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Credit card data analysis Power Bi Project Report

Project Objective : To develop a comprehensive credit card weekly dashboard that provides real-time insights into key performance metrics and trends, enabling stakeholders to monitor and analyse credit card operations effectively.

Database Creation and Data Import in MySQL

- Created a new database in MySQL: CREATE DATABASE ccdb;
- Created the required tables and imported data from two CSV files : credit_card and customer.
- Modified column data types during the import process to match the required schema.

Adding Additional Data for Real-Time Insights after creating the Power BI dashboard :

The following SQL queries were used to append new records to existing tables from additional CSV files:

1. **For the credit card table:**

LOAD DATA LOCAL INFILE 'C:/Users/nikhi/Desktop/power bi project/Credit_Card_Financial_Dashboard-main/credit_card_add.csv'

INTO TABLE credit_card

FIELDS TERMINATED BY ','

ENCLOSED BY '"'

LINES TERMINATED BY '\n'

IGNORE 1 ROWS;

2. **For the customer table:**

LOAD DATA LOCAL INFILE 'C:/Users/nikhi/Desktop/power bi project/Credit_Card_Financial_Dashboard-main/customer_add.csv'

INTO TABLE customer

FIELDS TERMINATED BY ','

ENCLOSED BY '"'

LINES TERMINATED BY '\n'

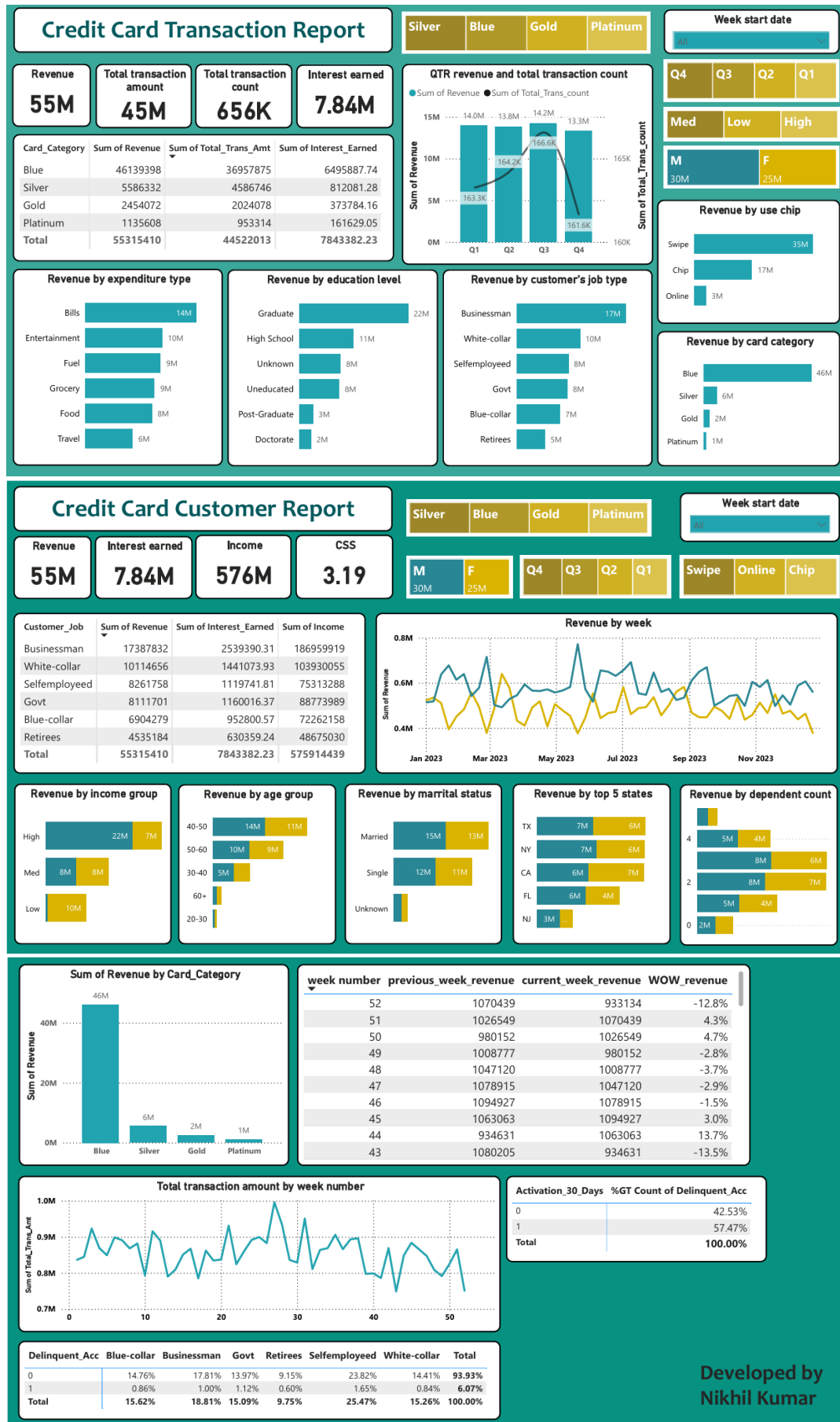IGNORE 1 ROWS;

Integration with Power BI

- Imported the MySQL database (**ccdb**) into Power BI Desktop for visualization.

