ID and name of student having same high school size as Jay.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q2. Find ID and name of student having same high school size as Jay.
SELECT DISTINCT sID, sName
FROM STUDENT
WHERE sizeHS = (
  SELECT sizeHS FROM STUDENT
  WHERE sName = 'Jay'
)
ORDER BY sName;
```

The results table displays 2 rows:

SID	SNAME
234	Bob
765	Jay

Download CSV
2 rows selected.

3. Find ID and name of student having same high school size as Jay but result should not include Jay.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q3. Find ID and name of student having same high school size as Jay but result should not include Jay.
1 SELECT DISTINCT SID, sname
2 FROM STUDENT
3 WHERE sizeHS = (
4     SELECT sizeHS FROM STUDENT
5     WHERE sname = 'Jay'
6 )
7 AND sname != 'Jay';
```

The result set shows one student:

SID	SNAME
234	Bob

Download CSV

4. Find the name of student with their GPA and Sid whose GPA not equal to GPA of Irene?

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q4. Find the name of student with their GPA and Sid whose GPA not equal to GPA of Irene?
1 SELECT DISTINCT SID, sname, GPA
2 FROM STUDENT
3 WHERE GPA != (
4     SELECT GPA FROM STUDENT
5     WHERE sname = 'Irene'
6 )
7 ORDER BY sname;
```

The result set shows 8 students:

SID	SNAME	GPA
234	Bob	3.6
345	Craig	3.5
543	Craig	3.4
567	Eduard	2.9
678	Fay	3.8
789	Gary	3.4
987	Helen	3.7
765	Jay	2.9

Download CSV
8 rows selected.

5. Find college where any student having their name started from J have applied?

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q5. Find college where any student having their name started from J have applied?
2 SELECT DISTINCT cname FROM APPLY
3 WHERE sID IN (
4     SELECT sID FROM STUDENT
5     WHERE slname LIKE 'J%'
6 )
7 ORDER BY cname;
```

The results pane shows a table with the following data:

CNAME
Corneil
Stanford

Download CSV
2 rows selected.

6. Find all different major where Irene has applied?

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q6. Find all different major where Irene has applied?
2 SELECT DISTINCT major FROM APPLY
3 WHERE sID IN (
4     SELECT sID FROM STUDENT
5     WHERE slname = 'Irene'
6 )
7 ORDER BY major;
```

The results pane shows a table with the following data:

MAJOR
CS
biology
marine biology

Download CSV
3 rows selected.

7. Find IDs of student and major who applied in any of major Irene had applied to?

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q7. Find IDs of student and major who applied in any of major Irene had applied to?
2
3 SELECT DISTINCT sID, major FROM APPLY
4 WHERE major IN(
5     SELECT major FROM APPLY
6     WHERE sID IN(
7         SELECT sID FROM STUDENT
8         WHERE sName = 'Irene' )
9 )
10 ORDER BY sID, major;
```

The results table shows the following data:

SID	MAJOR
123	CS
234	biology
345	CS
543	CS
876	CS
876	biology
876	marine biology
987	CS

Download CSV
0 rows selected.

8. Find IDs of student and major who applied in any of major Irene had applied to? But this time exclude Irene sID from the list.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q8. Find IDs of student and major who applied in any of major Irene had applied to?
2 -- But this time exclude Irene sID from the list.
3 SELECT DISTINCT sID, major FROM APPLY
4 WHERE major IN(
5     SELECT major FROM APPLY
6     WHERE sID IN(
7         SELECT sID FROM STUDENT
8         WHERE sName = 'Irene' ))
9 AND sID NOT IN (
10     SELECT sID FROM STUDENT
11     WHERE sName = 'Irene'
12 )
13 ORDER BY sID, major;
```

The results table shows the following data:

SID	MAJOR
123	CS
234	biology
345	CS
543	CS
987	CS

Download CSV
5 rows selected.

9. Give the number of colleges Jay applied to? (Remember count each college once no matter if he applied to same college twice with different major)

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q9. Give the number of colleges Jay applied to? (Remember count each college once no matter
2 -- if he applied to same college twice with different major)
3 SELECT COUNT(DISTINCT cname) AS "No._college"
4 FROM APPLY
5 WHERE sID = (
6 SELECT sID FROM STUDENT
7 WHERE sName = 'Jay'
8 );
```

The result set shows one row with the value 2 under the column heading "No._college".

No._college
2

10. Find sID of student who applied to more or same number of college where Jay has applied?

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
1 -- Q10. Find sID of student who applied to more or same number of college where Jay has applied?
2 SELECT sID
3 FROM APPLY
4 GROUP BY sID
5 HAVING COUNT(DISTINCT cname) >= (SELECT COUNT(DISTINCT cname) AS COLLEGE_COUNT
6 FROM APPLY
7 WHERE sID = (SELECT sID
8 FROM STUDENT
9 WHERE sName = 'Jay')
10 )
11 ORDER BY sID;
```

The result set shows five rows of student IDs.

sID
123
345
765
876
987

11. Find details of Students who applied to major CS but not applied to major EE? (SID 987, 876, 543 should only be include in result)

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q11. Find details of Students who applied to major CS but not applied to major EE? (SID 987, 876, 543 should only be include in result)
1 SELECT *
2 FROM STUDENT WHERE SID IN (SELECT SID FROM APPLY WHERE major = 'CS' )
3 AND SID NOT IN (SELECT SID FROM APPLY WHERE major = 'EE')
4 ORDER BY SID;
```

The results table shows the following data:

SID	SNAME	GPA	SIZEHS
543	Craig	3.4	2000
876	Irene	3.9	400
987	Helen	3.7	800

Download CSV
0 rows selected.

