**BANK CHURN ANALYSIS**

**Database Used - MS SQL Server DB**

This project aims to analyse bank customer data to uncover insights about financial behaviour, credit utilization, income patterns, and risk assessment. Instead of focusing on churn or retention, the project emphasizes:

The **Banking and Financial Analytics** domain revolves around using data-driven insights to optimize banking operations, enhance customer experience, and mitigate risks. Banks collect vast amounts of data from customer transactions, credit histories, and financial behaviour, which are analysed to make informed business decisions.

In this domain, various analytical techniques are used to understand customer segmentation, assess credit risk, detect fraud, and improve financial product offerings. The primary goal is to enhance financial stability while maximizing customer retention and profitability.

* **Customer Segmentation** (by age, income, education, and credit behaviour)
* **Credit Utilization & Risk Analysis**
* **Spending Behaviour & Financial Health**
* **High-Value Customer Identification**
* **Dormant & High-Risk Accounts**

By leveraging SQL queries, we can generate key performance indicators (KPIs) that help banks make data-driven decisions for personalized services, risk mitigation, and marketing strategies.

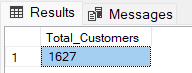
**Business Impact:**

* **Better Credit Risk Management –** Identify high-risk customers before they default.
* **Personalized Banking Services –** Offer premium services to high-net-worth individuals.
* **Marketing Optimization –** Focus on high-potential customers for financial products.
* **Enhanced Customer Retention Strategies –** Detect dormant accounts & re-engage customers.

**KPI’s Requirements:**

1. **Total Customers:**

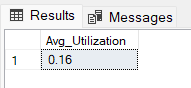
SELECT COUNT(clientnum) AS Total\_Customers FROM bank\_churn\_data;

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1. **Average Utilization Ratio:**

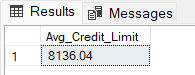
SELECT ROUND(AVG(utilization\_ratio), 2) AS Avg\_Utilization

FROM bank\_churn\_data;

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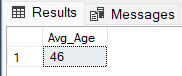
1. **Average Credit Limit:**

SELECT ROUND(AVG(credit\_limit),2) AS Avg\_Credit\_Limit FROM bank\_churn\_data;

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1. **Average Age:**

SELECT AVG(customer\_age) AS Avg\_Age FROM bank\_churn\_data;

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**GRANULAR ANALYSIS**

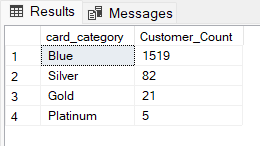
1. **Customer Distribution by Card Category**

SELECT card\_category, COUNT(clientnum) AS Customer\_Count

FROM bank\_churn\_data

GROUP BY card\_category

ORDER BY Customer\_Count DESC;

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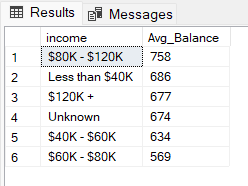
1. **Average Balance by Income Level**

SELECT income, AVG(balance) AS Avg\_Balance

FROM bank\_churn\_data

GROUP BY income

ORDER BY Avg\_Balance DESC;



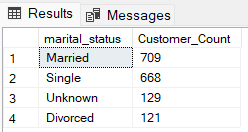
1. **Customers by Marital Status**

SELECT marital\_status, COUNT(clientnum) AS Customer\_Count

FROM bank\_churn\_data

GROUP BY marital\_status

ORDER BY Customer\_Count DESC;

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1. **Customers Segmentation by Age Group**

SELECT

CASE

WHEN customer\_age BETWEEN 18 AND 25 THEN '18-25'

WHEN customer\_age BETWEEN 26 AND 35 THEN '26-35'

WHEN customer\_age BETWEEN 36 AND 45 THEN '36-45'

WHEN customer\_age BETWEEN 46 AND 55 THEN '46-55'

ELSE '56+'

END AS Age\_Group,

COUNT(clientnum) AS Total\_Customers

FROM bank\_churn\_data

GROUP BY CASE

WHEN customer\_age BETWEEN 18 AND 25 THEN '18-25'

WHEN customer\_age BETWEEN 26 AND 35 THEN '26-35'

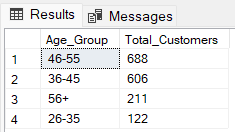
WHEN customer\_age BETWEEN 36 AND 45 THEN '36-45'

WHEN customer\_age BETWEEN 46 AND 55 THEN '46-55'

ELSE '56+'

END

ORDER BY Total\_Customers DESC;

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1. **Highest Credit Utilization Customers (Top 10)**

SELECT TOP 10

clientnum,

customer\_age,

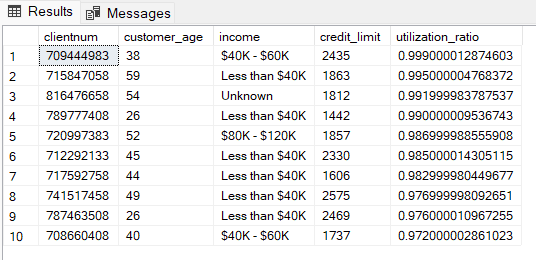
income,

credit\_limit,

utilization\_ratio

FROM bank\_churn\_data

ORDER BY utilization\_ratio DESC;

