Green University of Bangladesh
Department of Computer Science and Engineering(CSE)
Faculty of Sciences and Engineering
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LAB REPORT NO 3
Course Title: Database System Lab
Course Code: CSE 210 Section: 193 DB

Lab Experiment Name: Write a SQL query for all the JOIN operation

Student Details

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Lab Report Status
Marks: …… Signature:.....

Comments:..... Date:.....

TITLE OF THE LAB EXPERIMENT:

Write a SQL query for all the JOIN operation.

JOINS in SQL are commands which are used to combine rows from two or more tables, based on a related column between those tables. There are predominantly used when a user is trying to extract data from tables which have one-to-many or many-to-many relationships between them.

OBJECTIVES :

- To Create a database name company database.
- we will learn SQL query for all the JOIN operation in tables.
- We will learn how to use the Join, Inner Join, Left Join, Right Join, Where, Group by statement in SQL

ANALYSIS :

The SQL UNION Operator:

The UNION operator is used to combine the result-set of two or more SELECT statements.

- Every SELECT statement within UNION must have the same number of columns
- The columns must also have similar data types
- The columns in every SELECT statement must also be in the same order

Example

```
SELECT City FROM Customers
UNION
SELECT City FROM Suppliers
ORDER BY City;
```

SQL Join: Join A JOIN clause is used to combine rows from two or more tables, based on a related column between them.

SQL INNER JOIN Keyword: The INNER JOIN keyword selects records that have matching values in both tables.

Example:

```
SELECT Orders.OrderID, Customers.CustomerName

FROM Orders

INNER JOIN Customers ON Orders.CustomerID = Customers.CustomerID;
```

IMPLEMENTATION :

Creating Table Employee:

```
CREATE TABLE employee(
EmpID int(11) NOT NULL AUTO_INCREMENT,
EmpFname varchar(255) NOT NULL,
EmpLname varchar(255 ) NOT NULL,
Age int(10) not null,
EmailID Varchar (255) not null,
PhoneNo int(20) not null,
Address varchar(255 ) NOT NULL,
PRIMARY KEY(EmpID)
);
```

Inserting Values:

```
INSERT INTO employee (EmpID,EmpFname,EmpLname,age,EmailID,PhoneNo, Address)
VALUES (1,'Vardhan','kumar',22, 'vardy@abc.com',9876543210,'Delhi'),
(2,'Himani','Sharma',32, 'himani@abc.com',9977554422,'mumbai'),
(3,'Aayushi','Shreshth',24, 'aayushi@abc.com',99775551211,'Kolkkata'),
(4,'Hemanth','sharma',25, 'hemanth@abc.com',9876545666,'Bangaluru'),
(5,'Swatee','kapoor',26, 'swatee@abc.com',9544567777,'Hydrabad');
```

Creating Table project:

```
CREATE TABLE project(
ProjectID int(11) NOT NULL ,
EmpID int(11) NOT NULL ,
ClientID int(11) NOT NULL,
ProjectName varchar(255) NOT NULL,
ProjectStarDate          date,
PRIMARY KEY(ProjectID)
);
```

Inserting Values:

```
INSERT INTO project(ProjectID, EmpID,ClientID,ProjectName,ProjectStarDate)
VALUES (111,1,3,'Project1','2019-04-21'),
(222,2,1,'Project2','2019-02-12'),
(333,3,5,'Project3','2019-01-10'),
(444,3,2,'Project4','2019-04-16'),
(555,5,4,'Project5','2019-05-23'),
(666,9,1,'Project6','2019-01-12'),
(777,7,2,'Project7','2019-07-25'), (888,8,3,'Project8','2019-08-
20');
```

Creating Table Client:

```
CREATE TABLE Client(
ClientID int(11) NOT NULL ,
CliuentFname varchar(255) NOT NULL,
ClientLname varchar(255 ) NOT NULL,
Age int(10) not null,
ClientEmailID Varchar (255) not null,
PhoneNo int(20) not null,
Address varchar(255 ) NOT NULL,
```

```
EmpID int(11) NOT NULL ,
PRIMARY KEY(ClientID)
);
```

Inserting Values:

```
INSERT INTO Client (ClientID,CliuentFname,ClientLname,age,ClientEmailID,PhoneNo,
Address,EmpID)
VALUES          (1,'Susan','Smith',30,'susan@adn.com',9765411231,'Kolkata',3),
(2,'mois','Ali',27, 'mois@jsq.com',9876543561,'Kolkata',3),
(3,'Soma','Paul',22, 'soma@wja.com',9966332211,'Delhi',1),
(4,'Zainab','Daginawala',40, 'zainab@qkq.com',9955884422,'Hydrabad',5),
(5,'Bhaskar','Reddy',32, 'bhaskar@xyz.com',96336963269,'Mumbai',2);
```

join_table:

```
SELECT EmpID
FROM employee
UNION
SELECT EmpID FROM
project;
```

join_table:

```
SELECT EmpID
FROM employee
UNION ALL
SELECT EmpID FROM
project;
```

