

Bank Database – JOIN Queries

1. Display branch ID, name, and the name of the employee who manages it.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'BankingSystem'. A query window in the center contains the following SQL code:

```
SELECT b.B_ID,
       b.address AS Branch_Address,
       e.emp_name AS Manager_Name
  FROM Branch b
 JOIN Employee e ON b.B_ID = e.B_ID
 WHERE e.position = 'Manager';
```

The results pane shows the output of the query:

B_ID	Branch_Address	Manager_Name
1	Muscat, Oman	All Al Maskari

A message at the bottom of the results pane says "Query executed successfully."

2. Display branch names and the accounts opened under each.

The screenshot shows the Microsoft SQL Server Management Studio interface. The Object Explorer on the left shows the database structure for 'BankingSystem'. A query window in the center contains the following SQL code:

```
SELECT b.address AS Branch_Address,
       a.acc_num,
       a.balance
  FROM Branch b
 JOIN Employee e ON b.B_ID = e.B_ID
 JOIN Account a ON e.emp_ID IN (
    SELECT emp_ID
    FROM Employee_Customer ec
    WHERE ec.cus_ID = a.cus_ID
);
```

The results pane shows the output of the query:

Branch_Address	acc_num	balance
Muscat, Oman	3001	5000.00
Muscat, Oman	3002	10000.00
Salalah, Oman	3003	7500.00
Salalah, Oman	3004	12000.00
Muscat, Oman	3005	3000.00

A message at the bottom of the results pane says "Query executed successfully."

3. Display full customer details along with their loans.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
    c.*,
    l.loan_ID,
    l.loan_type,
    l.loan_amount,
    l.loan_issue_date
FROM Customer c
LEFT JOIN Loan l ON c.cus_ID = l.cus_ID
JOIN Account a ON e.emp_ID IN (
    SELECT emp_ID
    FROM Employee_Customer ec
    WHERE ec.cus_ID = a.cus_ID
)

```

Results

cus_ID	cut_name	cut_address	cut_phone_num	BD	loan_ID	loan_type	loan_amount	loan_issue_date
1	Neera Al Mekari	Muscat	91246567	1990-05-12	5001	Personal Loan	5000.00	2025-01-15
2	Sultan Al Faris	Salalah	9234678	1985-11-20	5002	Car Loan	10000.00	2025-01-20
3	Layla Al Lewati	Muscat	93456789	1992-07-30	5003	Home Loan	15000.00	2025-02-01
4	Khalid Al Raisani	Salalah	94567890	1988-02-15	5004	Education Loan	7000.00	2025-02-10
5	Huda Al Hashmi	Muscat	95678901	1995-09-25	5005	Business Loan	12000.00	2025-02-15

Query executed successfully.

4. Display loan records where the loan office is in 'Salalah or Muscat'.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
    l.loan_type,
    l.loan_amount,
    l.loan_issue_date
FROM Customer c
LEFT JOIN Loan l ON c.cus_ID = l.cus_ID;

SELECT
    l.*,
    e.emp_name AS Loan_Officer,
    b.address AS Branch_Address
FROM Loan l
JOIN Employee e ON l.emp_ID = e.emp_ID
JOIN Branch b ON e.B_ID = b.B_ID
WHERE b.address LIKE '%Salalah%' OR b.address LIKE '%Muscat%';

```

Results

loan_ID	loan_type	loan_issue_date	loan_amount	emp_ID	cus_ID	Loan_Officer	Branch_Address
1	Home Loan	2025-02-01	15000.00	101	203	All Al Mekari	Muscat, Oman
2	Business Loan	2025-02-15	12000.00	101	205	All Al Mekari	Muscat, Oman
3	Personal Loan	2025-01-15	5000.00	103	201	Hamed Al Lewati	Salalah, Oman
4	Car Loan	2025-01-20	10000.00	103	202	Hamed Al Lewati	Salalah, Oman
5	Education Loan	2025-02-10	7000.00	103	204	Hamed Al Lewati	Salalah, Oman

Query executed successfully.

