



POWER BI:

Financial Analysis USING DAX QUERY

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Data Analyst



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About Me

I am a passionate data analyst with expertise in SQL, Python, Excel, pandas, and numpy. I have experience working on diverse data projects across e-commerce platforms like Myntra, Amazon, and Swiggy, where I analyzed sales, pricing, customer preferences, and operational efficiency. I am proficient in cleaning, transforming, and analyzing large datasets using tools like Power Query Editor and advanced Excel functions. I also have a solid understanding of data visualization, creating dynamic dashboards to communicate insights effectively.

Problem Brief

You are a Financial Data Analyst tasked with analyzing credit card usage and financial metrics for a banking institution. Using the provided data, you will create reports in Power BI by applying DAX functions. Your goal is to calculate financial metrics like running totals, moving averages, and growth rates, and generate KPIs that assess customer behavior, credit utilization, and delinquency risk. The analysis will provide key insights for improving customer retention and financial performance.



Problem Statements

1. Running Total of Credit Card Transactions
2. Calculate the 4-week moving average of the creditLimit for each client.
3. Calculate the mom% growth and wow% growth on transaction amount.
4. Calculate Customer Acquisition Cost (CAC) as a Ratio of Transaction Amount.
5. Calculate the yearly average of avg_utilization_ratio for all clients.
6. Calculate the percentage of Interest_Earned compared to Total_Revolving_Bal for each client.
7. Calculate Top 5 Clients by Total Transaction Amount.
8. Identify clients whose Avg_Utilization_Ratio exceeds 80%.
9. Customer Churn Indicator: Create a KPI that flags clients who have not made any transactions (Total_Trans_Amt = 0) in the last 6 months.
10. Delinquency Rate: Calculate the percentage of clients with Delinquent_Acc > 0.
11. Credit Risk Score: Create a score for each client based on their Avg_Utilization_Ratio, Delinquent_Acc, and Total_Revolving_Bal.
12. Income vs Credit Limit Correlation: Show the correlation between Income and Credit_Limit for all clients.
13. Average Customer Satisfaction Score by Credit Card Category: Calculate the average Cust_Satisfaction_Score by Card_Category.
14. Loan Approval vs Credit Limit: Analyze how Credit_Limit affects Personal_loan approval by calculating the average credit limit for clients with and without loans.
15. High Risk Clients Flag: Create a flag for clients whose Total_Revolving_Bal exceeds 90% of their Credit_Limit and who have a high Avg_Utilization_Ratio.



DAX Queries

Running Total of Credit Card Transactions

```
1 running_total =  
2 CALCULATE(SUM(credit_card[Total_Trans_Amt]), FILTER(ALL  
  ('credit_card'), credit_card[Week_Start_Date] <= MAX  
  (credit_card[Week_Start_Date])))
```

4-Week Moving Average of the creditLimit for Each Client.

```
1 moving_average =  
2  
3 var weeks = DATESINPERIOD('calendar'[Date], MAX('calendar'  
    [Date])), -28, DAY)  
4  
5 var sales = CALCULATE(SUM(credit_card[Credit_Limit]),  
    weeks)  
6  
7 var distinct_week = CALCULATE(DISTINCTCOUNT('calendar'  
    [week_number]), weeks)  
8  
9 RETURN DIVIDE(sales, distinct_week, 0)
```

