DBMS Assignment - 3

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Section -: C Roll No. -: 31

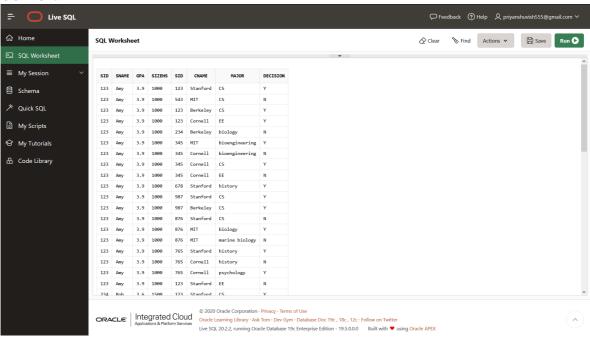
Subject -: DBMS Lab (BCSC 0808) Submitted To -: Mr. Neeraj Gupta

NOTE: Github link for Script

QUERY EXERCISE - 1:

```
-- Q1. Produce a combine table in which each student is combine with every other application
-- By cardinality
SELECT *
FROM STUDENT, APPLY
ORDER BY STUDENT.SID;

-- By JOIN
SELECT *
FROM STUDENT
CROSS JOIN APPLY
ORDER BY STUDENT.SID;
```



```
-- Q2. Give Student ID, name, GPA and name of college and major each student applied to.
-- By cardinality
SELECT
STUDENT.SID, STUDENT.GPA, APPLY.CName, APPLY.major
```

```
FROM STUDENT,

APPLY

WHERE STUDENT.SID = APPLY.SID

ORDER BY STUDENT.SID;

-- By join

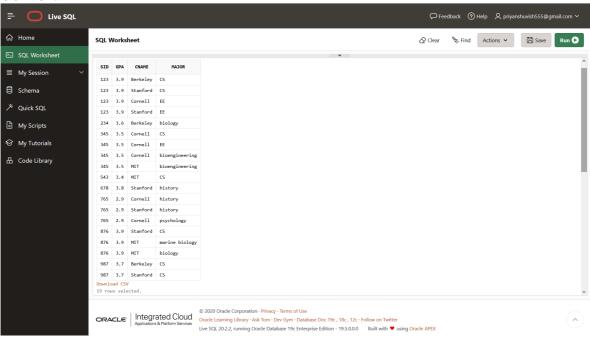
SELECT

STUDENT.SID, STUDENT.GPA, APPLY.CName, APPLY.major

FROM STUDENT

INNER JOIN APPLY ON STUDENT.SID = APPLY.SID

ORDER BY STUDENT.SID;
```



```
-- Q3.Find detail of applications who applied to California State.
-- By cardinality

SELECT
    Apply.sID, Apply.cName, Apply.major, Apply.decision

FROM
    APPLY, COLLEGE

WHERE APPLY.cName = COLLEGE.collegeName
    AND College.state = 'CA'

ORDER BY APPLY.SID;

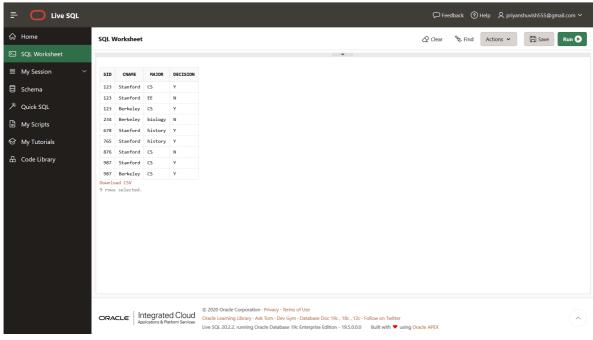
-- By join

SELECT
    Apply.sID, Apply.cName, Apply.major, Apply.decision

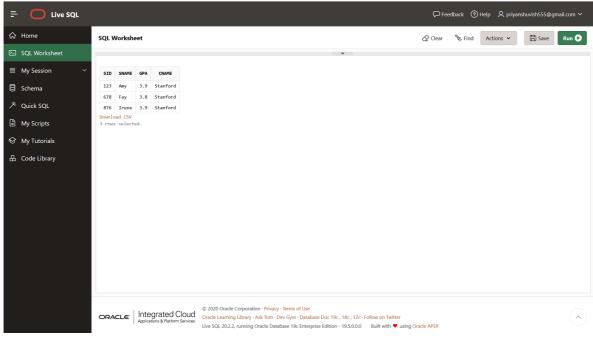
FROM APPLY
    INNER JOIN COLLEGE ON APPLY.cName = COLLEGE.collegeName

WHERE College.state = 'CA'

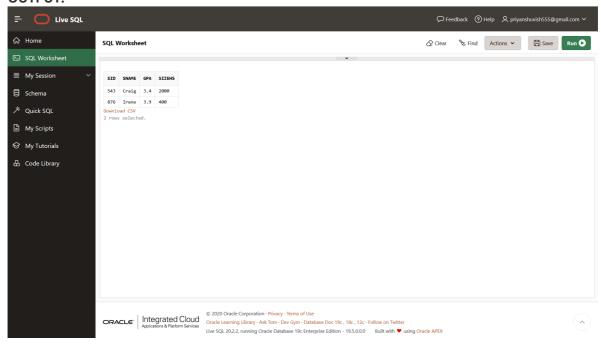
ORDER BY APPLY.SID;
```



