DATABASE MANAGEMENT SYSTEMS

Course Code: CSE2007 Slot: L13+L14

Class Number: AP2023246000686 Venue: CB-102

Assignment No.: 7 Date:14-03-2024

Reg. No:22BCE8609

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School & Programme: B.Tech CSE core

Instructions

1. Submit Your Assignment at the following link. Click Here or https://forms.gle/YH1bBwpKnM8LMSVM8
2. Submit the Assignment in PDF format.
3. Submit the assignment on or before 04/March/2024.
4. Copy the code, take a picture of the output, and paste it into a Word document. Convert the word doc into PDF and submit.
5. The file name will be your registration number and name.
6. **Assignments Programs:**

Solve the following using machine learning techniques.	
A.	Create Faculty and student Tables like following: CREATE TABLE Student (*StudentID INT PRIMARY KEY,* *Name VARCHAR(100),* *Major VARCHAR(100),* *FacultyAdvisorID INT,* *FOREIGN KEY (FacultyAdvisorID) REFERENCES Faculty(FacultyID)* *);* CREATE TABLE Faculty (FacultyID INT PRIMARY KEY, Name VARCHAR(100), Department VARCHAR(100));
B.	**INNER JOIN**: Write a SQL query to list all students and their respective faculty advisors. Use the INNER JOIN to combine data from the `Students` and `Faculty` tables where the `FacultyAdvisorID` matches the `FacultyID`.
C.	**LEFT JOIN**: Write a SQL query to list all faculty members and any students they advise. Include faculty members who do not advise any students.

D.	**RIGHT JOIN**: Construct a SQL query to show all students and their faculty advisors. If a student does not have a faculty advisor, their name should still appear. Use the RIGHT JOIN for this task.
E.	• **FULL OUTER JOIN -** (Note: MySQL does not support FULL OUTER JOIN directly, but you can achieve the same result using a combination of LEFT JOIN and UNION.) Write a SQL query to list all `Student` and `Faculty` members, showing the advisory relationship where applicable. Include students without advisors and faculty members who do not advise any students.
F.	**NATURAL JOIN** Write a SQL query that performs a NATURAL JOIN on the `Students` and `Faculty` tables. Assume there are columns with the exact same name that should be matched.
G.	**EQUI JOIN** Write a SQL query to join the `Student` and `Faculty` tables on the faculty advisor ID and return the student's name along with the advisor's name and department.

Program No:

Title:

```
CREATE TABLE Student (
    StudentID INT PRIMARY KEY,
    Name VARCHAR(100),
    Major VARCHAR(100),
    FacultyAdvisorID INT,
    FOREIGN KEY (FacultyAdvisorID) REFERENCES Faculty(FacultyID)
);

CREATE TABLE Faculty (
    FacultyID INT PRIMARY KEY,
    Name VARCHAR(100),
    Department VARCHAR(100)
);
```

ENTRIES

```
-- Insert 4 entries into the Faculty table
INSERT INTO Faculty (FacultyID, Name, Department) VALUES
  (101, 'Dr. Gupta', 'Physics'),
  (102, 'Prof. Sharma', 'Chemistry'),
```

(103, 'Dr. Verma', 'Biology'),

(104, 'Prof. Singh', 'Geology');