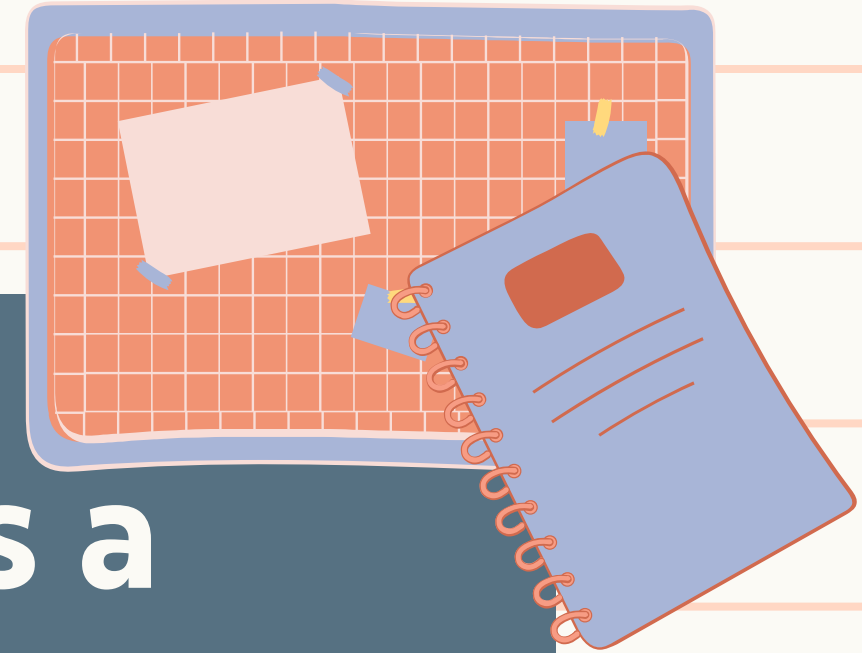

Month on Month% Growth on Transaction Amount.

```
1 mom%growth =  
2 var previous_month = CALCULATE(SUM(credit_card  
  [Total_Trans_Amt]),DATEADD('calendar'[Date], -1,MONTH))  
3  
4 return DIVIDE(SUM(credit_card[Total_Trans_Amt])  
  -previous_month,previous_month,0)
```

Week on Week% Growth On Transaction Amount.

```
1 wow%growth =  
2 var prev_week = CALCULATE(SUM(credit_card  
  [Total_Trans_Amt]), DATEADD('calendar'[Date],-7,DAY))  
3  
4 return DIVIDE(SUM(credit_card[Total_Trans_Amt]) -  
  prev_week, prev_week,0)
```

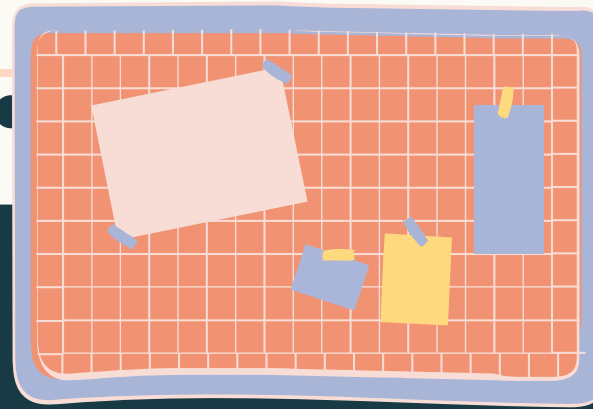
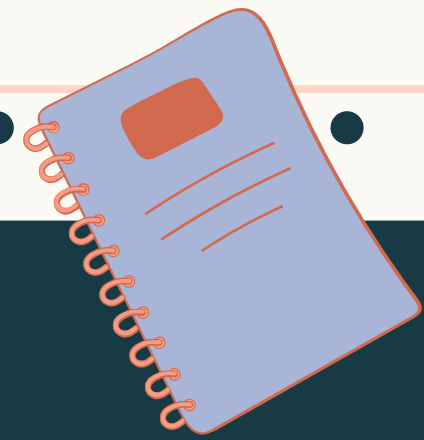
Customer Acquisition Cost (CAC) as a Ratio of Transaction Amount



```
1 cac_ratio = DIVIDE(  
2     SUM(credit_card[Customer_Acq_Cost]),  
3     sum(credit_card[Total_Trans_Amt]))
```

Yearly Average of Avg_Utilization_Ratio for All Clients.

```
1 avg_utilization_rate =  
2 AVERAGE(credit_card[Avg_Utilization_Ratio])/  
3 DISTINCTCOUNT(credit_card[current_year])
```



Percentage of Interest_Earned Compared to Total_Revolving_Bal for Each Client.

```
1 Interest_Earned_to_Total_Revolving_Bal = DIVIDE(  
2     SUM(credit_card[Interest_Earned]),  
3     SUM(credit_card[Total_Revolving_Bal]),0)
```

Clients Whose Avg_Utilization_Ratio Exceeds 80%.

```
1 Avg_Uti_Exceeds_80% =  
2 IF([Avg_Utilization_Ratio] > 0.8, TRUE, FALSE)
```

```
1 top_5_clients_by_trans_amt =  
2  
3 TOPN(5, SUMMARIZE(credit_card, credit_card[Client_Num],  
  "total_amount", SUM(credit_card[Total_Trans_Amt])),  
  [total_amount], DESC)
```

Top 5 Clients by Total Transaction Amount.

