**MariaDB [te31453\_db]> CREATE TABLE Students (**

**-> Student\_id INT PRIMARY KEY,**

**-> Name VARCHAR (50),**

**-> Course\_id INT**

**-> );**

**Query OK, 0 rows affected (0.162 sec)**

**MariaDB [te31453\_db]> CREATE TABLE Course (**

**-> Course\_id INT PRIMARY KEY,**

**-> Course\_name VARCHAR (50)**

**-> );**

**Query OK, 0 rows affected (0.200 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (100,'Sayali',1);**

**Query OK, 1 row affected (0.035 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (101,'Sanskruti',2);**

**Query OK, 1 row affected (0.038 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (102,'Naveli',3);**

**Query OK, 1 row affected (0.025 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (103,'Gauri',4);**

**Query OK, 1 row affected (0.023 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (104,'Shraddha',5);**

**Query OK, 1 row affected (0.042 sec)**

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id,Name,Course\_id) VALUES (105,'Mokshada',6);**

**Query OK, 1 row affected (0.023 sec)**

**MariaDB [te31453\_db]> select \* from Students;**

**+------------+-----------+-----------+**

**| Student\_id | Name | Course\_id |**

**+------------+-----------+-----------+**

**| 100 | Sayali | 1 |**

**| 101 | Sanskruti | 2 |**

**| 102 | Naveli | 3 |**

**| 103 | Gauri | 4 |**

**| 104 | Shraddha | 5 |**

**| 105 | Mokshada | 6 |**

**+------------+-----------+-----------+**

**6 rows in set (0.001 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (6, 'Computer Science');**

**Query OK, 1 row affected (0.027 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (1, 'Mathematics');**

**Query OK, 1 row affected (0.033 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (2, 'Physics');**

**Query OK, 1 row affected (0.029 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (3, 'Chemistry');**

**Query OK, 1 row affected (0.031 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (4, 'Biology');**

**Query OK, 1 row affected (0.037 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (5, 'English Literature');**

**Query OK, 1 row affected (0.036 sec)**

**MariaDB [te31453\_db]> select \* from Course;**

**+-----------+--------------------+**

**| Course\_id | Course\_name |**

**+-----------+--------------------+**

**| 1 | Mathematics |**

**| 2 | Physics |**

**| 3 | Chemistry |**

**| 4 | Biology |**

**| 5 | English Literature |**

**| 6 | Computer Science |**

**+-----------+--------------------+**

**6 rows in set (0.001 sec)**

**MariaDB [te31453\_db]> SELECT \* from Students;**

**+------------+-----------+-----------+**

**| Student\_id | Name | Course\_id |**

**+------------+-----------+-----------+**

**| 100 | Sayali | 1 |**

**| 101 | Sanskruti | 2 |**

**| 102 | Naveli | 3 |**

**| 103 | Gauri | 4 |**

**| 104 | Shraddha | 5 |**

**| 105 | Mokshada | 6 |**

**+------------+-----------+-----------+**

**6 rows in set (0.001 sec)**

* **NATURAL JOIN**

MariaDB [te31453\_db]> Select Student\_id,Name,Course\_id,Course\_name from Students NATURAL JOIN Course;

+------------+-----------+-----------+--------------------+

| Student\_id | Name | Course\_id | Course\_name |

+------------+-----------+-----------+--------------------+

| 100 | Sayali | 1 | Mathematics |

| 101 | Sanskruti | 2 | Physics |

| 102 | Naveli | 3 | Chemistry |

| 103 | Gauri | 4 | Biology |

| 104 | Shraddha | 5 | English Literature |

| 105 | Mokshada | 6 | Computer Science |

+------------+-----------+-----------+--------------------+

6 rows in set (0.001 sec)

* **INNER JOIN**

MariaDB [te31453\_db]> select s.Student\_id,s.Name,c.Course\_name from Students s INNER JOIN Course c on s.Course\_id=c.Course\_id;

+------------+-----------+--------------------+

| Student\_id | Name | Course\_name |

+------------+-----------+--------------------+

| 100 | Sayali | Mathematics |

| 101 | Sanskruti | Physics |

| 102 | Naveli | Chemistry |

| 103 | Gauri | Biology |

| 104 | Shraddha | English Literature |

| 105 | Mokshada | Computer Science |

+------------+-----------+--------------------+

6 rows in set (0.001 sec)

