23BCE9360 – C N S SWAROOP

LAB – L39/L40

DBMS LAB ASSIGNMENT - 3

Prof. Bharathi V C

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Q1: Create table product and insert the list of records.

Student Table

ROLL_NO	NAME	ADDRESS	PHONE	Age
1	HARSH	DELHI	xxxxxxxxxx	18
2	PRATIK	BIHAR	xxxxxxxxxx	19
3	RIYANKA	SILIGURI	xxxxxxxxxx	20
4	DEEP	RAMNAGAR	xxxxxxxxxx	18
5	SAPTARHI	KOLKATA	xxxxxxxxxx	19
6	DHANRAJ	BARABAJAR	xxxxxxxxxx	20
7	ROHIT	BALURGHAT	xxxxxxxxxx	18
8	NIRAJ	ALIPUR	xxxxxxxxxx	19

StudentCourse Table

COURSE_ID	ROLL_NO
1	1
2	2
2	3
3	4
1	5
4	9
5	10
4	11

Write SQL query to implement all joins and set operations.

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN
- Natural Join

Set Operations: union, intersection, set difference

CODE:

```
CREATE TABLE Student (
   ROLL_NO INT PRIMARY KEY,
   NAME VARCHAR(50),
   ADDRESS VARCHAR(50),
   PHONE VARCHAR(15),
   AGE INT
);

CREATE TABLE StudentCourse (
   COURSE_ID INT,
   ROLL_NO INT,
   FOREIGN KEY (ROLL_NO) REFERENCES Student(ROLL_NO)
);
INSERT INTO Student (ROLL_NO, NAME, ADDRESS, PHONE, AGE) VALUES
(9, 'UNKNOWN1', 'CITY1', 'XXXXXXXXXX', 20),
(10, 'UNKNOWN2', 'CITY2', 'XXXXXXXXXX', 21),
(11, 'UNKNOWN3', 'CITY3', 'XXXXXXXXXX', 22);
```

```
INSERT INTO StudentCourse (COURSE_ID, ROLL_NO) VALUES
(1, 1),
(2, 2),
(2, 3),
(3, 4),
(1, 5),
(4, 9),
(5, 10),
(4, 11);

SELECT s.ROLL_NO, s.NAME, s.ADDRESS, sc.COURSE_ID
FROM Student s
INNER JOIN StudentCourse sc
ON s.ROLL_NO = sc.ROLL_NO;

SELECT s.ROLL_NO, s.NAME, s.ADDRESS, sc.COURSE_ID
FROM Student s
LEFT JOIN StudentCourse sc
ON s.ROLL_NO = sc.ROLL_NO;

SELECT s.ROLL_NO, s.NAME, s.ADDRESS, sc.COURSE_ID
FROM Student s
RIGHT JOIN StudentCourse sc
ON s.ROLL_NO = sc.ROLL_NO;

SELECT s.ROLL_NO, s.NAME, s.ADDRESS, sc.COURSE_ID
FROM Student s
FULL OUTER JOIN StudentCourse sc
ON s.ROLL_NO = sc.ROLL_NO;

SELECT *
FROM Student
NATURAL JOIN StudentCourse;

SELECT ROLL_NO FROM Student
UNION
SELECT ROLL_NO FROM StudentCourse;

SELECT ROLL_NO FROM Student
INTERSECT
SELECT ROLL_NO FROM StudentCourse;

SELECT ROLL_NO FROM Student
MINUS
SELECT ROLL_NO FROM StudentCourse;
```

OUTPUT:

```
Table created.


Table created.
```

```
8 rows created.


3 rows created.


8 rows created.
```

Inner Join:

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         1 HARSH
DELHI                                                       1

         2 PRATIK
BIHAR                                                       2

         3 RIYANKA
SILIGURI                                                    2


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         4 DEEP
RAMNAGAR                                                    3

         5 SAPTARHI
KOLKATA                                                     1

         9 UNKNOWN1
CITY1                                                       4
```

Left Join:

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
        10 UNKNOWN2
CITY2                                                       5

        11 UNKNOWN3
CITY3                                                       4

         6 DHANRAJ
BARABAJAR


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         7 ROHIT
BALURGHAT

         8 NIRAJ
ALIPUR


11 rows selected.
```

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                    COURSE_ID
-------------------------------------------------- ----------
         1 HARSH
DELHI                                               1

         2 PRATIK
BIHAR                                               2

         3 RIYANKA
SILIGURI                                            2

         4 DEEP
RAMNAGAR                                            3

         5 SAPTARHI
KOLKATA                                             1

         9 UNKNOWN1
CITY1                                               4

        10 UNKNOWN2
CITY2                                               5

        11 UNKNOWN3
CITY3                                               4

8 rows selected.
```

Right Join:

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         1 HARSH
DELHI                                                       1

         2 PRATIK
BIHAR                                                       2

         3 RIYANKA
SILIGURI                                                    2


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         4 DEEP
RAMNAGAR                                                    3

         5 SAPTARHI
KOLKATA                                                     1

         9 UNKNOWN1
CITY1                                                       4


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
        10 UNKNOWN2
CITY2                                                       5

        11 UNKNOWN3
CITY3                                                       4


8 rows selected.
```

Full Outer Join

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         1 HARSH
DELHI                                                       1

         2 PRATIK
BIHAR                                                       2

         3 RIYANKA
SILIGURI                                                    2


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         4 DEEP
RAMNAGAR                                                    3

         5 SAPTARHI
KOLKATA                                                     1

         6 DHANRAJ
BARABAJAR
```

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
         7 ROHIT
BALURGHAT

         8 NIRAJ
ALIPUR

         9 UNKNOWN1
CITY1                                                       4


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            COURSE_ID
-------------------------------------------------- ----------
        10 UNKNOWN2
CITY2                                                       5

        11 UNKNOWN3
CITY3                                                       4


11 rows selected.
```

Natural Join

```
    ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            PHONE          AGE
-------------------------------------------------- ---------- -------
 COURSE_ID
----------

         1 HARSH
DELHI                                              XXXXXXXXXX      18
         1

         2 PRATIK
BIHAR                                              XXXXXXXXXX      19
         2


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            PHONE          AGE
-------------------------------------------------- ---------- -------
 COURSE_ID
----------

         3 RIYANKA
SILIGURI                                           XXXXXXXXXX      20
         2

         4 DEEP
RAMNAGAR                                           XXXXXXXXXX      18
```

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            PHONE          AGE
-------------------------------------------------- ---------- -------
 COURSE_ID
----------

         3

         5 SAPTARHI
KOLKATA                                            XXXXXXXXXX      19
         1

         9 UNKNOWN1


   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                            PHONE          AGE
-------------------------------------------------- ---------- -------
 COURSE_ID
----------

CITY1                                              XXXXXXXXXX      20
         4

        10 UNKNOWN2
CITY2                                              XXXXXXXXXX      21
         5
```

```
   ROLL_NO NAME
---------- --------------------------------------------------
ADDRESS                                          PHONE          AGE
-------------------------------------------------- ---------- --------
 COURSE_ID
----------

        11 UNKNOWN3
CITY3                                            XXXXXXXXXX      22
         4



8 rows selected.
```

Union

```
   ROLL_NO
----------
         1
         2
         3
         4
         5
         6
         7
         8
         9
        10
        11

11 rows selected.
```

Intersection

```
   ROLL_NO
----------
         1
         2
         3
         4
         5
         9
        10
        11

8 rows selected.
```

Difference

```
   ROLL_NO
----------
         6
         7
         8
```