5. Display account data where the type starts with "S" (e.g., "Savings").

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
a.*
FROM Account a
JOIN Account_Type at ON a.account_type_id = at.account_type_id
WHERE at.type_name LIKE 'SA';

```

Results

acc_num	balance	date_of_creation	account_type_id	cus_ID
3001	5000.00	2025-01-01	1	201
3003	7500.00	2025-02-01	1	203
3005	3000.00	2025-04-01	1	205

Query executed successfully.

6. List customers with accounts having balances between 2,000 and 5,000.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
c.cus_ID,
c.cus_name,
a.acc_num,
a.balance
FROM Customer c
JOIN Account a ON c.cus_ID = a.cus_ID
WHERE a.balance BETWEEN 2000 AND 5000;

```

Results

cus_ID	cus_name	acc_num	balance
201	Neera Al Madani	3001	5000.00
205	Huda Al Hesni	3005	3000.00

Query executed successfully.

7. Retrieve customer names who borrowed more than 100,000 LE from 'Muscat Branch'.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
    c.cus_name,
    l.loan_amount,
    b.address AS Branch_Address
FROM Loan l
JOIN Account a ON c.cus_ID = a.cus_ID
WHERE a.balance BETWEEN 2000 AND 5000;

SELECT
    c.cus_name,
    l.loan_amount,
    b.address AS Branch_Address
FROM Loan l
JOIN Customer c ON l.cus_ID = c.cus_ID
JOIN Employee e ON l.emp_ID = e.emp_ID
JOIN Branch b ON e.B_ID = b.B_ID
WHERE l.loan_amount > 100000
AND b.address = 'Muscat';

```

Results

cus_name	loan_amount	Branch_Address
John Doe	150000	Muscat
Jane Smith	180000	Muscat
Mike Johnson	200000	Muscat
Sarah Williams	220000	Muscat
David Brown	250000	Muscat
Alice Green	280000	Muscat
Brian White	300000	Muscat
Cathy Black	320000	Muscat
Derek Grey	350000	Muscat
Eve Blue	380000	Muscat
Fiona Red	400000	Muscat
Gordon Purple	420000	Muscat
Hannah Orange	450000	Muscat
Ivan Yellow	480000	Muscat
Jessica Green	500000	Muscat
Karen Blue	520000	Muscat
Liam Purple	550000	Muscat
Mia Yellow	580000	Muscat
Natalie Green	600000	Muscat
Oscar Purple	620000	Muscat
Parker Yellow	650000	Muscat
Quinn Green	680000	Muscat
Riley Purple	700000	Muscat
Sophia Yellow	720000	Muscat
Taylor Green	750000	Muscat
Ulysses Purple	780000	Muscat
Vivian Yellow	800000	Muscat
Wade Green	820000	Muscat
Xavier Purple	850000	Muscat
Yara Yellow	880000	Muscat
Zander Green	900000	Muscat

Query executed successfully.

8. Find all customers assisted by employee "Amira Khaled".

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

SELECT
    c.cus_name,
    ec.action_type
FROM Employee_Customer ec
JOIN Customer c ON ec.cus_ID = c.cus_ID
JOIN Employee e ON ec.emp_ID = e.emp_ID
WHERE e.emp_name = 'Amira Khaled';

```

Results

cus_name	action_type
John Doe	Approve
Jane Smith	Approve
Mike Johnson	Approve
Sarah Williams	Approve
David Brown	Approve
Alice Green	Approve
Brian White	Approve
Cathy Black	Approve
Derek Grey	Approve
Eve Blue	Approve
Fiona Red	Approve
Gordon Purple	Approve
Hannah Orange	Approve
Ivan Yellow	Approve
Jessica Green	Approve
Karen Blue	Approve
Liam Purple	Approve
Mia Yellow	Approve
Natalie Green	Approve
Oscar Purple	Approve
Parker Yellow	Approve
Quinn Green	Approve
Riley Purple	Approve
Sophia Yellow	Approve
Taylor Green	Approve
Ulysses Purple	Approve
Vivian Yellow	Approve
Wade Green	Approve
Xavier Purple	Approve
Yara Yellow	Approve
Zander Green	Approve

Query executed successfully.

