#### **PRACTICAL-6**

| DATE: |  |
|-------|--|
|-------|--|

<u>AIM:</u> Join Queries- Inner Join, Outer Join Subqueries- With IN clause, With EXISTS clause

#### INPUT:-

| The second of th |
|--|
| Step-1: (veute Banklustomers, Accounts, Transactions tuble.  |
| 11 Bank Customers Table  |
| CREATE TABLE Bank (ustomers (  |
| Customer ID INT AUTO INCREMENT PRIMARY KEY   |
| FirstName VARCHAR(50) NOT NULL,  |
| Last Nume VAR(HAR(50) NOT NULL,  |
| DOB DATE NOT NULL,   |
| Grender (HAR(1),   |
| PhoneNumber VARCHAR(10) NOT NULL   |
| );   |
| 11 Accounts Table  |
| CREATE TABLE Accounts (  |
| ACCOUNTED INT AUTO INCREMENT PRIMARY KEY   |
| Lustomer ID INT,   |
| ACCOUNTTYPE VARCHAR(20) NOT NULL   |
| Balance DECIMAL (15,2) NOT NULL.   |
| TOREIGN KEY ((ustomer ID) REFERENCES   |
| BcmK(ustomers ((ustomer ID)  |
| );<br>————————————————————————————————————   |
| 11 Toursactions Tuble  |
| (REATE TABLE Transactions (  |
| Toursaction ID INT AUTO_INCREMENT PRIMARY KEY,   |
| H((ount10 1NT,   |
| Toursaction Date DATE NOT NULL,  |
| Amount DECIMAL (15,2) NOT NULL,  |
| Toursaction Type UARCHAR (20) NOT NULL,  |
| FORETON KEY (ACCOUNTID) REFERENCES   |
| Accounts (Account ID)  |
|  |

#### Step-2: Insert data into tables.

```
II Bank (ustomers Table
INSERT INTO Bank (ustomers
(First Name, Last Name, DoB, (render, Phone Number) VALUES
('John', 'Doe', '1980-01-15', 'M', '123456789'),
('Jane', 'Smith', '1985-65-23', 'F', '2345678901'),
('Alan', 'Brown', '1990-08-12', 'M', '3456789012');

II Accounts Table
INSERT INTO Accounts
((ustomerID, Account Type, Balance) VALUES
(1, 'Savings', 5000.00),
(1, 'Checking', 1500.00),
(1, 'Checking', 2000.00);
(1, 'Co24-01-10', 500.00, 'Deposit'),
(2, '2024-01-15', 200.00, 'Deposit');
```

## Step-3: Fetch the data

```
// Banklustomers Table

SELECT * FROM Banklustomers;

// Accounts Table

SELECT * FROM Accounts;

// Transactions Table

SELECT * FROM Transactions;
```

| 11 Bank Cust  |                      |                       |   | 1 100   | - 5161 | Name of the last              |
|---------------|----------------------|-----------------------|---|---------|--------|-------------------------------|
| (ustomer ID   | FirstName            | LastName              | DOB                                     | Gender  | Pho    | neNumber                      |
| 2 3           | John<br>Jane<br>Alan | Doe<br>Smith<br>Brown | 1980-01-151<br>1985-05-23<br>1990-08-12 | F       | 234    | 1567890<br>5678901<br>6789012 |
| 11 Accounts   | Table                |                       |   |         | 20     | 100 a WA                      |
| Account ID    | (ustomer I           | D   Accour            | nt Type !                               | Balance | e      | and and                       |
| 2             | 2                    | Savi<br>(heck         | ing !                                   | 5000.0  | 0      |                               |
| 3             | Tue                  | [ Check               | sing !                                  | 2000.0  | 0      |                               |
| 11 Taunsactio |                      | 200                   | Though I                                | aprio 1 |        | 0 10                          |
| Transaction   | ID! Accour           | +In Tran              | saction D                               | ate Amo | ant    | ToansactionType               |
| 1             | 1 1                  | 202                   | 4-01-10                                 | 1       | 00.0   | Deposit                       |
| 3             | 3                    |                       | 4-01-15                                 |         | 0.00   | Withdoogwal<br>Deposit        |