* **LEFT JOIN**

MariaDB [te31453\_db]> select s.Student\_id,s.Name,s.Course\_id,c.Course\_name

-> from Students s LEFT JOIN Course c on s.Course\_id =c.Course\_id;

+------------+-----------+-----------+--------------------+

| Student\_id | Name | Course\_id | Course\_name |

+------------+-----------+-----------+--------------------+

| 100 | Sayali | 1 | Mathematics |

| 101 | Sanskruti | 2 | Physics |

| 102 | Naveli | 3 | Chemistry |

| 103 | Gauri | 4 | Biology |

| 104 | Shraddha | 5 | English Literature |

| 105 | Mokshada | 6 | Computer Science |

+------------+-----------+-----------+--------------------+

6 rows in set (0.001 sec)

**MariaDB [te31453\_db]> INSERT INTO Students (Student\_id, Name, Course\_id) VALUES (106, 'Rahul', 7);**

**Query OK, 1 row affected (0.022 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES (7, 'History');**

**Query OK, 1 row affected (0.036 sec)**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES**

**-> (7, 'History'),**

**-> (8, 'Geography');**

**ERROR 1062 (23000): Duplicate entry '7' for key 'PRIMARY'**

**MariaDB [te31453\_db]> INSERT INTO Course (Course\_id, Course\_name) VALUES**

**-> (8, 'Geography');**

**Query OK, 1 row affected (0.032 sec)**

MariaDB [te31453\_db]> select \* from Students;

+------------+-----------+-----------+

| Student\_id | Name | Course\_id |

+------------+-----------+-----------+

| 100 | Sayali | 1 |

| 101 | Sanskruti | 2 |

| 102 | Naveli | 3 |

| 103 | Gauri | 4 |

| 104 | Shraddha | 5 |

| 105 | Mokshada | 6 |

| 106 | Rahul | 7 |

| 107 | Sneha | NULL |

| 108 | Amit | 3 |

+------------+-----------+-----------+

9 rows in set (0.001 sec)

MariaDB [te31453\_db]> Select \* from Course ;

+-----------+--------------------+

| Course\_id | Course\_name |

+-----------+--------------------+

| 1 | Mathematics |

| 2 | Physics |

| 3 | Chemistry |

| 4 | Biology |

| 5 | English Literature |

| 6 | Computer Science |

| 7 | History |

| 8 | Geography |

+-----------+--------------------+

8 rows in set (0.001 sec)

* **LEFT JOIN**

MariaDB [te31453\_db]> Select s.Student\_id,s.Name,s.Course\_id,c.Course\_name from Students s LEFT JOIN Course c on c.Course\_id=s.Course\_id;

+------------+-----------+-----------+--------------------+

| Student\_id | Name | Course\_id | Course\_name |

+------------+-----------+-----------+--------------------+

| 100 | Sayali | 1 | Mathematics |

| 101 | Sanskruti | 2 | Physics |

| 102 | Naveli | 3 | Chemistry |

| 103 | Gauri | 4 | Biology |

| 104 | Shraddha | 5 | English Literature |

| 105 | Mokshada | 6 | Computer Science |

| 106 | Rahul | 7 | History |

| 107 | Sneha | NULL | NULL |

| 108 | Amit | 3 | Chemistry |

+------------+-----------+-----------+--------------------+

9 rows in set (0.001 sec)

* **RIGHT JOIN**

MariaDB [te31453\_db]> Select s.Student\_id,s.Name,s.Course\_id from Students s RIGHT JOIN Course c on c.Course\_id=s.Course\_id;

+------------+-----------+-----------+

| Student\_id | Name | Course\_id |

+------------+-----------+-----------+

| 100 | Sayali | 1 |

| 101 | Sanskruti | 2 |

| 102 | Naveli | 3 |

| 103 | Gauri | 4 |

| 104 | Shraddha | 5 |

| 105 | Mokshada | 6 |

| 106 | Rahul | 7 |

| 108 | Amit | 3 |

| NULL | NULL | NULL |

+------------+-----------+-----------+

9 rows in set (0.001 sec)

