Experiment No.6
Implement various join operations
Date of Performance:
Date of Submission:

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Aim :- Write simple query to implement join operations(equi join, natural join, inner join, outer joins).

Objective :- To apply different types of join to retrieve queries from the database management system.

Theory:

SQL Join statement is used to combine data or rows from two or more tables based on a common field between them. Different types of Joins are as follows:

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN

A. INNER JOIN

The INNER JOIN keyword selects all rows from both the tables as long as the condition is satisfied. This keyword will create the result-set by combining all rows from both the tables where the condition satisfies i.e value of the common field will be the same.

Syntax:

SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

INNER JOIN table2

ON table1.matching_column = table2.matching_column;

table1: First table.

table2: Second table

matching_column: Column common to both the tables.

B. LEFT JOIN

This join returns all the rows of the table on the left side of the join and matches rows for the table on the right side of the join. For the rows for which there is no matching row on the right side, the result-set will contain *null*. LEFT JOIN is also known as LEFT OUTER JOIN.

Syntax:

```
SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

LEFT JOIN table2

ON table1.matching_column = table2.matching_column;
```

table1: First table.

table2: Second table

matching_column: Column common to both the tables.

C. RIGHT JOIN

RIGHT JOIN is similar to LEFT JOIN. This join returns all the rows of the table on the right side of the join and matching rows for the table on the left side of the join. For the rows for which there is no matching row on the left side, the result-set will contain *null*. RIGHT JOIN is also known as RIGHT OUTER JOIN.

Syntax:

```
SELECT table1.column1,table1.column2,table2.column1,....

FROM table1

RIGHT JOIN table2

ON table1.matching_column = table2.matching_column;
```

table1: First table.

table2: Second table

matching_column: Column common to both the tables.

D. FULL JOIN

FULL JOIN creates the result-set by combining results of both LEFT JOIN and RIGHT JOIN. The result-set will contain all the rows from both tables. For the rows for which there is no matching, the result-set will contain NULL values.

Syntax:

```
SELECT table1.column1,table1.column2,table2.column1,....
```

FROM table1

FULL JOIN table2

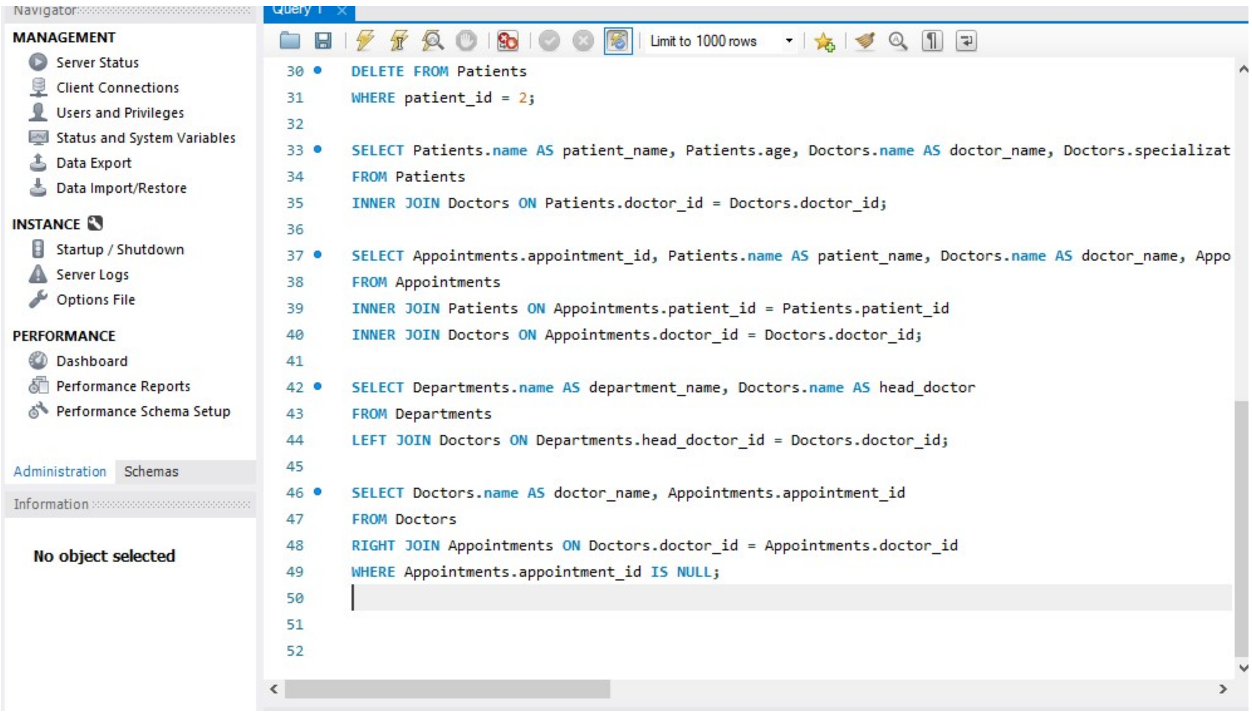
ON table1.matching_column = table2.matching_column;

table1: First table.

table2: Second table

matching_column: Column common to both the tables.

Implementation:



```
DELETE FROM Patients
WHERE patient_id = 2;

SELECT Patients.name AS patient_name, Patients.age, Doctors.name AS doctor_name, Doctors.specializat
FROM Patients
INNER JOIN Doctors ON Patients.doctor_id = Doctors.doctor_id;

SELECT Appointments.appointment_id, Patients.name AS patient_name, Doctors.name AS doctor_name, Appo
FROM Appointments
INNER JOIN Patients ON Appointments.patient_id = Patients.patient_id
INNER JOIN Doctors ON Appointments.doctor_id = Doctors.doctor_id;

SELECT Departments.name AS department_name, Doctors.name AS head_doctor
FROM Departments
LEFT JOIN Doctors ON Departments.head_doctor_id = Doctors.doctor_id;

SELECT Doctors.name AS doctor_name, Appointments.appointment_id
FROM Doctors
RIGHT JOIN Appointments ON Doctors.doctor_id = Appointments.doctor_id
WHERE Appointments.appointment_id IS NULL;
```

Conclusion:

1. Illustrate how to perform natural join for the joining attributes with different names with a suitable example.
   Performing a natural join with joining attributes having different names requires explicitly specifying the join condition. Here's a concise example: Example: SELECT * FROM Employees NATURAL JOIN Departments ON Employees.dept_id = Departments.department_id; In this example, Employees and Departments tables have different column names (dept_id and department_id). The ON clause specifies the common columns for the natural join.

2. Illustrate significant differences between natural join equi join and inner join.

Differences Between Natural Join, Equi Join, and Inner Join: Natural Join: Automatically matches columns with the same name but can produce unexpected results. Equi Join: Specifies join conditions explicitly, allowing joining attributes with different names. Inner Join: Returns rows that satisfy the join condition specified in the ON clause, providing control over the join condition.