a). Join Queries:

is. Inner Join:

| Bank (ustomers. (ustomerID, Bank (ustomers. FirstName, Bunk (ustomers. LastName, Accounts. Account Type, Accounts. Balance FROM Bank (ustomers INNER JOIN Accounts | A                         |
|--|---------------------------|
| Bunklustomers. LastName, Accounts. Account Type, Accounts. Balance FROM Bunklustomers INNER JOIN Accounts  | The state of the state of |
| Accounts. Account Type, Accounts. Balance FROM Banklustomers INNER JOIN Accounts   |                           |
| FROM Banklustomers INNER JOIN Accounts   | In the second             |
| FROM Banklustomers INNER JOIN Accounts   | Sant V                    |
| Banklustomers INNER JOIN Accounts  | America .                 |
| INNER JOIN<br>Accounts   |                           |
| Accounts   |                           |
|  | Sold                      |
| OIV  |                           |
| A White was historian In -   | Contract of               |
| Banklustomers. Customer ID = Accounts. Custor  | neald;                    |

| (ustome »ID     | FirstName | LastName | Account Type | Balance |
|-----------------|-----------|----------|--------------|---------|
| 1               | John      | i Doe    | Savings      | 5000.00 |
| 2               | Jane      | : Smith  | Checking     | 1500.00 |
| The designation | John      | Doe      | Checking     | 2000.00 |

## ii). Left Join:

| SELECT                                       |   |
|--|---|
| Bank (ustomers, Customer ID,                 |   |
| Bank (ustomers. FirstName,                   |   |
| Banklustomers. LastName,                     | * |
| Accounts. Account Type,<br>Accounts. Balance |   |
| Accounts. Balance                            | Jein Chesiss :-                         |
| FROM   |   |
| Bank (ustomers                               | Taylor Later 12                         |
| LEFT JOIN                                    |   |
| Accounts                                     |   |
| ON   |   |
| Bank (ustomers, (ustomer ID =                | Accounts : (ustomer ID ;                |
|  |   |

|        |              |                        | Balance                               |
|--------|--------------|------------------------|---------------------------------------|
| John   | Doe          | Savings                | 5000.00                               |
| John   | Doe          | ! (hecking !           | 2000.00                               |
| Tane ! | Smith        | i Checking !           | 1500.00                               |
| Alan ! | Brown        | ! NOLL !               | NULL                                  |
|        | John<br>Jane | John Doe<br>Jane Smith | John Doe Checking Tane Smith Checking |

# iii). Right Join :-

| SELECT                                     | in the same of the |
|--|--|
| Banklustomers. Customer ID,                | A SCHOOLSE   |
| Bank Customers. First Name.                |  |
| Bank (ustomers, Last Name.                 |  |
| Accounts. Account Type, Accounts. Balance  |  |
| Accounts Balance                           | THE PARTY OF THE P |
| FROM                                       |  |
| Banklustomers                              | TOTAL STATE  |
| RIGHTJOIN                                  | 2  |
| Accounts                                   | A STATISTICAL I  |
| ON   |  |
| Banklustomers. Customer ID = Accounts. Cus | tomer To:  |
|  |  |

| LustomerID | tiostName | LustName | AccountType | Balance |
|------------|-----------|----------|-------------|---------|
|            | John      | Doe      | Savings     | 5000.00 |
| 2 !        | Jane      | Smith    | Checking    | 1500.00 |
|            | 7000      | Doe      | Checking !  | 2000.00 |

iv). Full-Outer Join:

