

22AIE303
LABSHEET - 8

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Question 1

Create the following relations and write the given queries in SQL

Student (sID, sName, GPA)

College (collegeName , state, stud_count)

Apply (sID ,cName ,major, decision) - Decision can be Y/N

1. Give Student ID, name, GPA and name of college and major where each student applied to.
2. Find details of applications who applied to California State.
3. Find IDs, name, GPA of students and name of college with GPA > 4 applying to Stanford
4. Find details of Students who apply to CS major and their application are rejected .
5. Find details of students who applied to colleges at New York
6. Find details of students who have not applied to any of college .
7. Find college where no student have applied .
8. Find sID who have only one application .
9. Find name and GPA of applicants who apply to any college where student count is not more than 5000.
10. Find various majors student applied in at college in state California.

CODE

```
CREATE TABLE Student_Lab8 (  
    sID INT PRIMARY KEY,  
    sName VARCHAR(50),  
    GPA DECIMAL(3, 2)  
);
```

```
CREATE TABLE College_Lab8(  
    collegeName VARCHAR(50) PRIMARY KEY,  
    state VARCHAR(50),
```

```

    stud_count INT
);

CREATE TABLE Apply_Lab8(
    sID INT,
    cName VARCHAR(50),
    major VARCHAR(50),
    decision CHAR(1),
    PRIMARY KEY (sID, cName),
    FOREIGN KEY (sID) REFERENCES Student_Lab8(sID),
    FOREIGN KEY (cName) REFERENCES College_Lab8(collegeName)
);

-- -- Insert data into Student table
-- INSERT INTO Student_Lab8 VALUES (1, 'Alice', 3.9), (2, 'Bob', 4.2), (3, 'Charlie',
3.7),
--
--           (4, 'Diana', 4.5), (5, 'Eve', 3.8);

-- -- Insert data into College table
-- INSERT INTO College_Lab8 VALUES ('Stanford', 'California', 20000),
--
--           ('MIT', 'Massachusetts', 4500),
--
--           ('NYU', 'New York', 3000),
--
--           ('UCLA', 'California', 40000),
--
--           ('Columbia', 'New York', 5000);

-- -- Insert data into Apply table
-- INSERT INTO Apply_Lab8 VALUES
-- (1, 'Stanford', 'CS', 'Y'),
-- (2, 'Stanford', 'CS', 'Y'),
-- (2, 'MIT', 'CS', 'N'),
-- (3, 'NYU', 'Physics', 'Y'),
-- (3, 'Columbia', 'Math', 'Y'),
-- (4, 'UCLA', 'CS', 'N'),
-- (5, 'Columbia', 'CS', 'Y');

-- SELECT Student_Lab8.sID, sName, GPA, cName AS collegeName, major
-- FROM Student_Lab8
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID;

```

```

-- SELECT Student_Lab8.sID, sName, GPA, cName, major, decision
-- FROM Student_Lab8
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID
-- JOIN College_Lab8 ON Apply_Lab8.cName = College_Lab8.collegeName
-- WHERE College_Lab8.state = 'California';

-- SELECT Student_Lab8.sID, sName, GPA, cName AS collegeName
-- FROM Student_Lab8
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID
-- WHERE GPA > 4 AND cName = 'Stanford';

-- SELECT Student_Lab8.sID, sName, GPA, cName AS collegeName, major
-- FROM Student_Lab8
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID
-- WHERE major = 'CS' AND decision = 'N';

-- SELECT Student_Lab8.sID, sName, GPA, cName AS collegeName, major
-- FROM Student_Lab8
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID
-- JOIN College_Lab8 ON Apply_Lab8.cName = College_Lab8.collegeName
-- WHERE College_Lab8.state = 'New York';

-- SELECT *
-- FROM Student_Lab8
-- WHERE sID NOT IN (SELECT sID FROM Apply_Lab8);

-- SELECT collegeName
-- FROM College_Lab8
-- WHERE collegeName NOT IN (SELECT cName FROM Apply_Lab8);

-- SELECT sID
-- FROM Apply_Lab8
-- GROUP BY sID
-- HAVING COUNT(*) = 1;

-- SELECT DISTINCT Student_Lab8.sID, sName, GPA
-- FROM Student_Lab8

```

```
-- JOIN Apply_Lab8 ON Student_Lab8.sID = Apply_Lab8.sID
-- JOIN College_Lab8 ON Apply_Lab8.cName = College_Lab8.collegeName
-- WHERE stud_count <= 5000;

-- SELECT DISTINCT major
-- FROM Apply_Lab8
-- JOIN College_Lab8 ON Apply_Lab8.cName = College_Lab8.collegeName
-- WHERE state = 'California';
```

OUTPUT

1.

Data Output Messages Notifications						
	sid integer	sname character varying (50)	gpa numeric (3,2)	collegename character varying (50)	major character varying (50)	
1	1	Alice	3.90	Stanford	CS	
2	2	Bob	4.20	Stanford	CS	
3	2	Bob	4.20	MIT	CS	
4	3	Charlie	3.70	NYU	Physics	
5	3	Charlie	3.70	Columbia	Math	
6	4	Diana	4.50	UCLA	CS	
7	5	Eve	3.80	Columbia	CS	

2.

Data Output Messages Notifications						
	sid integer	sname character varying (50)	gpa numeric (3,2)	cname character varying (50)	major character varying (50)	decision character (1)
1	1	Alice	3.90	Stanford	CS	Y
2	2	Bob	4.20	Stanford	CS	Y
3	4	Diana	4.50	UCLA	CS	N

3.

Data Output Messages Notifications				
	sid integer	sname character varying (50)	gpa numeric (3,2)	collegename character varying (50)
1	2	Bob	4.20	Stanford

4.

Data Output Messages Notifications						
	sid integer	sname character varying (50)	gpa numeric (3,2)	collegename character varying (50)	major character varying (50)	
1	2	Bob	4.20	MIT	CS	
2	4	Diana	4.50	UCLA	CS	

5.

Data Output Messages Notifications						
	sid integer	sname character varying (50)	gpa numeric (3,2)	collegename character varying (50)	major character varying (50)	
1	3	Charlie	3.70	NYU	Physics	
2	3	Charlie	3.70	Columbia	Math	
3	5	Eve	3.80	Columbia	CS	











6.

Data Output Messages Notifications						
	sid [PK] integer	sname character varying (50)	gpa numeric (3,2)			













7.

Data Output Messages Notifications						
	collegename [PK] character varying (50)					











8.

Data Output Messages Notifications		
		
		
		
SQL		
	sid integer 	
1		5
2		4
3		1

9.

Data Output Messages Notifications				
				
				SQL
	sid [PK] integer 	sname character varying (50) 	gpa numeric (3,2) 	
1	2	Bob	4.20	
2	3	Charlie	3.70	
3	5	Eve	3.80	

10.

Data Output Messages Notifications		
		
		
		
SQL		
	major character varying (50) 	
1	CS	