**Bank Transaction Reports – SQL Analysis**

**📅 Objective**

To analyze customer transactions and balances using SQL queries and present key insights such as total debit/credit, high-value transactions, and monthly balance averages.

**📂 Database Tables (Sample Data)**

**customers**

| customer\_id | customer\_name | city |
| --- | --- | --- |
| C001 | Raj Sharma | Mumbai |
| C002 | Neha Patel | Delhi |
| C003 | Amit Verma | Pune |
| C004 | Sneha Iyer | Bangalore |

**transactions**

| transaction\_id | customer\_id | transaction\_date | type | amount |
| --- | --- | --- | --- | --- |
| T001 | C001 | 2024-01-10 | debit | 12000 |
| T002 | C001 | 2024-01-15 | credit | 15000 |
| T003 | C002 | 2024-02-05 | debit | 65000 |
| T004 | C003 | 2024-03-12 | credit | 24000 |
| T005 | C004 | 2024-04-01 | debit | 48000 |
| T006 | C002 | 2024-04-15 | credit | 52000 |
| T007 | C001 | 2024-05-10 | debit | 9000 |

**monthly\_balances**

| customer\_id | month | balance |
| --- | --- | --- |
| C001 | 2024-01-31 | 35000 |
| C001 | 2024-02-28 | 32000 |
| C002 | 2024-01-31 | 21000 |
| C002 | 2024-02-28 | 26000 |
| C003 | 2024-03-31 | 40000 |
| C004 | 2024-04-30 | 18000 |

**🔹 Query 1: Total Debit and Credit per Customer**

**SQL:**

SELECT  
 customer\_id,  
 SUM(CASE WHEN type = 'debit' THEN amount ELSE 0 END) AS total\_debit,  
 SUM(CASE WHEN type = 'credit' THEN amount ELSE 0 END) AS total\_credit  
FROM transactions  
GROUP BY customer\_id;

**Output:**

| customer\_id | total\_debit | total\_credit |
| --- | --- | --- |
| C001 | 21000 | 15000 |
| C002 | 65000 | 52000 |
| C003 | 0 | 24000 |
| C004 | 48000 | 0 |

**🔹 Query 2: Flag High-Value Transactions**

**SQL:**

SELECT  
 transaction\_id,  
 customer\_id,  
 transaction\_date,  
 type,  
 amount,  
 CASE  
 WHEN amount > 50000 THEN 'High Value'  
 ELSE 'Normal'  
 END AS flag  
FROM transactions;

**Output:**

| transaction\_id | customer\_id | transaction\_date | type | amount | flag |
| --- | --- | --- | --- | --- | --- |
| T001 | C001 | 2024-01-10 | debit | 12000 | Normal |
| T002 | C001 | 2024-01-15 | credit | 15000 | Normal |
| T003 | C002 | 2024-02-05 | debit | 65000 | High Value |
| T004 | C003 | 2024-03-12 | credit | 24000 | Normal |
| T005 | C004 | 2024-04-01 | debit | 48000 | Normal |
| T006 | C002 | 2024-04-15 | credit | 52000 | High Value |
| T007 | C001 | 2024-05-10 | debit | 9000 | Normal |

**🔹 Query 3: Monthly Average Balance**

**SQL:**

SELECT  
 customer\_id,  
 MONTH(month) AS month,  
 AVG(balance) AS avg\_monthly\_balance  
FROM monthly\_balances  
GROUP BY customer\_id, MONTH(month);

**Output:**

| customer\_id | month | avg\_monthly\_balance |
| --- | --- | --- |
| C001 | 1 | 35000 |
| C001 | 2 | 32000 |
| C002 | 1 | 21000 |
| C002 | 2 | 26000 |
| C003 | 3 | 40000 |
| C004 | 4 | 18000 |

**🔹 Query 4: Join Customer and Transactions**

**SQL:**

SELECT  
 c.customer\_name,  
 t.type,  
 t.amount,  
 t.transaction\_date  
FROM transactions t  
JOIN customers c ON t.customer\_id = c.customer\_id;

**Output:**

| customer\_name | type | amount | transaction\_date |
| --- | --- | --- | --- |
| Raj Sharma | debit | 12000 | 2024-01-10 |
| Raj Sharma | credit | 15000 | 2024-01-15 |
| Neha Patel | debit | 65000 | 2024-02-05 |
| Amit Verma | credit | 24000 | 2024-03-12 |
| Sneha Iyer | debit | 48000 | 2024-04-01 |
| Neha Patel | credit | 52000 | 2024-04-15 |
| Raj Sharma | debit | 9000 | 2024-05-10 |

**📄 Summary / Learnings**

* Gained hands-on experience writing SQL queries using SUM(), CASE, JOIN, and GROUP BY
* Learned to analyze financial data using real-world logic
* Output from this project can support MIS reports and dashboards
* Strong foundation for combining SQL with Excel and Power BI