| SELECT                                    |
|---|
| Banklustomers. (ustomer ID,               |
| Banklustomers. Frost Name,                |
| Banklustomers. Last Name,                 |
| Accounts. Account Type, Accounts. Balance |
| Accounts. Balance                         |
| FROM                                      |
| Banklustomers                             |
| FULL OUTER JOIN                           |
| Accounts                                  |
| ON  |
| Bank(ustomers. (ustomerID =               |
| Accounts. (ustomer ID:                    |
|   |

| ustomerI | FirstName | LastName | Account Type | Balance |
|----------|-----------|----------|--------------|---------|
| 1        | John      | Doe      | Savings      | 5000.00 |
| 2        | Jane      | Smith    | (hecking     | 1500.00 |
| 1        | 1 John    | Doe      | Checking     | 2000.00 |
| 3        | Alan      | Brown    | NULL 1       | NULL    |

## V). (ROSS Join :-

| SELECT                      |
|-----------------------------|
| Bunk (ustomers, first Name, |
| Bunk (ustomers. Last Name,  |
| Accounts. Account Type,     |
| Accounts. Balance           |
| FROM                        |
| Banklustomers               |
| (ROSS JOIN                  |
| Accounts ;                  |

| FirstName | LastName | AccountType | Balance |
|-----------|----------|-------------|---------|
| John      | Doe      | Savings     | 5000.00 |
| John      | Doe      | (heching    | 2000.00 |
| Jane      | Smith    | Savings     | 5000.00 |
| Jane      | ' Smith  | Checking    | 2000.00 |
| Alan      | Brown    | Savings     | 5000.00 |
| Alan      | Brown    | Checking    | 2000.00 |

## vi). Self-Join:

| SELECT  |                       |
|---|-----------------------|
| 91 AccountID AS AccountIDI,                                     |                       |
| at (ustomex ID AS (ustomer ID)                                  | Company of the second |
| 91. AccountType AS AccountType 1,                               |                       |
| 91. AccountType As AccountType 1,<br>91. Balance As Balance 1,  |                       |
| as Account TD AS Account 102,                                   |                       |
| as Customer TD AG (LISTOMER TD2)                                |                       |
| 92. Account Type As Account Type 2,<br>92. Balance As Balance 2 |                       |
| 92 Balance As Balance 2   |                       |
| FROM  |                       |
| Accounts 91   |                       |
| INNER JOIN  |                       |
| Accounts 92   |                       |
| ON  |                       |
| a1. (ustomer ID = 92. (ustomer ID                               |                       |
| AND at. Balance > az. Balance;                                  |                       |
|   |                       |

| AccountIDI (u | StomerIDI | AccountTypeI | Balancet  | Account 202 | (ustomer ID2 |
|---------------|-----------|--------------|-----------|-------------|--------------|
| 1 1           | 1         | Saving s     | 5000,00   | 3           | 1            |
| Account Type  | 0   0 .   | 9            | , 5000,00 |             |              |

# b). Subqueries with IN and Exists Clause:

SFLECT
FirstName.

LastName.

FROM

Bank(ustomers

WHERE

(ustomerID IN (

SELECT DISTINCT (ustomerID

FROM Accounts

WHERE AccountID IN (

SELECT AccountD

FROM Transactions

)

);

FirstName | LastName |
John | Doe |
Jane | Smith

### ii) Fxists (lause :-

SELECT
FirstName,
LastName
From
Banklustomers bc
WHERE
EXISTS (
Select 1
FROM Accounts 9

JOIN Transactions t ON a. Account ID = t. Account ID
WHERE bc. (ustomer ID = a. (ustomer ID)

);

| 1 | F2 101            |                   |  |
|---|-------------------|-------------------|--|
|   | FirstName         | LastName          |  |
|   | John              | Doe               |  |
|   | Jane !            | Smith             |  |
|   | ı                 |                   |  |
|   |                   |                   |  |
|   | Marie E           | Large             |  |
|   |                   |                   |  |
|   |                   |                   |  |
|   |                   |                   |  |
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