-- Insert 12 entries into the Student table

INSERT INTO Student (StudentID, Name, Major, FacultyAdvisorID) VALUES

(101, 'Amit Kumar', 'Physics', 101),

(102, 'Deepika Singh', 'Chemistry', 102),

(103, 'Rajesh Verma', 'Biology', 103),

(104, 'Anjali Sharma', 'Geology', 104),

(105, 'Suresh Gupta', 'Physics', 101),

(106, 'Kritika Singh', 'Chemistry', 102),

(107, 'Neeraj Verma', 'Biology', 103),

(108, 'Riya Sharma', 'Geology', 104),

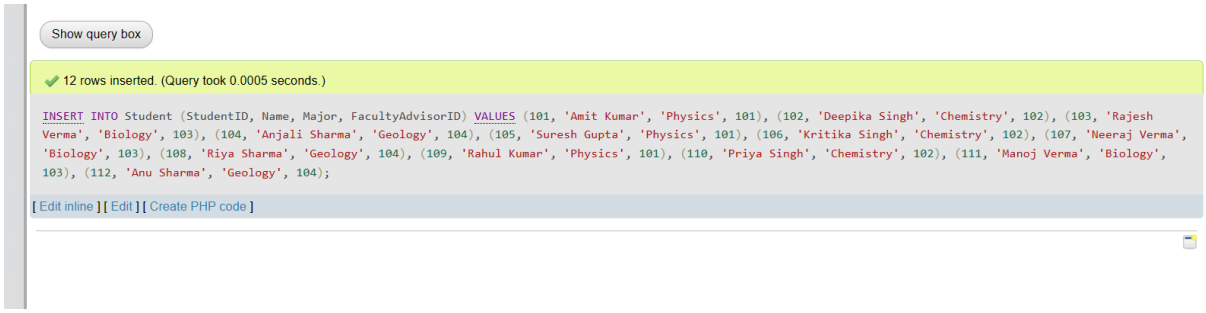
(109, 'Rahul Kumar', 'Physics', 101),

(110, 'Priya Singh', 'Chemistry', 102),

(111, 'Manoj Verma', 'Biology', 103),

(112, 'Anu Sharma', 'Geology', 104);

Output:



Program No:B

Title:INNER JOIN

SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName

FROM Student s

INNER JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID;

Output:

StudentName	FacultyAdvisorName
Amit Kumar	Dr. Gupta
Suresh Gupta	Dr. Gupta
Rahul Kumar	Dr. Gupta
Deepika Singh	Prof. Sharma
Kritika Singh	Prof. Sharma
Priya Singh	Prof. Sharma
Rajesh Verma	Dr. Verma
Neeraj Verma	Dr. Verma
Manoj Verma	Dr. Verma
Anjali Sharma	Prof. Singh
Riya Sharma	Prof. Singh
Anu Sharma	Prof. Singh

