

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 Enterprise Manager interface. The Object Explorer on the left displays the database structure. The central query window contains the following SQL query:

```
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 at the bottom displays the output of the query:

B_ID	Branch_Address	Manager_Name
1	Muscat, Oman	Ali Al Hashari

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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The Object Explorer on the left displays the database structure. The central query window contains the following SQL query:

```
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 at the bottom displays the output of the query:

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

3. Display full customer details along with their loans.

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a query window with the following SQL code:

```

JOIN Account a ON e.emp_ID IN (
SELECT emp_ID
FROM Employee_Customer ec
WHERE ec.cus_ID = a.cus_ID
);

SELECT
c.cus_ID,
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

```

The 'Results' pane displays the following data:

cus_ID	cus_name	cus_address	cus_phone_num	lD	loan_ID	loan_type	loan_amount	loan_issue_date
201	Noura Al Maskari	Muscat	91234567	1990-05-12	5001	Personal Loan	5000.00	2025-01-15
202	Sultan Al Farsi	Salalah	92345678	1985-11-20	5002	Car Loan	10000.00	2025-01-20
203	Layla Al Lamsi	Muscat	93456789	1992-07-30	5003	Home Loan	15000.00	2025-02-01
204	Khalid Al Riyami	Salalah	94567890	1988-02-15	5004	Education Loan	7000.00	2025-02-10
205	Huda Al Hashri	Muscat	95678901	1995-09-25	5005	Business Loan	12000.00	2025-02-15

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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a query window with the following SQL code:

```

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.loan_type,
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%';

```

The 'Results' pane displays the following data:

loan_ID	loan_type	loan_issue_date	loan_amount	emp_ID	cus_ID	Loan_Officer	Branch_Address
5003	Home Loan	2025-02-01	15000.00	101	203	Ali Al Maskari	Muscat, Oman
5005	Business Loan	2025-02-15	12000.00	101	205	Ali Al Maskari	Muscat, Oman
5001	Personal Loan	2025-01-15	5000.00	103	201	Hamad Al Lamsi	Salalah, Oman
5002	Car Loan	2025-01-20	10000.00	103	202	Hamad Al Lamsi	Salalah, Oman
5004	Education Loan	2025-02-10	7000.00	103	204	Hamad Al Lamsi	Salalah, Oman

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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a SQL query window with the following query:

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

The 'Results' pane at the bottom displays the query output as a table with 3 rows and 5 columns:

	acc_num	balance	date_of_creation	account_type_id	cus_ID
1	3001	5000.00	2023-01-01	1	201
2	3003	7500.00	2023-02-01	1	203
3	3005	3000.00	2023-04-01	1	205

The status bar at the bottom indicates 'Query executed successfully' and '3 rows'.

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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a SQL query window with the following query:

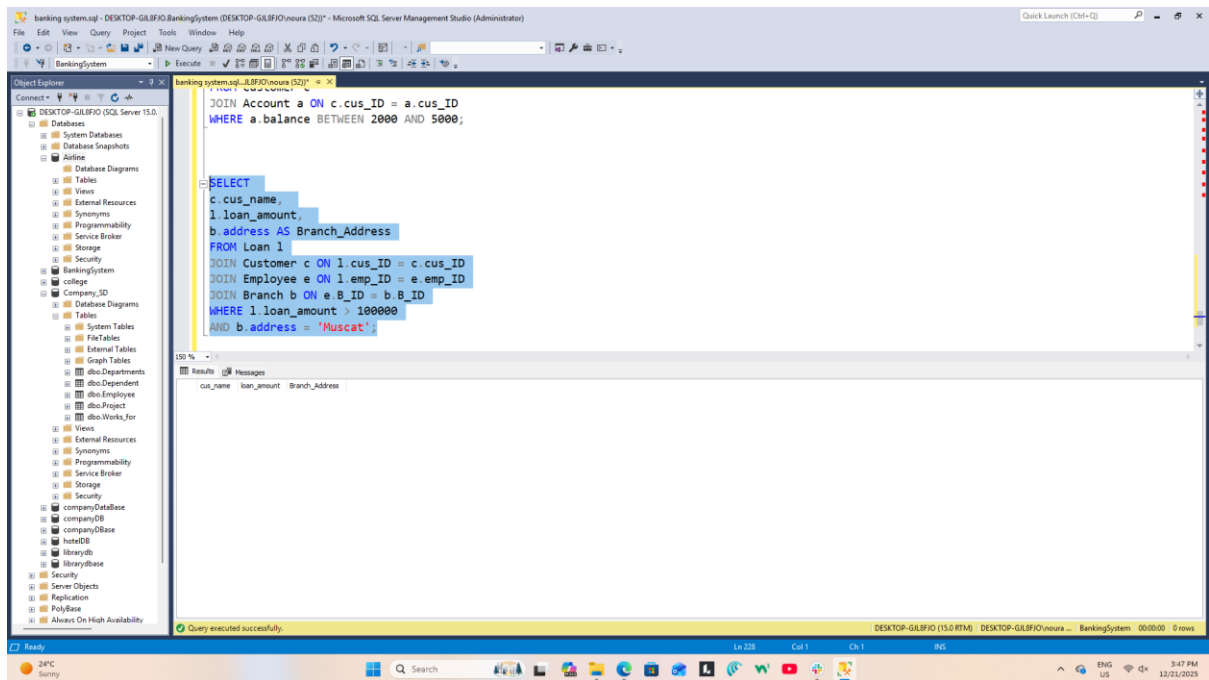
```
SELECT
c.cus_ID,
c.cus_name,
a.acc_num,
a.balance
FROM Customer c
JOIN Account a ON c.cus_ID = a.cus_ID
WHERE a.balance BETWEEN 2000 AND 5000;
```