* **RIGHT JOIN**

MariaDB [te31453\_db]> Select s.Student\_id,s.Name,s.Course\_id,c.Course\_name from Students s RIGHT JOIN Course c on c.Course\_id=s.Course\_id;

+------------+-----------+-----------+--------------------+

| Student\_id | Name | Course\_id | Course\_name |

+------------+-----------+-----------+--------------------+

| 100 | Sayali | 1 | Mathematics |

| 101 | Sanskruti | 2 | Physics |

| 102 | Naveli | 3 | Chemistry |

| 103 | Gauri | 4 | Biology |

| 104 | Shraddha | 5 | English Literature |

| 105 | Mokshada | 6 | Computer Science |

| 106 | Rahul | 7 | History |

| 108 | Amit | 3 | Chemistry |

| NULL | NULL | NULL | Geography |

+------------+-----------+-----------+--------------------+

9 rows in set (0.001 sec)

* **OUTER JOIN**

**MariaDB [te31453\_db]> select s.Student\_id,s.Name,s.Course\_id,c.Course\_id,c.Course\_name from Students s LEFT JOIN Course c on c.Course\_id=s.Course\_id**

**-> UNION**

**-> select s.Student\_id,s.Name,s.Course\_id,c.Course\_name,c.Course\_id from Students s RIGHT JOIN Course c on c.Cour**

**se\_id=s.Course\_id;**

+------------+-----------+-----------+--------------------+--------------------+

| Student\_id | Name | Course\_id | Course\_id | Course\_name |

+------------+-----------+-----------+--------------------+--------------------+

| 100 | Sayali | 1 | 1 | Mathematics |

| 101 | Sanskruti | 2 | 2 | Physics |

| 102 | Naveli | 3 | 3 | Chemistry |

| 103 | Gauri | 4 | 4 | Biology |

| 104 | Shraddha | 5 | 5 | English Literature |

| 105 | Mokshada | 6 | 6 | Computer Science |

| 106 | Rahul | 7 | 7 | History |

| 107 | Sneha | NULL | NULL | NULL |

| 108 | Amit | 3 | 3 | Chemistry |

| 100 | Sayali | 1 | Mathematics | 1 |

| 101 | Sanskruti | 2 | Physics | 2 |

| 102 | Naveli | 3 | Chemistry | 3 |

| 103 | Gauri | 4 | Biology | 4 |

| 104 | Shraddha | 5 | English Literature | 5 |

| 105 | Mokshada | 6 | Computer Science | 6 |

| 106 | Rahul | 7 | History | 7 |

| 108 | Amit | 3 | Chemistry | 3 |

| NULL | NULL | NULL | Geography | 8 |

+------------+-----------+-----------+--------------------+--------------------+

18 rows in set (0.002 sec)

* **SELF JOIN**

**MariaDB [te31453\_db]> CREATE TABLE Emp (**

**-> EmpID INT PRIMARY KEY,**

**-> EmpName VARCHAR (50) UNIQUE,**

**-> ManagerID INT,**

**-> DeptID INT**

**-> );**

**Query OK, 0 rows affected (0.211 sec)**

**MariaDB [te31453\_db]> INSERT INTO Emp (EmpID, EmpName, ManagerID, DeptID) VALUES**

**-> (1, 'Alice', NULL, 1),**

**-> (2, 'Bob', 1, 2),**

**-> (3, 'Carol', 1, 3),**

**-> (4, 'Dave', 2, 2),**

**-> (5, 'Eve', 3, 3);**

**Query OK, 5 rows affected (0.029 sec)**

**MariaDB [te31453\_db]> SELECT**

**-> e.EmpName AS Employee,**

**-> m.EmpName AS Manager**

**-> FROM Emp e**

**-> LEFT JOIN Emp m ON e.ManagerID = m.EmpID;**

**+----------+---------+**

**| Employee | Manager |**

**+----------+---------+**

**| Alice | NULL |**

**| Bob | Alice |**

**| Carol | Alice |**

**| Dave | Bob |**

**| Eve | Carol |**

**+----------+---------+**

**5 rows in set (0.001 sec)**