LAB - 8

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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

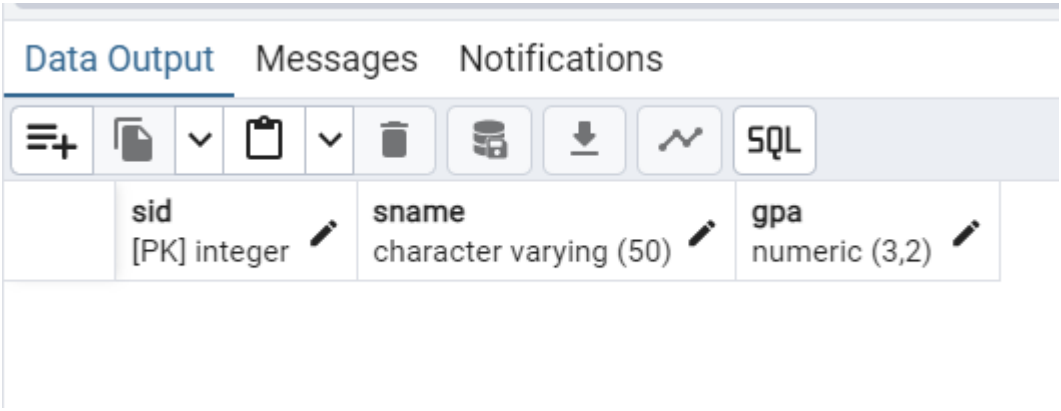
	sid integer	sname character varying (50)	gpa numeric (3,2)	collegename character varying (50)	major character varying (50)
1	2	Bob	4.20	MIT	CS
2	4	Diana	4.50	UCLA	CS

5.

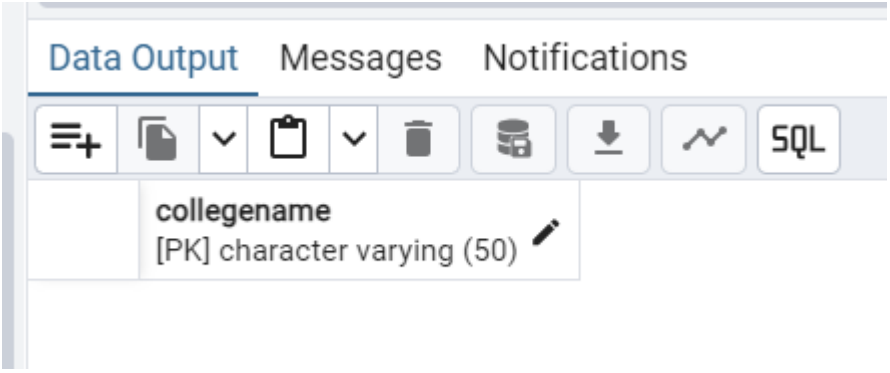
Data Output | Messages | Notifications

	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.



7.



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