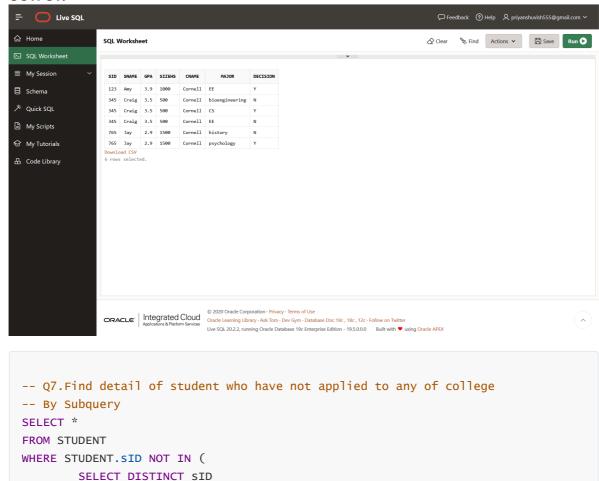
```
-- Q4.IDs, name, GPA of students and name of college with GPA > 3.7 applying to
Stanford
-- By cardinality
SELECT DISTINCT
   STUDENT.SID, STUDENT.SName, STUDENT.GPA, APPLY.CName
FROM
   STUDENT, APPLY
WHERE STUDENT.SID = APPLY.SID
   AND STUDENT.GPA > 3.7
   AND APPLY.cName = 'Stanford'
ORDER BY STUDENT.SID;
-- By join
SELECT DISTINCT
   STUDENT.SID, STUDENT.SName, STUDENT.GPA, APPLY.CName
FROM STUDENT
   INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
WHERE STUDENT. GPA > 3.7
   AND APPLY.cName = 'Stanford'
ORDER BY STUDENT.SID;
```



```
-- Q5. Find detail of Student who apply to CS major and their application are
rejected
-- By cardinality
SELECT
   STUDENT.SID, STUDENT.SName, STUDENT.GPA, STUDENT.sizeHS
FROM
   STUDENT, APPLY
WHERE STUDENT.SID = APPLY.SID
   AND APPLY.decision = 'N'
   AND APPLY.major = 'CS'
ORDER BY STUDENT.SID;
-- By join
SELECT
   STUDENT.SID, STUDENT.SName, STUDENT.GPA, STUDENT.sizeHS
FROM STUDENT
   INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
WHERE APPLY.decision = 'N'
  AND APPLY.major = 'CS'
ORDER BY STUDENT.SID;
```



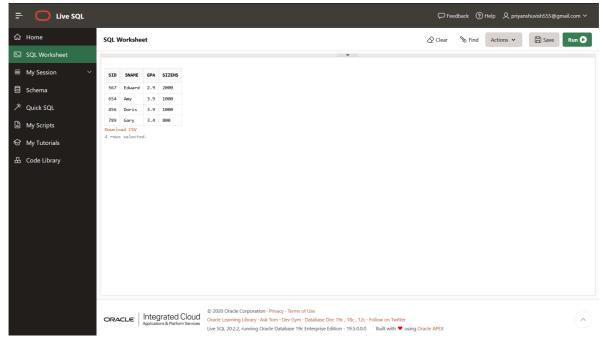
```
-- Q6. Find detail of student and application who applied to colleges at New
-- By cardinality
SELECT
    Student.sID, Student.sName, Student.GPA, Student.sizeHS,
   Apply.cName, Apply.major, Apply.decision
    Student, Apply, College
WHERE Student.sID = Apply.sID
   AND Apply.cName = College.collegeName
   AND College.state = 'NY';
-- By join
SELECT
    STUDENT.SID, STUDENT.SName, STUDENT.GPA, STUDENT.sizeHS,
    Apply.cName, Apply.major, Apply.decision
FROM STUDENT
    INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
   INNER JOIN COLLEGE ON COLLEGE.collegeName = APPLY.cName
WHERE COLLEGE.state = 'NY'
ORDER BY STUDENT.SID;
```



