Assignment No :03

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Title: Design Database and apply different types of joins and Sub-Query

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

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

Consider the two tables below as follows:

```
mysql> select *from std;
+------+---------+----------+------+
| rno  | name    | address  | age  |
+------+---------+----------+------+
|    1 | harsh   | yeola    |   17 |
|    3 | maya    | nashik   |   18 |
|    4 | piyush  | nagar    |   15 |
|    5 | gita    | pune     |   20 |
+------+---------+----------+------+
4 rows in set (0.00 sec)

mysql> select *from std_course;
+-----------+------+
| course_id | rno  |
+-----------+------+
|         1 |    1 |
|         2 |    4 |
|         2 |    3 |
|         3 |    5 |
+-----------+------+
4 rows in set (0.01 sec)
```

1.Inner join:

The inner join keyword selects all rows from both the tables as long as the condition is satisfied.

Code and Output:

```
mysql> select std_course.course_id,std.name,std.age from std inner join std_cou
rse on std.rno=std_course.rno;
+-----------+--------+------+
| course_id | name   | age  |
+-----------+--------+------+
|         1 | harsh  |   17 |
|         2 | piyush |   15 |
|         2 | maya   |   18 |
|         3 | gita   |   20 |
+-----------+--------+------+
4 rows in set (0.40 sec)
```

2.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.

Code and Output:

```
mysql> select std.name,std_course.course_id from std
    -> left join std_course
    -> on std_course.rno=std.rno;
+--------+------------+
| name   | course_id  |
+--------+------------+
| harsh  |          1 |
| piyush |          2 |
| maya   |          2 |
| gita   |          3 |
+--------+------------+
4 rows in set (0.11 sec)
```

3.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.

Code and Output:

```
mysql> select std.name,std_course.course_id from std
    -> right join std_course
    -> on std_course.rno=std.rno;
+--------+------------+
| name   | course_id  |
+--------+------------+
| harsh  |          1 |
| maya   |          2 |
| piyush |          2 |
| gita   |          3 |
+--------+------------+
4 rows in set (0.00 sec)
```

- **Sub-Query:**

A Sub-query is a query within another sql query and embedded within clauses, most commonly use where clause.

Code and Output:

```
mysql> select *from std where rno in(select rno from std where age>15);
+------+-------+---------+------+
| rno  | name  | address | age  |
+------+-------+---------+------+
|    1 | harsh | yeola   |   17 |
|    3 | maya  | nashik  |   18 |
|    5 | gita  | pune    |   20 |
+------+-------+---------+------+
3 rows in set (0.42 sec)
```