Program No:C

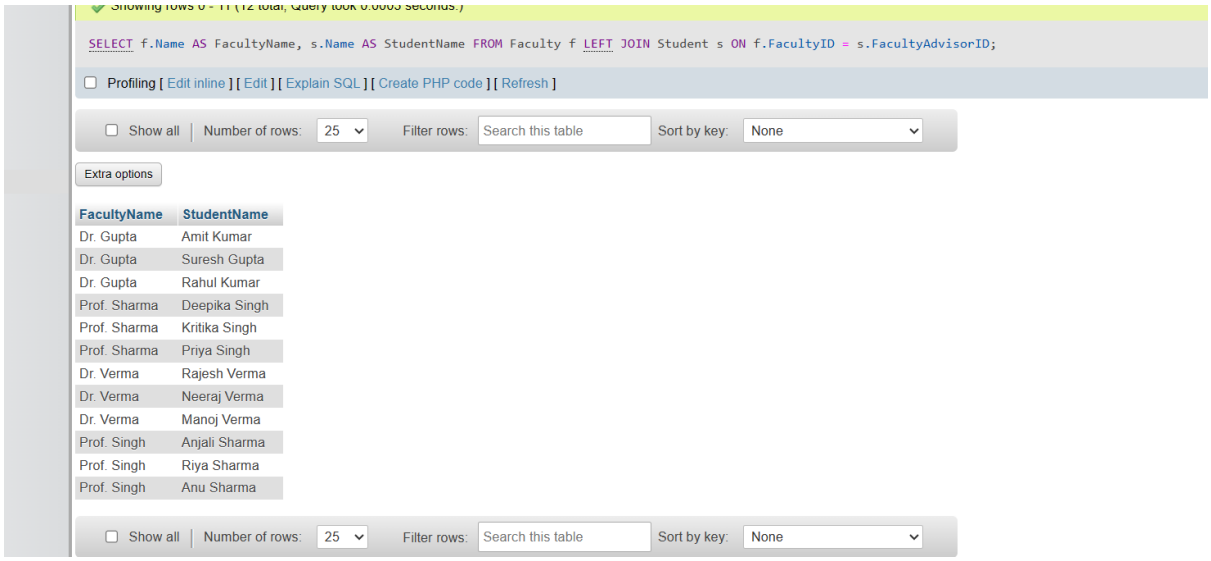
Title:LEFT JOIN

SELECT f.Name AS FacultyName, s.Name AS StudentName

FROM Faculty f

LEFT JOIN Student s ON f.FacultyID = s.FacultyAdvisorID;

Output:



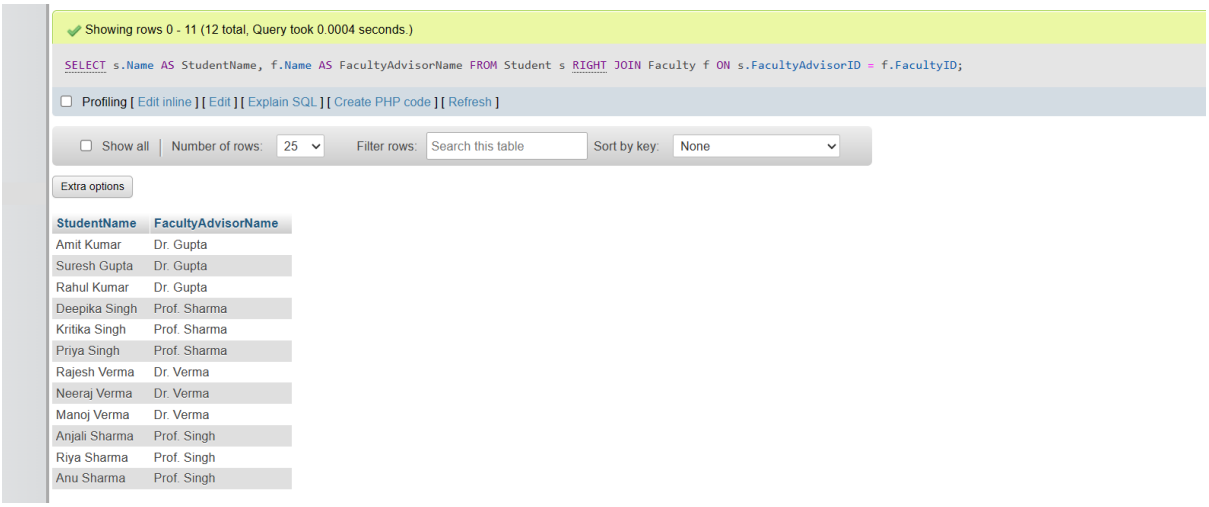
FacultyName	StudentName
Dr. Gupta	Amit Kumar
Dr. Gupta	Suresh Gupta
Dr. Gupta	Rahul Kumar
Prof. Sharma	Deepika Singh
Prof. Sharma	Kritika Singh
Prof. Sharma	Priya Singh
Dr. Verma	Rajesh Verma
Dr. Verma	Neeraj Verma
Dr. Verma	Manoj Verma
Prof. Singh	Anjali Sharma
Prof. Singh	Riya Sharma
Prof. Singh	Anu Sharma

Program No:D

Title:Right JOIN

```
SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName

FROM Student s

RIGHT JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID;
```

Output:



