NAME :- Manish Shashikant Jadhav
UID :- 2023301005.
BRANCH :- Comps -B.   **BATCH:** B.
EXPERIMENT 6: To retrieve a data using subquery, nested query for university database.
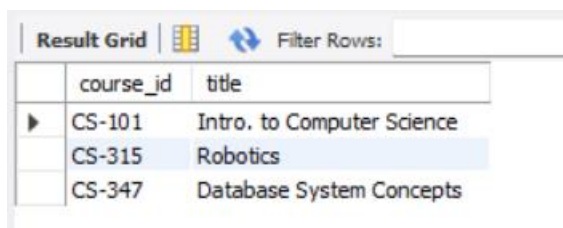**SUBJECT** :- DBMS (DATABASE MANAGEMENT SYSTEM)

1. Find the course id and title of all courses taught by an instructor named 'Srinivasan'

Query:

SELECT c.course_id, c.title FROM

course c JOIN (SELECT b.course_id FROM

teaches b JOIN (SELECT id FROM instructor WHERE name= "Srinivasan")

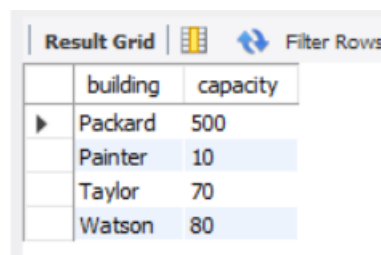a WHERE b.id = a.id) x

WHERE c.course_id = x.course_id;

Output:

	course_id	title
▶	CS-101	Intro. to Computer Science
	CS-315	Robotics
	CS-347	Database System Concepts

2. Find the total capacity of every building in the university

Query:

SELECT building, sum(capacity) AS capacity
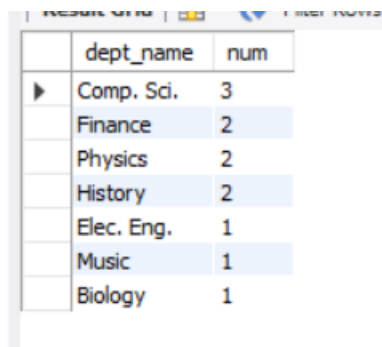
FROM classroom

GROUP BY building

Output:

	building	capacity
▶	Packard	500
	Painter	10
	Taylor	70
	Watson	80

3. Find all departments that have at least one instructor, and list the names of the departments along with the number of instructors; order the result in descending order of number of instructors.

Query:

SELECT

d.dept_name, count(*) AS num

FROM

department d

INNER JOIN

instructor i

ON

d.dept_name = i.dept_name

GROUP BY

d.dept_name

ORDER BY num DESC;

Output:

dept_name	num
Comp. Sci.	3
Finance	2
Physics	2
History	2
Elec. Eng.	1
Music	1
Biology	1

4. For each student, compute the total credits they have successfully completed, i.e. total credits of courses they have taken, for which they have a non-null grade other than 'F'. Do NOT use the tot_creds attribute of student.

Query:

SELECT S.ID, S.NAME, SUM(C.CREDITS) AS TOTAL

FROM STUDENT AS S, TAKES AS T, COURSE AS C

WHERE S.ID = T.ID AND T.COURSE_ID = C.COURSE_ID

AND T.GRADE != "F"

GROUP BY S.ID;

Output:

ID	NAME	TOTAL
▶ 00128	Zhang	7
12345	Shankar	14
19991	Brandt	3
23121	Chavez	3
44553	Peltier	4
45678	Levy	7
54321	Williams	8
55739	Sanchez	3
76543	Brown	7
76653	Aoi	3
98765	Bourikas	7
98988	Tanaka	4

5. Find the number of students who have been taught (at any time) by an instructor named 'Srinivasan'. Make sure you count a student only once even if the student has taken more than one course from Srinivasan.

Query:

select sum(c) as count from

(SELECT DISTINCT COUNT(STUDENT.ID) AS C FROM STUDENT

INNER JOIN TAKES ON STUDENT.ID = TAKES.ID

INNER JOIN TEACHES ON TAKES.COURSE_ID = TEACHES.COURSE_ID

INNER JOIN INSTRUCTOR ON INSTRUCTOR.ID = TEACHES.ID

WHERE INSTRUCTOR.NAME = "Srinivasan"

GROUP BY STUDENT.ID) c;

Output:

count
▶ 6

6. Find the name of all instructors who get the highest salary in their department.
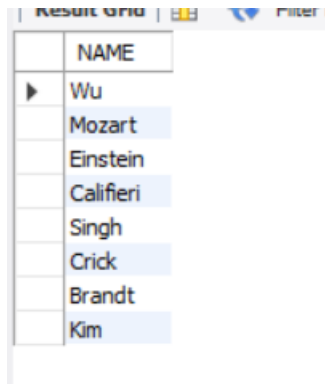
Query:

SELECT A.NAME FROM

INSTRUCTOR A INNER JOIN

(SELECT DEPT_NAME, MAX(SALARY) AS SALARY

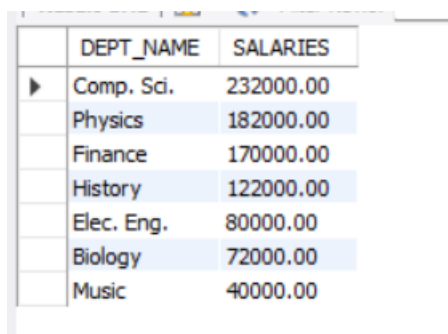FROM INSTRUCTOR GROUP BY DEPT_NAME) B

ON A.SALARY = B.SALARY;

Output:

	NAME
▶	Wu
	Mozart
	Einstein
	Califieri
	Singh
	Crick
	Brandt
	Kim

7. Find the total money spent by each department for salaries of instructors of that department.

Query:

SELECT D.DEPT_NAME, SUM(I.SALARY) SALARIES FROM INSTRUCTOR I

INNER JOIN DEPARTMENT D

WHERE I.DEPT_NAME = D.DEPT_NAME

GROUP BY D.DEPT_NAME

ORDER BY SALARIES DESC;

Output:

	DEPT_NAME	SALARIES
▶	Comp. Sci.	232000.00
	Physics	182000.00
	Finance	170000.00
	History	122000.00
	Elec. Eng.	80000.00
	Biology	72000.00
	Music	40000.00

Conclusion: Hence by completing this experiment I came to know about how to retrieve a data using subquery, nested query for university database.