The 'Results' pane at the bottom displays the query output as a table with 2 rows and 4 columns:

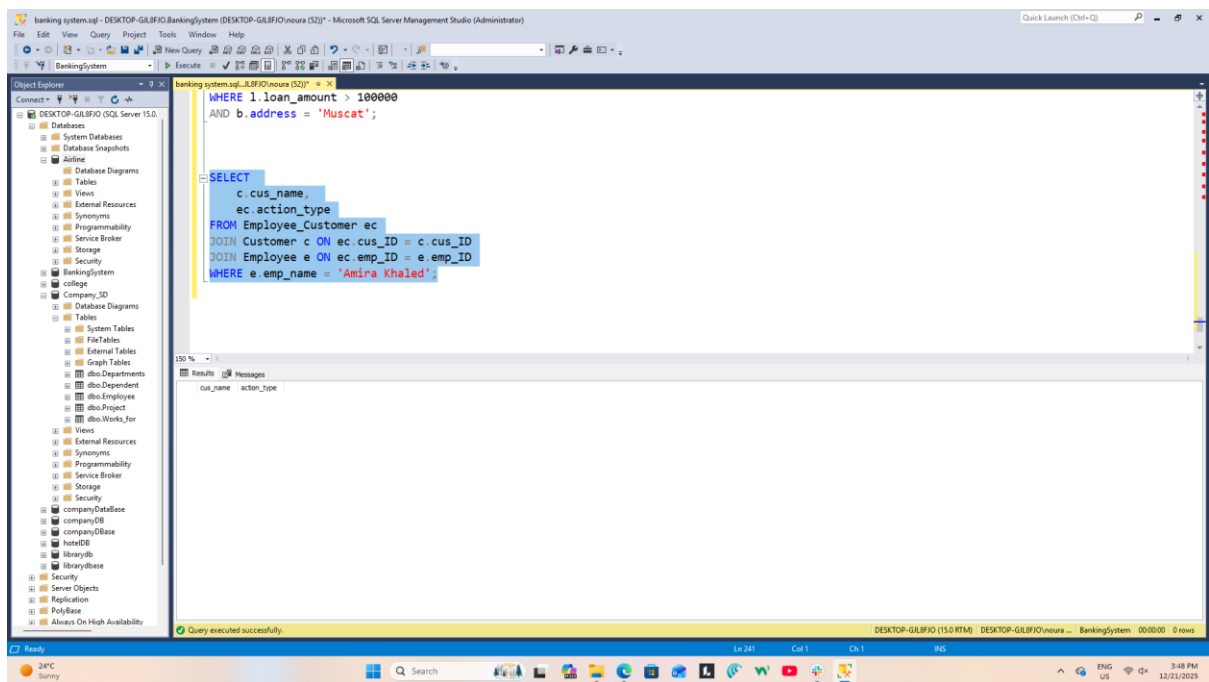
	cus_ID	cus_name	acc_num	balance
1	201	Noura Al Hashari	3001	5000.00
2	205	Huda Al Hashari	3005	3000.00

The status bar at the bottom indicates 'Query executed successfully' and '2 rows'.

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



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



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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a SQL query window with the following query:

```

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';

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;

```

The query results are displayed in a table with the following data:

cus_name	acc_num	Account_Type
Huda Al Hashmi	3005	Savings
Khalid Al Riyami	3004	Checking
Layla Al Lami	3003	Savings
Noura Al Maskari	3001	Savings
Sultan Al Farsi	3002	Checking

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

The screenshot shows the Microsoft SQL Server Enterprise Manager interface. The left pane displays the 'Object Explorer' with the 'BankingSystem' database selected. The right pane shows a SQL query window with the following query:

```

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%';

```

The query results are displayed in a table with the following data:

loan_ID	cus_name	Employee_Name	Branch_Address
5003	Layla Al Lami	Ali Al Maskari	Muscat, Oman
5005	Huda Al Hashmi	Ali Al Maskari	Muscat, Oman

11. Display all employees who manage any branch.

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```

FROM Loan 1
JOIN Customer c ON 1.cus_ID = c.cus_ID
JOIN Employee e ON 1.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';

```

The Results pane shows the output of the second query:

emp_name	Branch_Address
Ali Al Maskari	Muscat, Oman

The status bar at the bottom indicates "Query executed successfully." and "1 row(s)".

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

The screenshot shows the Microsoft SQL Server Management Studio interface. The query editor contains the following SQL code:

```

WHERE e.position = 'Manager';

SELECT
c.cus_name,
bt.tran_ID,
bt.tran_amount,
bt.tran_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;

```

The Results pane shows the output of the query:

cus_name	tran_ID	tran_amount	tran_date	trans_type_name
Muhammad Al Hashmi	4005	700.00	2025-02-05	Withdrawal
Khalid Al Riyami	4004	1500.00	2025-02-01	Deposit
Layla Al Lawati	4003	2000.00	2025-01-12	Transfer
Noura Al Maskari	4001	1000.00	2025-01-10	Deposit
Sultan Al Farsi	4002	500.00	2025-01-11	Withdrawal

The status bar at the bottom indicates "Query executed successfully." and "5 row(s)".