INNER JOIN example:

```
SELECT employee.EmpID, employee.EmpFname, employee.EmpLname
FROM employee
INNER JOIN project ON employee.EmpID = project.EmpID;
```

INNER JOIN with WHERE clause:

```
SELECT employee.EmpID, employee.EmpFname, employee.EmpLname
FROM employee
INNER JOIN project ON employee.EmpID = project.EmpID WHERE project.EmpID = 2;
```

Multiple Inner Join:

```
SELECT employee.EmpID, employee.EmpFname,employee.age,client.clientID
FROM employee
INNER JOIN client ON employee.EmpID = client.EmpID;
```

Multiple Inner Join:

```
SELECTemployee.EmpID, employee.EmpFname,employee.age,client.clientID,project.ProjectID
FROM employee
INNER JOIN client ON employee.EmpID = client.EmpID
INNER JOIN project ON client.clientID = project.clientID;
```

INNER JOIN using GROUP BY for eliminating duplicate records:

```
SELECTemployee.EmpID, employee.EmpFname,employee.age,client.clientID,project.ProjectID
FROM employee
INNER JOIN client ON employee.EmpID = client.EmpID
INNER JOIN project ON client.clientID = project.clientID GROUP BY EmpID;
```

OUTPUT:

Creating Table Employee:

	EmpID	EmpFname	EmpLname	Age	EmailID	PhoneNo	Address
Edit Copy Delete	1	Vardhan	kumar	22	vardy@abc.com	2147483647	Delhi
Edit Copy Delete	2	Himani	Sharma	32	himani@abc.com	2147483647	mumbai
Edit Copy Delete	3	Aayushi	Shreshth	24	aayushi@abc.com	2147483647	Kolkkata
Edit Copy Delete	4	Hemanth	sharma	25	hemanth@abc.com	2147483647	Bangaluru
Edit Copy Delete	5	Swatee	kapoor	26	swatee@abc.com	2147483647	Hydrabad

Creating Table project:

	ProjectID	EmpID	ClientID	ProjectName	ProjectStarDate
Edit Copy Delete	111	1	3	Project1	2019-04-21
Edit Copy Delete	222	2	1	Project2	2019-02-12
Edit Copy Delete	333	3	5	Project3	2019-01-10
Edit Copy Delete	444	3	2	Project4	2019-04-16
Edit Copy Delete	555	5	4	Project5	2019-05-23
Edit Copy Delete	666	9	1	Project6	2019-01-12
Edit Copy Delete	777	7	2	Project7	2019-07-25
Edit Copy Delete	888	8	3	Project8	2019-08-20

Creating Table Client:

	ClientID	CliuentFname	ClientLname	Age	ClientEmailID	PhoneNo	Address	Empl
Edit Copy Delete	1	Susan	Smith	30	susan@adn.com	2147483647	Kolkata	3
Edit Copy Delete	2	mois	Ali	27	mois@jsq.com	2147483647	Kolkata	3
Edit Copy Delete	3	Soma	Paul	22	soma@wja.com	2147483647	Delhi	1
Edit Copy Delete	4	Zainab	Daginawala	40	zainab@qkq.com	2147483647	Hydrabad	5
Edit Copy Delete	5	Bhaskar	Reddy	32	bhaskar@xyz.com	2147483647	Mumbai	2

join_table:

INNER JOIN example:

EmpID	EmpFname	EmpLname
1	Vardhan	kumar
2	Himani	Sharma
3	Aayushi	Shreshth
3	Aayushi	Shreshth
5	Swatee	kapoor

INNER JOIN with WHERE clause:

EmpID	EmpFname	age	clientID
3	Aayushi	24	1
3	Aayushi	24	2
1	Vardhan	22	3
5	Swatee	26	4
2	Himani	32	5

EmpID	EmpFname	age	clientID	ProjectID
1	Vardhan	22	3	111
3	Aayushi	24	1	222
2	Himani	32	5	333
3	Aayushi	24	2	444
5	Swatee	26	4	555
3	Aayushi	24	1	666
3	Aayushi	24	2	777
1	Vardhan	22	3	888

INNER JOIN using GROUP BY for eliminating duplicate records:

EmpID	EmpFname	age	clientID	ProjectID
1	Vardhan	22	3	111
2	Himani	32	5	333
3	Aayushi	24	1	222
5	Swatee	26	4	555

DISCUSSION:

1. Inner join returns those records which have matching values in both tables.
2. if we perform an INNER join operation between the Employee table and the Projects table, all the tuples which have matching values in both the tables will be given as output.
3. Full Join or the Full Outer Join returns all those records which either have a match in the left(Table1) or the right(Table2) table.