Showing rows 0 - 11 (12 total, Query took 0.0004 seconds.)

```
SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName FROM Student s RIGHT JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

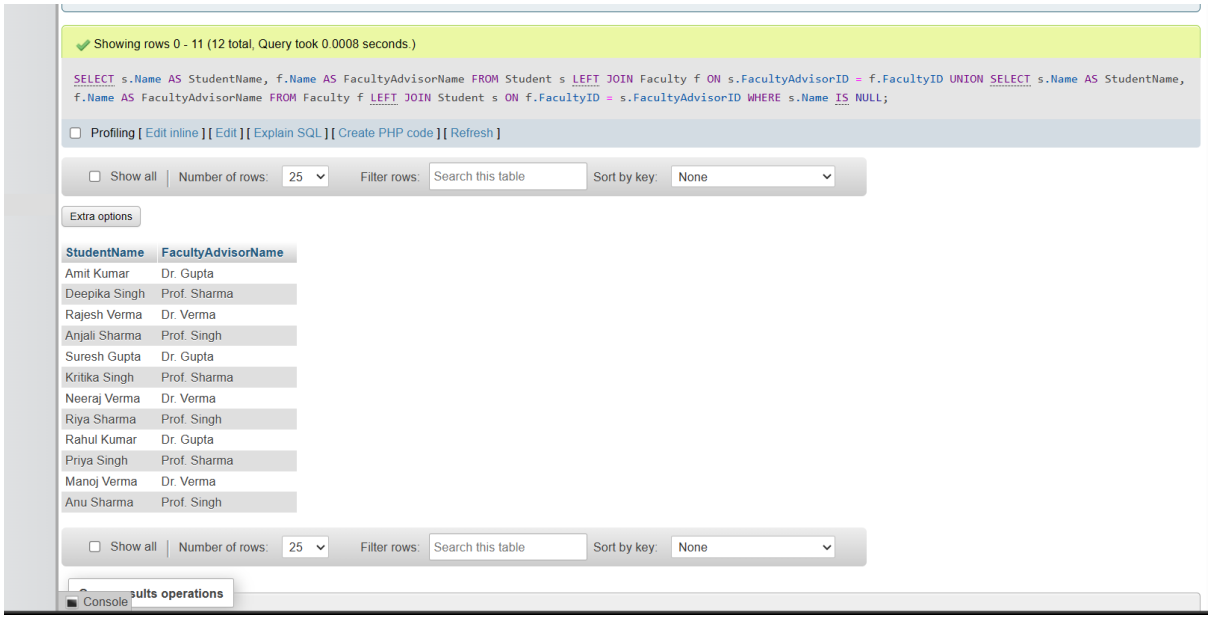
StudentName	FacultyAdvisorName
Amit Kumar	Dr. Gupta
Suresh Gupta	Dr. Gupta
Rahul Kumar	Dr. Gupta
Deepika Singh	Prof. Sharma
Kritika Singh	Prof. Sharma
Priya Singh	Prof. Sharma
Rajesh Verma	Dr. Verma
Neeraj Verma	Dr. Verma
Manoj Verma	Dr. Verma
Anjali Sharma	Prof. Singh
Riya Sharma	Prof. Singh
Anu Sharma	Prof. Singh

Program No:E

Title:Full