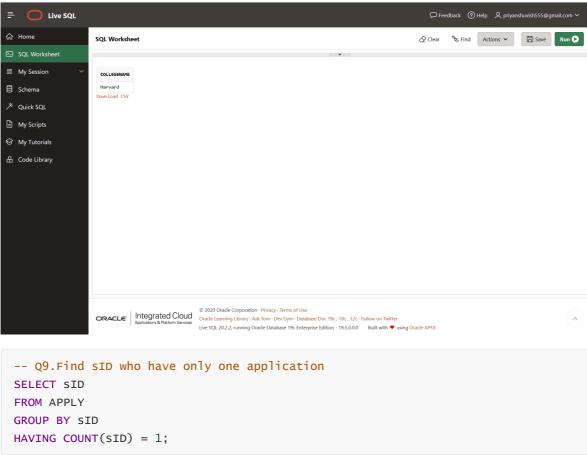
OUTPUT:

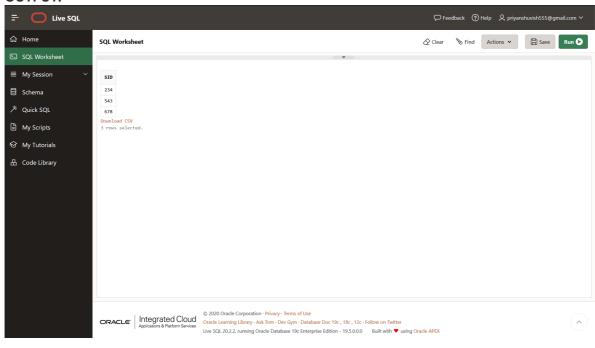
);

FROM APPLY

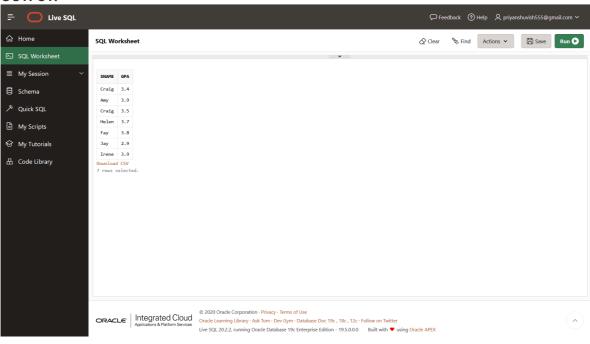


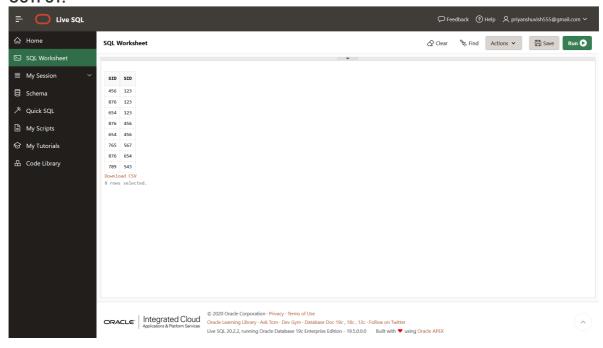
```
-- Q8. Find college where no student have applied
-- By Subquery
SELECT COLLEGE.collegeName
FROM COLLEGE
WHERE COLLEGE.collegeName NOT IN (
SELECT DISTINCT CName
FROM APPLY
);
```