Customer Churn Indicator: KPI that flags clients who have not made any transactions (Total_Trans_Amt = 0) in the last 6 months.

```
1 no_trans_in_last_6_mon =  
2  
3 var six_month = CALCULATE(SUM(credit_card  
    [Total_Trans_Amt]), DATESINPERIOD('calendar'[Date], MAX  
    ('calendar'[Date]), -6, MONTH))  
4  
5 RETURN(IF(ISBLANK(six_month), TRUE, FALSE))
```


Credit Risk Score: Score for each client based on their Avg_Utilization_Ratio, Delinquent_Acc, and Total_Revolving_Bal.

To create the credit risk score, we first normalize the revolving balance to a number between 0 and 1.

```
1 Normalised_Revolving_Balance =  
2  
3 var min_value = MIN(credit_card[Total_Revolving_Bal])  
4 var max_value = MAX(credit_card[Total_Revolving_Bal])  
5  
6 return DIVIDE(credit_card[Total_Revolving_Bal]  
  -min_value, max_value - min_value, 0)
```

We then give weightage to the terms:

Avg_Utilization_Ratio - 50%

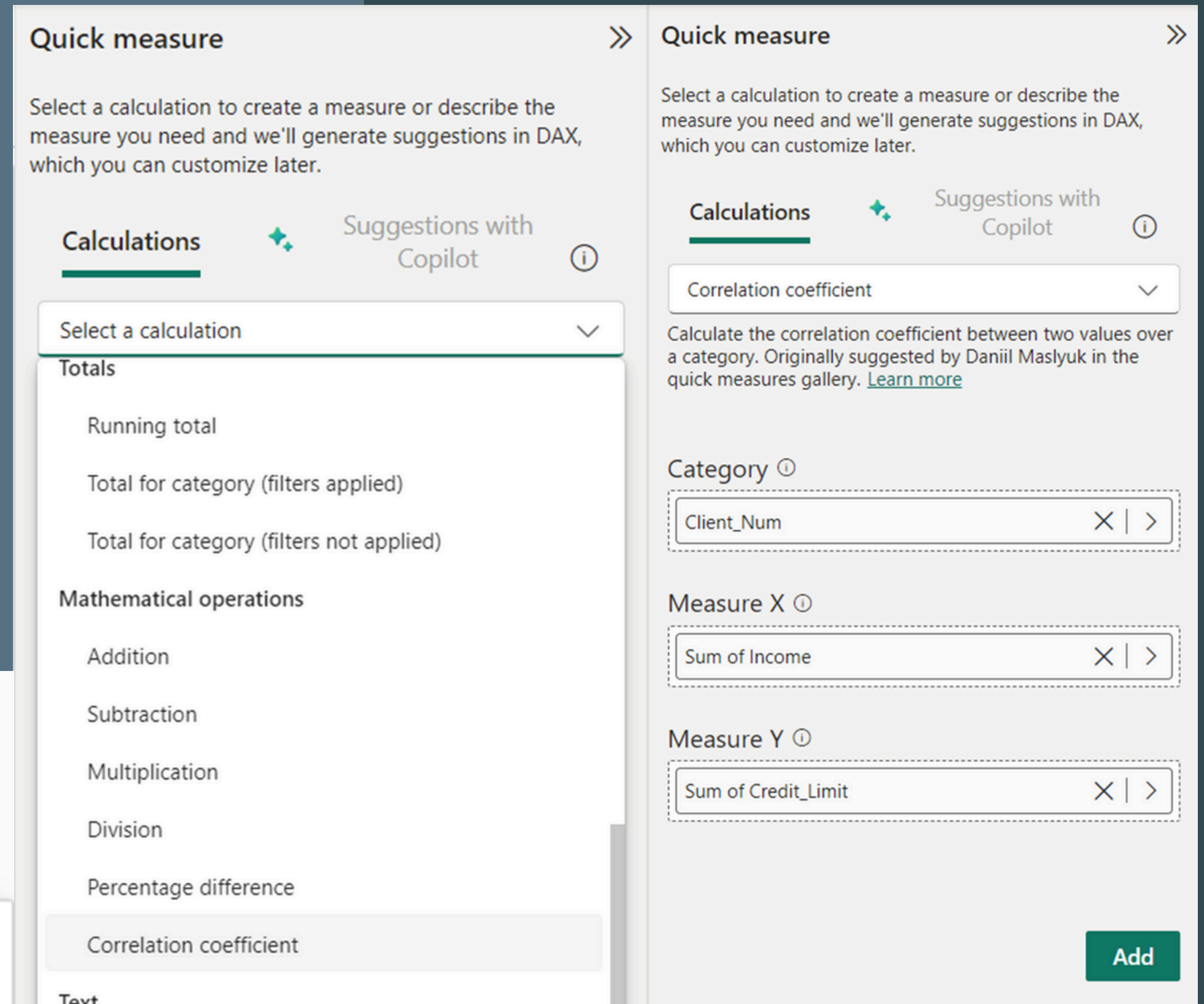
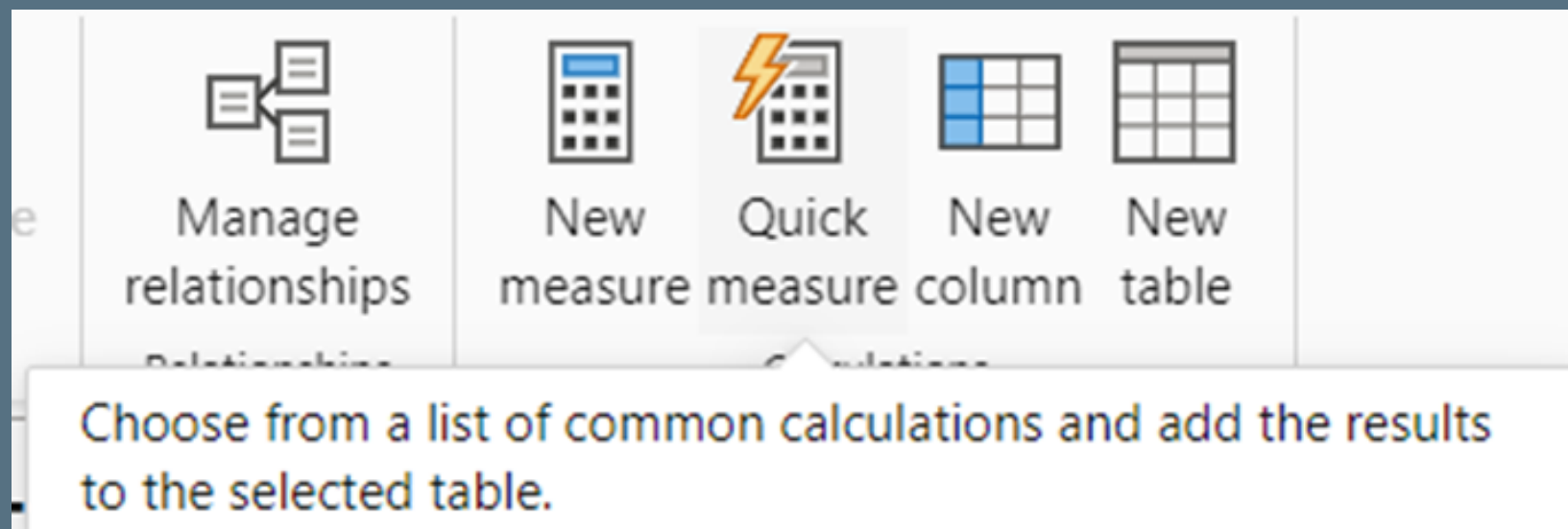
Delinquent_Acc - 30%

Normalised_Revolving_Balance - 20%

```
1 credit_risk_score =  
2  
3 0.5*credit_card[Avg_Utilization_Ratio]+  
4 0.3*credit_card[Delinquent_Acc]+  
5 0.2*credit_card[Normalised_Revolving_Balance]
```