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1. **Customers with High Credit Limit but Low Balance (Top 10)**

SELECT TOP 10

clientnum,

customer\_age,

income,

credit\_limit,

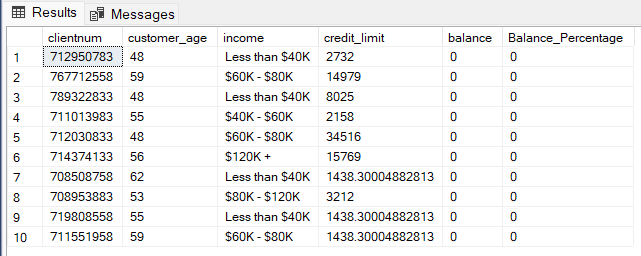
balance,

ROUND((balance \* 100.0 / credit\_limit), 2) AS Balance\_Percentage

FROM bank\_churn\_data

WHERE balance < (0.2 \* credit\_limit)

ORDER BY Balance\_Percentage ASC;

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1. **Customers with the Longest Relationship (Top 10 by Tenure)**

SELECT TOP 10

clientnum,

customer\_age,

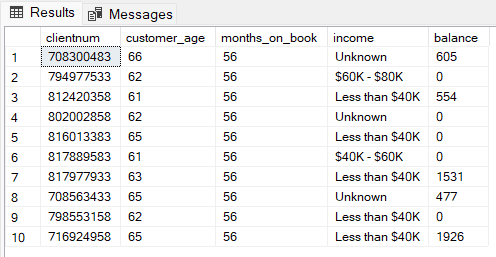
months\_on\_book,

income,

balance

FROM bank\_churn\_data

ORDER BY months\_on\_book DESC;

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1. **Average Dependent Count by Income Group**

SELECT

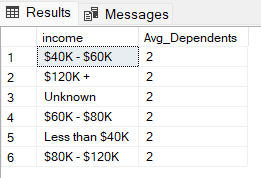
income,

ROUND(AVG(dependent\_count), 2) AS Avg\_Dependents

FROM bank\_churn\_data

GROUP BY income

ORDER BY Avg\_Dependents DESC;

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1. **Credit Utilization Index (High-Risk Customers)**

SELECT

clientnum,

customer\_age,

income,

credit\_limit,

utilization\_ratio,

ROUND((utilization\_ratio \* 100.0), 2) AS Utilization\_Percentage,

CASE

WHEN utilization\_ratio > 0.8 THEN 'High Risk'

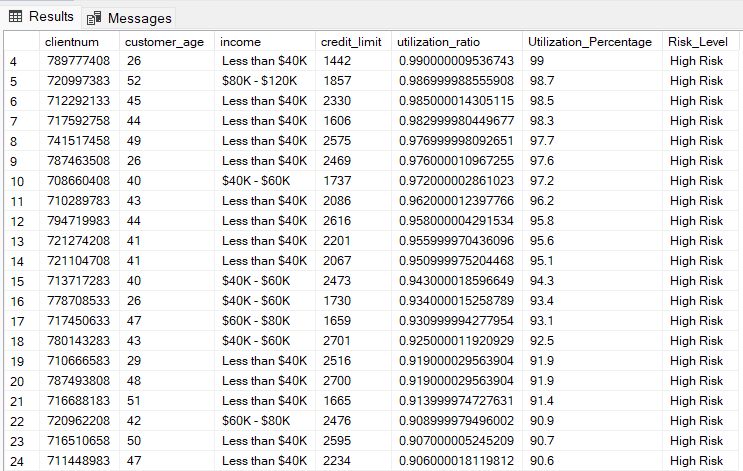
WHEN utilization\_ratio BETWEEN 0.5 AND 0.8 THEN 'Moderate Risk'

ELSE 'Low Risk'

END AS Risk\_Level

FROM bank\_churn\_data

ORDER BY utilization\_ratio DESC;

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1. **Longest Relationship Customers (VIP Segmentation)**

SELECT

clientnum,

customer\_age,

months\_on\_book,

income,

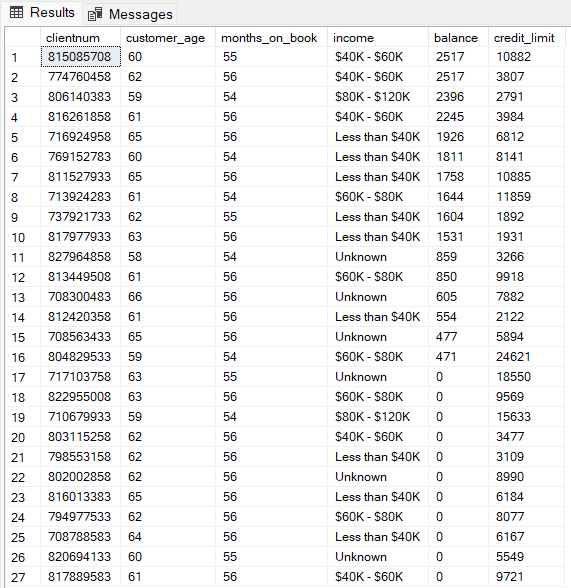
balance,

credit\_limit

FROM bank\_churn\_data

WHERE months\_on\_book > 53

ORDER BY balance DESC;

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