



Bank Customer Churn Analysis



www.linkedin.com/in/reshma-reghunath

About the Dataset

Column	Type	Description
CustomerId	int	Unique ID of the customer
Surname	object	Customer's last name
CreditScore	int	Customer's credit score
Geography	object	Country (e.g., France, Spain)
Gender	object	Male / Female
Age	int	Customer age
Tenure	int	Years with the bank
Balance	float	Account balance
NumOfProducts	int	Number of bank products used
HasCrCard	int	1 = has credit card, 0 = no
IsActiveMember	int	1 = active, 0 = inactive
EstimatedSalary	float	Estimated annual salary
Exited	int	1 = churned (left bank), 0 = retained

How many customers are there in the bank_churn table?

```
SELECT COUNT(*) AS Total_Customers FROM bank_churn;
```

	Total_Customers
▶	10000

Calculate the total customers, total churned customers, and churn rate in the bank's customer dataset

```
SELECT COUNT(*) AS Total_Customers, SUM(Exited) AS Churned_Customers,  
ROUND(100.0 * SUM(Exited) / COUNT(*), 2) AS Churn_Rate FROM bank_churn;
```

	Total_Customers	Churned_Customers	Churn_Rate
▶	10000	2037	20.37

Find the number of customers, churned customers, and churn rate for each country, and display the countries with the highest churn first

```
SELECT Geography, COUNT(*) AS Total_Customers,  
SUM(Exited) AS Churned_Customers, ROUND(100.0 * SUM(Exited)/COUNT(*), 2)  
AS Churn_Rate FROM bank_churn  
GROUP BY Geography ORDER BY Churn_Rate DESC;
```

Geography	Total_Customers	Churned_Customers	Churn_Rate
Germany	2509	814	32.44
Spain	2477	413	16.67
France	5014	810	16.15

Write an SQL query to find the total number of customers, total churned customers, and churn rate by gender in the bank_customers table. Sort the results by churn rate in descending order

```
SELECT
  Gender,
  COUNT(*) AS Total_Customers,
  SUM(Exited) AS Churned_Customers,
  ROUND(100.0 * SUM(Exited)/COUNT(*), 2) AS Churn_Rate
FROM bank_customers
GROUP BY Gender
ORDER BY Churn_Rate DESC;
```

	Gender	Total_Customers	Churned_Customers	Churn_Rate
▶	Female	4543	1139	25.07
	Male	5457	898	16.46

Compare the average age, credit score, balance, and salary of churned vs. retained customers."

```
SELECT
  Exited AS Churn_Status,
  ROUND(AVG(Age),1) AS Avg_Age,
  ROUND(AVG(CreditScore),1) AS Avg_CreditScore,
  ROUND(AVG(Balance),2) AS Avg_Balance,
  ROUND(AVG(EstimatedSalary),2) AS Avg_Salary
FROM bank_churn
GROUP BY Exited;
```

	Churn_Status	Avg_Age	Avg_CreditScore	Avg_Balance	Avg_Salary
▶	0	37.4	651.9	72745.30	99738.39
	1	44.8	645.4	91108.54	101465.68

Target variable (1 = Customer has churned, 0 = Retained)

Analyze customer churn by age group, showing total customers, churned customers, and churn rate, with the highest churn rate first.

```
SELECT
CASE
    WHEN Age < 30 THEN 'Young (<30)'
    WHEN Age BETWEEN 30 AND 50
THEN 'Middle-Aged (30–50)'
    ELSE 'Senior (>50)'
END AS Age_Group,
COUNT(*) AS Total_Customers,
SUM(Exited) AS Churned,
ROUND(100.0 * SUM(Exited)/COUNT(*),
2) AS Churn_Rate
FROM bank_churn
GROUP BY Age_Group
ORDER BY Churn_Rate DESC;
```

	Age_Group	Total_Customers	Churned	Churn_Rate
▶	Senior (>50)	1261	563	44.65
	Middle-Aged (30–50)	7098	1350	19.02
	Young (<30)	1641	124	7.56

Calculate the total number of customers, total churned customers, and churn rate for each number of products held (NumOfProducts) in the bank_customers table. Order the results by the number of products

```
SELECT NumOfProducts, COUNT(*) AS Total_Customers, SUM(Exited) AS  
Churned_Customers, ROUND(100.0 * SUM(Exited)/COUNT(*), 2) AS  
Churn_Rate FROM bank_churn GROUP BY NumOfProducts ORDER BY NumOfProducts;
```

	NumOfProducts	Total_Customers	Churned_Customers	Churn_Rate
▶	1	5084	1409	27.71
	2	4590	348	7.58
	3	266	220	82.71
	4	60	60	100.00

Find the total number of customers, number of churned customers, and churn rate based on whether customers are active members (IsActiveMember) in the bank_customers table.

```
SELECT NumOfProducts, COUNT(*) AS Total_Customers, SUM(Exited) AS  
Churned_Customers, ROUND(100.0 * SUM(Exited)/COUNT(*), 2) AS  
Churn_Rate FROM bank_churn GROUP BY NumOfProducts ORDER BY NumOfProducts;
```

	IsActiveMember	Total_Customers	Churned_Customers	Churn_Rate
▶	0	4849	1302	26.85
	1	5151	735	14.27

Calculate the total number of customers, number of churned customers, and churn rate based on whether customers have a credit card (HasCrCard) in the bank_customers table.

```
SELECT
  HasCrCard,
  COUNT(*) AS Total_Customers,
  SUM(Exited) AS Churned_Customers,
  ROUND(100.0 * SUM(Exited)/COUNT(*), 2) AS Churn_Rate
FROM bank_churn
GROUP BY HasCrCard;
```

	HasCrCard	Total_Customers	Churned_Customers	Churn_Rate
▶	0	2945	613	20.81
	1	7055	1424	20.18

Calculate the average balance, average credit score, and churn rate for customers based on their active membership status (IsActiveMember). Sort the results by average balance in descending order.

```
SELECT
  IsActiveMember,
  ROUND(AVG(Balance),2) AS Avg_Balance,
  ROUND(AVG(CreditScore),2) AS Avg_CreditScore,
  ROUND(100.0 * SUM(Exited)/COUNT(*), 2) AS Churn_Rate
FROM bank_churn
GROUP BY IsActiveMember
ORDER BY Avg_Balance DESC;
```

	IsActiveMember	Avg_Balance	Avg_CreditScore	Churn_Rate
▶	0	77134.38	647.97	26.85
	1	75875.42	652.93	14.27