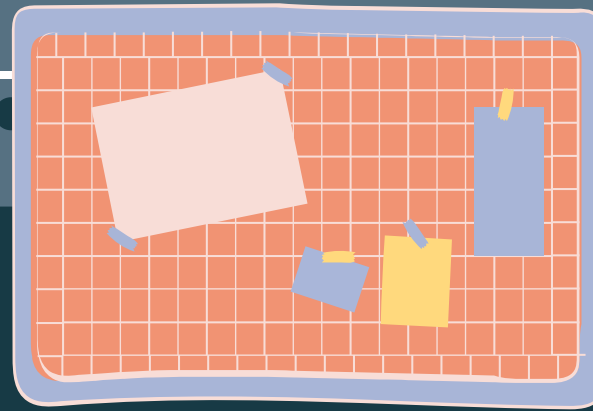
Income vs Credit Limit Correlation: Correlation between Income and Credit_Limit for all clients.

- We start by creating a *quick measure* and choosing *correlation coefficient*.
- Assign *client_num* to the **Category**, *Sum of Income* to **Measure X** and *Sum of Credit_Limit* to **Measure Y**.



Delinquency Rate: Percentage of clients with Delinquent_Acc > 0

```
1 Delinquency_Rate_Above_0 =  
2  
3 var delinquent_acc = CALCULATE(COUNTROWS(credit_card),  
    credit_card[Delinquent_Acc] > 0)  
4  
5 var total_acc = COUNTROWS(credit_card)  
6  
7 RETURN DIVIDE(delinquent_acc, total_acc)
```



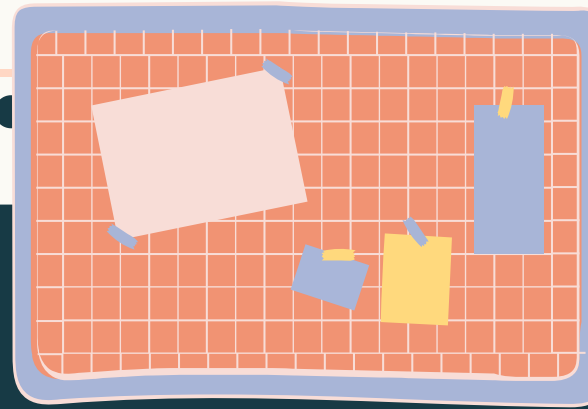
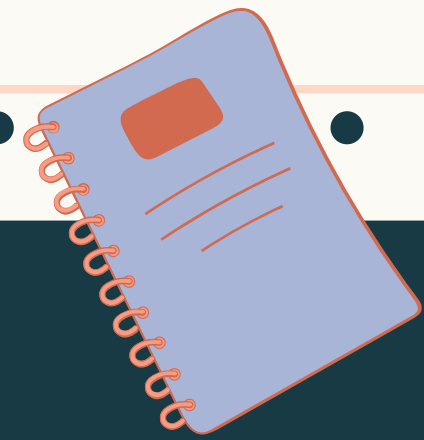
Average Customer Satisfaction Score by Credit Card Category

```
1 avg_score_by_card_category =  
2  
3 SUMMARIZE(credit_card, credit_card[Card_Category], "avg  
score", ROUND(AVERAGE(customer  
[Cust_Satisfaction_Score]), 2))
```

Loan Approval vs Credit Limit: How Credit_Limit affects Personal_loan approval With Calculation of the average credit limit for clients with and without loans

```
1 loan_yes = CALCULATE(AVERAGE(credit_card  
    [Credit_Limit]), customer[Personal_loan] = "yes")
```

```
1 loan_no = CALCULATE(AVERAGE(credit_card[Credit_Limit]),  
    customer[Personal_loan] = "no")
```



High Risk Clients Flag: Flag for clients whose Total_Revolving_Bal exceeds 90% of their Credit_Limit and who have a high Avg_Utilization_Ratio.

```
1 exceeds_90%_credit_limit =  
2  
3 var clAbove90 = credit_card[Credit_Limit] * 0.9  
4  
5 RETURN IF(credit_card[Total_Revolving_Bal] > clAbove90 &&  
  [Avg_Utilization_Ratio] > 0.5, True, False)
```


Connect with Me

Feel free to connect with me on my Mail, LinkedIn and GitHub! I'm passionate about data analytics, with experience in SQL, Excel, Python, and data visualization. I enjoy working on projects that involve data-driven insights. Let's collaborate and grow together!



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Thank you
Do comment your
thoughts