9. Display each customer's name and the accounts they hold, sorted by account type.

```

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

Object Explorer
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[...]
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dbo.Employee
dbo.Project
dbo.Works_for
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External Resources
Synonyms
Programmability
Service Broker
Storage
Security
Company DataBase
CompanyDB
CompanyProjectDB
HotelDB
LibraryDB
LibraryBase
Security
Server Objects
Replication
PolyBase
Always On Availability

banking system.sql [banking system] -> Execute
SELECT
    c.cus_name,
    a.acc_num,
    at.type_name AS Account_Type
FROM Customer c
JOIN Account a ON c.cus_ID = a.cus_ID
JOIN Account_Type at ON a.account_type_id = at.account_type_id
ORDER BY c.cus_name, at.type_name;

Results (5 rows)
cus_name acc_num Account_Type
1 Huda Al Hashmi 3005 Savings
2 Khalid Al Riyami 3004 Checking
3 Layla Al Lewati 3003 Savings
4 Noura Al Maskari 3001 Savings
5 Sultan Al Farsi 3002 Checking

```

Query executed successfully.

10. For each loan issued in Muscat, show loan ID, customer name, employee handling it, and branch name.

```

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

Object Explorer
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External Tables
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dbo.Departments
dbo.Dependents
dbo.Employee
dbo.Project
dbo.Works_for
Views
External Resources
Synonyms
Programmability
Service Broker
Storage
Security
Company DataBase
CompanyDB
CompanyProjectDB
HotelDB
LibraryDB
LibraryBase
Security
Server Objects
Replication
PolyBase
Always On Availability

banking system.sql [banking system] -> Execute
SELECT
    l.loan_ID,
    c.cus_name,
    e.emp_name AS Employee_Name,
    b.address AS Branch_Address
FROM Loan l
JOIN Customer c ON l.cus_ID = c.cus_ID
JOIN Employee e ON l.emp_ID = e.emp_ID
JOIN Branch b ON e.B_ID = b.B_ID
WHERE b.address LIKE '%Muscat%';

Results (2 rows)
loan_ID cus_name Employee_Name Branch_Address
1 5003 Layla Al Lewati Ali Al Maskari Muscat, Oman
2 5005 Huda Al Hashmi Ali Al Maskari Muscat, Oman

```

Query executed successfully.

11. Display all employees who manage any branch.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

FROM Loan l
JOIN Customer c ON l.cus_ID = c.cus_ID
JOIN Employee e ON l.emp_ID = e.emp_ID
JOIN Branch b ON e.B_ID = b.B_ID
WHERE b.address LIKE '%Muscat%';

SELECT
    e.emp_name,
    b.address AS Branch_Address
FROM Employee e
JOIN Branch b ON e.B_ID = b.B_ID
WHERE e.position = 'Manager';

```

Results

	emp_name	Branch_Address
1	All Al Maskari	Muscat, Oman

Query executed successfully.

12. Display all customers and their transactions, even if some customers have no transactions yet.

banking system.sql - DESKTOP-GILBFIO.BankingSystem (DESKTOP-GILBFIO\neura (52)) - Microsoft SQL Server Management Studio (Administrator)

```

WHERE e.position = 'Manager';

SELECT
    c.cus_name,
    bt.trans_ID,
    bt.trans_amount,
    bt.trans_date,
    tt.trans_type_name
FROM Customer c
LEFT JOIN Account a ON c.cus_ID = a.cus_ID
LEFT JOIN Bank_Transaction bt ON a.acc_num = bt.acc_num
LEFT JOIN Transaction_Type tt ON bt.trans_type_id = tt.trans_type_id
ORDER BY c.cus_name;

```

Results

	cus_name	trans_ID	trans_amount	trans_date	trans_type_name
1	Huda Al Hashmi	4005	700.00	2025-02-05	Withdrawal
2	Khalid Al Riyami	4004	1500.00	2025-02-01	Deposit
3	Layla Al Lewati	4003	2000.00	2025-01-12	Transfer
4	Noura Al Madani	4001	1000.00	2025-01-10	Deposit
5	Sultan Al Persi	4002	500.00	2025-01-11	Withdrawal

Query executed successfully.