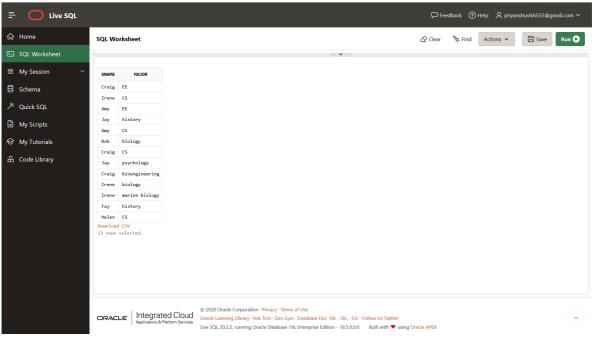
```
-- Q10. Find name and GPA of applicants who apply to any college whose
enrollment is not more than 25000.
-- By cardinality
SELECT DISTINCT
    STUDENT. SName, STUDENT. GPA
FROM
    STUDENT, APPLY, College
WHERE STUDENT.SID = APPLY.SID
   AND APPLY.cName = COLLEGE.collegeName
    AND COLLEGE.enrollmeNT < 25000;
-- By join
SELECT DISTINCT
    STUDENT.SName, STUDENT.GPA
FROM STUDENT
    INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
    INNER JOIN COLLEGE ON APPLY.cname = COLLEGE.collegeName
WHERE enrollment < 25000;
```



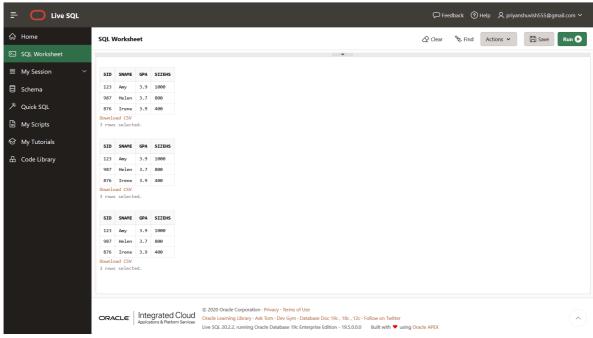


QUERY EXERCISE - 2:

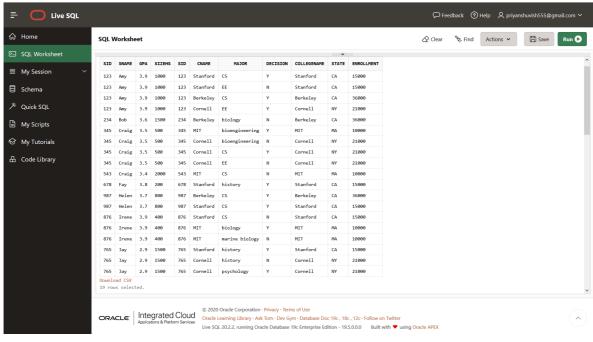
```
-- Q12. Find student and major he / she applied to.
-- By cross join
SELECT
   STUDENT.SName, APPLY.major
FROM
    STUDENT CROSS JOIN APPLY
WHERE STUDENT.SID = APPLY.SID
GROUP BY STUDENT.sName, APPLY.major;
-- By natural join
SELECT
   STUDENT.sName, APPLY.major
FROM STUDENT
   NATURAL JOIN APPLY
GROUP BY STUDENT.sName, APPLY.major;
-- By inner
SELECT
   STUDENT.sName, APPLY.major
FROM STUDENT
   INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
GROUP BY STUDENT.sName, APPLY.major;
```