12. All colleges such that some other college is in same state. (Cornell should not be part of result as no other college in New York Hint: use exists)

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q12. All colleges such that some other college is in same state. (Cornell should not be part of result as no other college in New York Hint: use exists)
1 SELECT cname
2 FROM COLLEGE OUTER_TABLE
3 WHERE EXISTS(SELECT cname FROM COLLEGE WHERE state = OUTER_TABLE.state AND cname != OUTER_TABLE.cname)
4 ORDER BY cname;
-- OR
5 SELECT cname FROM COLLEGE
6 WHERE state IN (
7 SELECT state FROM COLLEGE GROUP BY state
8 HAVING COUNT(state) >= 2 )
9 ORDER BY cname;
```

The results table shows the following data:

CNAME
Berkeley
Harvard
HIT
Stanford

Download CSV
4 rows selected.

13. Find the college with highest enrollment.

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 a query editor with the following SQL code:

```
1 -- Q13. Find the college with highest enrollment.
2 SELECT cname FROM APPLY
3 GROUP BY cname
4 HAVING COUNT(DISTINCT sid) IN (
5   SELECT MAX(ENROLLMENT_COUNT)
6   FROM (
7     SELECT COUNT(DISTINCT sid) AS ENROLLMENT_COUNT
8     FROM APPLY GROUP BY cname
9   ) COUNT_TABLE );
```

Below the query editor, the results are displayed in a table with the column 'CNAME'. The result is 'Stanford'. A 'Download CSV' link is available below the table.

At the bottom of the interface, there is a footer with Oracle branding, 'Integrated Cloud', and copyright information: '© 2020 Oracle Corporation - Privacy - Terms of Use'. It also mentions 'Oracle Learning Library - Ask Tom - Dev Gym - Database Doc 19c, 18c, 12c - Follow on Twitter' and 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.0.0.0 - Built with ♥ using Oracle APEX'.

14. Find name of student having lowest GPA.

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 a query editor with the following SQL code:

```
1 -- Q14. Find name of student having lowest GPA.
2 SELECT sname
3 FROM STUDENT
4 WHERE GPA = (
5   SELECT MIN(GPA)
6   FROM STUDENT
7 );
```

Below the query editor, the results are displayed in a table with the column 'SNAME'. The results are 'Edward' and 'Jay'. A 'Download CSV' link is available below the table, and it indicates '2 rows selected'.

At the bottom of the interface, there is a footer with Oracle branding, 'Integrated Cloud', and copyright information: '© 2020 Oracle Corporation - Privacy - Terms of Use'. It also mentions 'Oracle Learning Library - Ask Tom - Dev Gym - Database Doc 19c, 18c, 12c - Follow on Twitter' and 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.0.0.0 - Built with ♥ using Oracle APEX'.

15. Find the most popular major.

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q15. Find the most popular major.
SELECT major FROM APPLY
GROUP BY major
HAVING COUNT(DISTINCT sID) IN (
  SELECT MAX(POPULAR_MAJOR)
  FROM (
    SELECT COUNT(DISTINCT sID) AS POPULAR_MAJOR
    FROM APPLY GROUP BY major
  ) COUNT_TABLE );
```

The results pane shows a table with one row:

MAJOR
CS

Below the table is a "Download CSV" link.

16. Find sID, sName, sizeHS of all students NOT from smallest HS

The screenshot shows the Oracle Live SQL interface. The SQL Worksheet contains the following query:

```
-- Q16. Find sID, sName, sizeHS of all students NOT from smallest HS.
SELECT sID, sName, sizeHS
FROM STUDENT
WHERE sizeHS > (SELECT MIN(sizeHS) FROM STUDENT)
ORDER BY sID;
```

The results pane shows a table with 11 rows:

SID	SNAME	SIZES
123	Amy	1000
234	Bob	1500
345	Craig	500
456	Doris	1000
543	Craig	2000
567	Eduard	2000
654	Amy	1000
765	Jay	1500
789	Gary	800
876	Irene	400
987	Helen	800

Below the table is a "Download CSV" link and the text "11 rows selected."

17. Find the name of student who applies to all the colleges where sID 987 has applied?

(Hint: see Query Find IDs of student applied to all colleges)

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 a query editor with the following SQL code:

```
1 -- Q17. Find the name of student who applies to all the colleges where sID 987 has applied?
2 SELECT sname, sID
3 FROM STUDENT OUTER_TABLE
4 WHERE NOT EXISTS(
5     SELECT DISTINCT cname FROM APPLY
6     WHERE sID = 987
7     AND cname NOT IN(
8         SELECT DISTINCT cname FROM APPLY
9         WHERE sID = OUTER_TABLE.sID )
10 );
11
```

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

SNAME	SID
Any	123
Helen	987

Below the table, it says 'Download CSV' and '2 rows selected.' The bottom of the interface shows the Oracle logo, 'Integrated Cloud', and copyright information: '© 2020 Oracle Corporation - Privacy - Terms of Use'. It also mentions 'Oracle Learning Library - Ask Tom - Dev Gym - Database Doc 19c, 18c, 12c - Follow on Twitter' and 'Live SQL 20.3.1, running Oracle Database 19c Enterprise Edition - 19.8.0.0.0 - Built with ❤️ using Oracle APEX'.