```
SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName

FROM Student s

LEFT JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID

UNION

SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName

FROM Faculty f

LEFT JOIN Student s ON f.FacultyID = s.FacultyAdvisorID

WHERE s.Name IS NULL;
```

Output:



Program No:F

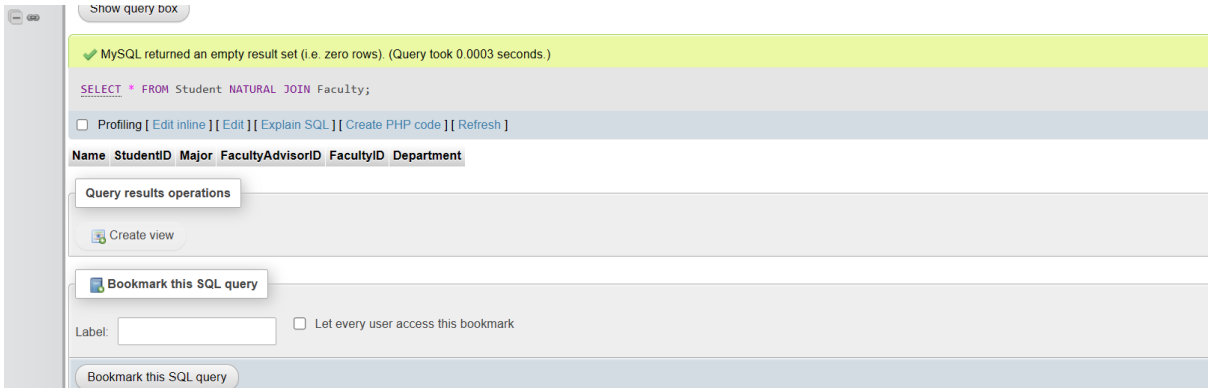
Title:Nutral

SELECT *

FROM Student

NATURAL JOIN Faculty;

Output:



Program No:G

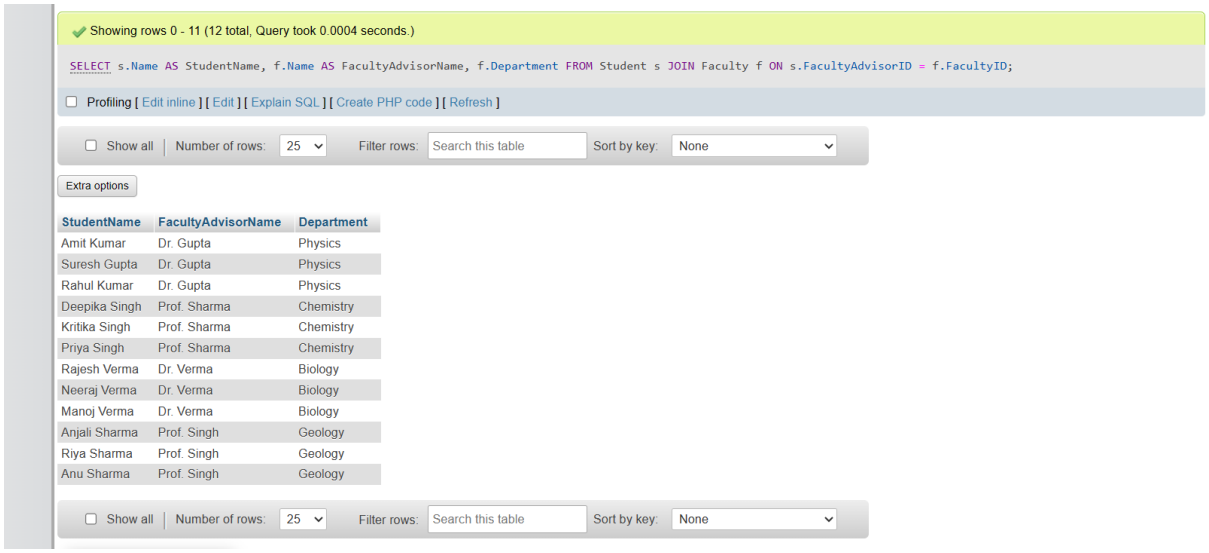
Title:Equi join

SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName, f.Department

FROM Student s

JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID;

Output:



Showing rows 0 - 11 (12 total, Query took 0.0004 seconds.)

```
SELECT s.Name AS StudentName, f.Name AS FacultyAdvisorName, f.Department FROM Student s JOIN Faculty f ON s.FacultyAdvisorID = f.FacultyID;
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None

Extra options

StudentName	FacultyAdvisorName	Department
Amit Kumar	Dr. Gupta	Physics
Suresh Gupta	Dr. Gupta	Physics
Rahul Kumar	Dr. Gupta	Physics
Deepika Singh	Prof. Sharma	Chemistry
Kritika Singh	Prof. Sharma	Chemistry
Priya Singh	Prof. Sharma	Chemistry
Rajesh Verma	Dr. Verma	Biology
Neeraj Verma	Dr. Verma	Biology
Manoj Verma	Dr. Verma	Biology
Anjali Sharma	Prof. Singh	Geology
Riya Sharma	Prof. Singh	Geology
Anu Sharma	Prof. Singh	Geology

Show all | Number of rows: 25 Filter rows: Search this table Sort by key: None