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

- 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
- 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),
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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.

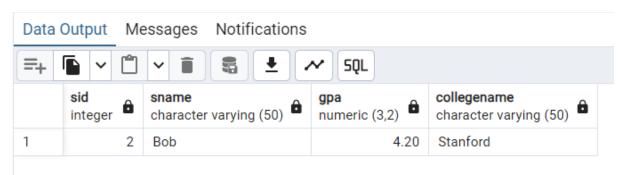
Data Output Messages Notifications □+ □ ∨ □ ∨ □ SQL										
1	1	Alice	3.90	Stanford	CS					
2	2	Bob	4.20	Stanford	CS					
3	2	Bob	4.20	MIT	CS					
4	3	Charlie	3.70	NYU	Physics					
5	3	Charlie	3.70	Columbia	Math					
6	4	Diana	4.50	UCLA	CS					
7	5	Eve	3.80	Columbia	CS					

2.

Data Output	Messages	Notifications	
	n9n		

=+ • • • • • • • • • • • • • • • • • • •										
	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	Υ				
2	2	Bob	4.20	Stanford	CS	Υ				
3	4	Diana	4.50	UCLA	CS	N				

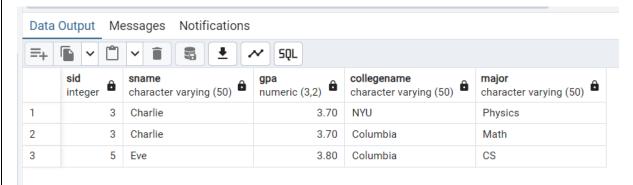
3.



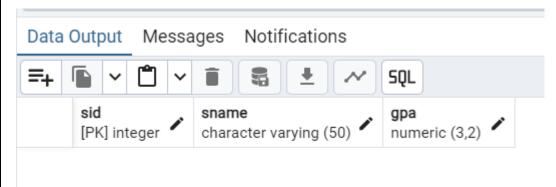
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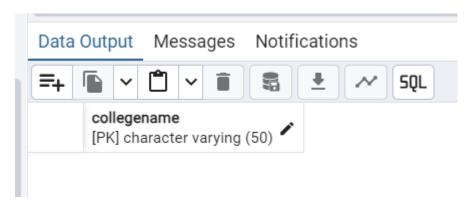
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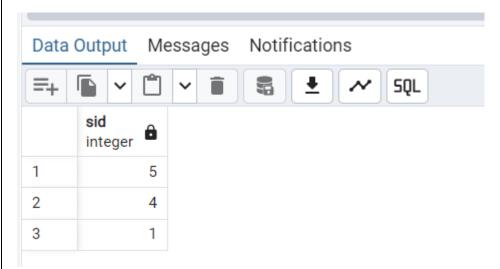
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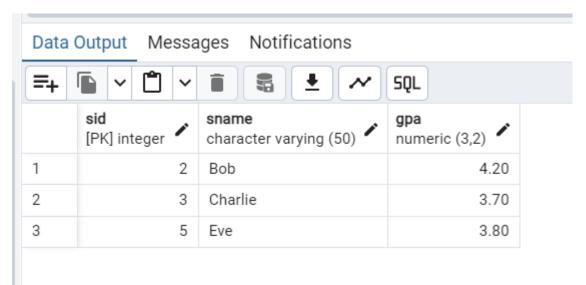
7.







9.



10.