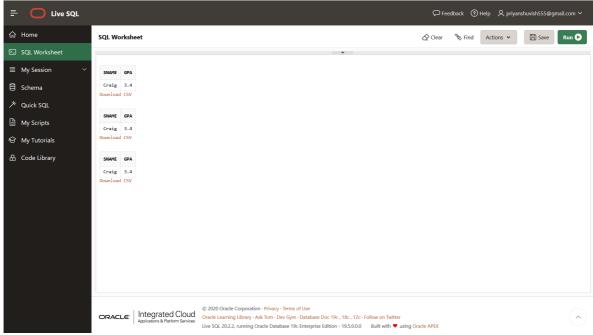
```
-- Q13. Find detail of student who came from high school have size less than
20000 and applied to CS at Stanford.
-- By cross join
SELECT
    STUDENT.SID, STUDENT.SName, STUDENT.GPA, STUDENT.sizeHS
FROM
    STUDENT CROSS JOIN APPLY
WHERE STUDENT.SID = APPLY.SID
   AND STUDENT.sizeHS < 20000
   AND APPLY.major = 'CS'
   AND APPLY.cName = 'Stanford';
-- By natural join
SELECT
    sID, sName, GPA, sizeHS
FROM STUDENT
   NATURAL JOIN APPLY
WHERE STUDENT.sizeHS < 20000
   AND APPLY.major = 'CS'
   AND APPLY.cName = 'Stanford';
-- By inner join
SELECT
    STUDENT.SID, STUDENT.SName, STUDENT.GPA, STUDENT.sizeHS
FROM STUDENT
   INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
WHERE STUDENT.sizeHS < 20000
   AND APPLY.major = 'CS'
   AND APPLY.cName = 'Stanford';
```



```
-- Q14. Provide complete detail of each student where they applied what major
they applied to what was the
        decision and complete detail of cOLLEGE they applied.
-- By cross join
SELECT *
FROM
   STUDENT CROSS JOIN APPLY CROSS JOIN COLLEGE
WHERE STUDENT.SID = APPLY.SID
   AND APPLY.cName = COLLEGE.cOLLEGEName
ORDER BY STUDENT.sName, STUDENT.sID;
-- By natural join
SELECT *
FROM STUDENT
   NATURAL JOIN APPLY
   INNER JOIN COLLEGE ON APPLY. CName = COLLEGE. COLLEGEName
ORDER BY sName, sID;
-- By inner join
SELECT *
FROM STUDENT
   INNER JOIN APPLY ON APPLY.SID = STUDENT.SID
    INNER JOIN COLLEGE ON APPLY. CName = COLLEGE. COLLEGEName
ORDER BY STUDENT.sName, STUDENT.sID;
```



```
-- Q15. Names and GPAs of students with HS>1000 who applied to CS and were
rejected.
-- By cross join
SELECT
    STUDENT.SName, STUDENT.GPA
FROM
    STUDENT CROSS JOIN APPLY
WHERE
    STUDENT.SID = APPLY.SID
       AND STUDENT.sizeHS > 1000
        AND APPLY.major = 'CS'
       AND APPLY.decision = 'N'
ORDER BY STUDENT. SName, STUDENT. SID;
-- By natural join
SELECT
    STUDENT. SName, STUDENT. GPA
FROM
    STUDENT
    NATURAL JOIN APPLY
WHERE
    STUDENT.sizeHS > 1000
       AND APPLY.major = 'CS'
       AND APPLY.decision = 'N'
ORDER BY SName, SID;
-- By inner join
SELECT
    STUDENT.SName, STUDENT.GPA
FROM
    STUDENT
   INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
WHERE
    STUDENT.sizeHS > 1000
        AND APPLY.major = 'CS'
        AND APPLY.decision = 'N'
ORDER BY STUDENT.sName , STUDENT.sID;
```



```
-- Q16. Names and GPAs of students with HS>1000 who applied to CS at college
with enr>20,000 and were rejected
-- By cross join
SELECT
   STUDENT. SName, STUDENT. GPA
FROM
   STUDENT CROSS JOIN
   APPLY CROSS JOIN
   COLLEGE
WHERE
    STUDENT.SID = APPLY.SID
       AND APPLY.cName = COLLEGE.cOLLEGEName
       AND STUDENT.sizeHS > 1000
       AND APPLY.major = 'CS'
        AND COLLEGE.enrollment > 20000
       AND APPLY.decision = 'N'
ORDER BY STUDENT.sName , STUDENT.sID;
-- By natural join
SELECT
   STUDENT.SName, STUDENT.GPA
FROM
    STUDENT
   NATURAL JOIN APPLY
   INNER JOIN COLLEGE ON APPLY. CName = COLLEGE. COLLEGEName
WHERE
    STUDENT.sizeHS > 1000
       AND APPLY.major = 'CS'
        AND COLLEGE.enrollment > 20000
       AND APPLY.decision = 'N'
ORDER BY SName , SID;
-- By inner join
SELECT
    STUDENT.SName, STUDENT.GPA
FROM
```

```
STUDENT
INNER JOIN APPLY ON STUDENT.SID = APPLY.SID
INNER JOIN COLLEGE ON APPLY.CName = COLLEGE.COLLEGEName
WHERE
STUDENT.sizeHS > 1000
AND APPLY.major = 'CS'
AND COLLEGE.enrollment > 20000
AND APPLY.decision = 'N'
ORDER BY STUDENT.SName , STUDENT.SID;
```