- Created measures and calculated columns using **DAX** queries to generate interactive dashboards.

DAX Queries used :

- **AgeGroup =** SWITCH(

  TRUE(),

  'public cust_detail'[customer_age] < 30, "20-30", 'public cust_detail'[customer_age] >= 30 && 'public cust_detail'[customer_age] < 40, "30-40", 'public cust_detail'[customer_age] >= 40 && 'public cust_detail'[customer_age] < 50, "40-50", 'public cust_detail'[customer_age] >= 50 && 'public cust_detail'[customer_age] < 60, "50-60", 'public cust_detail'[customer_age] >= 60, "60+", "unknown")

- **IncomeGroup =**

  SWITCH(TRUE(),

  'public cust_detail'[income] < 35000, "Low", 'public cust_detail'[income] >= 35000 && 'public cust_detail'[income] = 70000, "High", "unknown")

- **week_num2** = WEEKNUM('public cc_detail'[week_start_date])
- **Revenue** = 'public cc_detail'[annual_fees] + 'public cc_detail'[total_trans_amt] + 'public cc_detail'[interest_earned]
- **Current_week_Reveneue =**

  CALCULATE(SUM('public cc_detail'[Revenue]), FILTER(ALL('public cc_detail'), 'public cc_detail'[week_num2] = MAX('public cc_detail'[week_num2])))

- **Previous_week_Reveneue =**
  CALCULATE(SUM('public cc_detail'[Revenue]), FILTER(ALL('public cc_detail'), 'public cc_detail'[week_num2] = MAX('public cc_detail'[week_num2])-1))

Created Dashboard

Credit Card Transaction Report

| Silver | Blue | Gold | Platinum |

Revenue	Total transaction amount	Total transaction count	Interest earned
55M	45M	656K	7.84M

Card_Category	Sum of Revenue	Sum of Total_Trans_Amt	Sum of Interest_Earned
Blue	46139398	36957875	6495887.74
Silver	5586332	4586746	812081.28
Gold	2454072	2024078	373784.16
Platinum	1135608	953314	161629.05
Total	55315410	44522013	7843382.23

QTR revenue and total transaction count
- Sum of Revenue
- Sum of Total_Trans_count

Q1 14.0M 163.3K; Q2 13.8M 164.2K; Q3 14.2M 166.6K; Q4 13.3M 161.6K

Week start date — All

Q4	Q3	Q2	Q1
Med	Low	High
M 30M	F 25M

Revenue by use chip
- Swipe 35M
- Chip 17M
- Online 3M

Revenue by card category
- Blue 46M
- Silver 6M
- Gold 2M
- Platinum 1M

Revenue by expenditure type
- Bills 14M
- Entertainment 10M
- Fuel 9M
- Grocery 9M
- Food 8M
- Travel 6M

Revenue by education level
- Graduate 22M
- High School 11M
- Unknown 8M
- Uneducated 8M
- Post-Graduate 3M
- Doctorate 2M

Revenue by customer's job type
- Businessman 17M
- White-collar 10M
- Selfemployed 8M
- Govt 8M
- Blue-collar 7M
- Retirees 5M

Credit Card Customer Report

| Silver | Blue | Gold | Platinum |

Revenue	Interest earned	Income	CSS
55M	7.84M	576M	3.19

| M 30M | F 25M | Q4 | Q3 | Q2 | Q1 | Swipe | Online | Chip |

Customer_Job	Sum of Revenue	Sum of Interest_Earned	Sum of Income
Businessman	17387832	2539390.31	186959919
White-collar	10114656	1441073.93	103930055
Selfemployeed	8261758	1119741.81	75313288
Govt	8111701	1160016.37	88773989
Blue-collar	6904279	952800.57	72262158
Retirees	4535184	630359.24	48675030
Total	55315410	7843382.23	575914439

Revenue by week
Jan 2023 — Nov 2023 (0.4M – 0.8M)

Revenue by income group
- High 22M 7M
- Med 8M 8M
- Low 10M

Revenue by age group
- 40-50 14M 11M
- 50-60 10M 9M
- 30-40 5M
- 60+
- 20-30

Revenue by marrital status
- Married 15M 13M
- Single 12M 11M
- Unknown

Revenue by top 5 states
- TX 7M 6M
- NY 7M 6M
- CA 6M 7M
- FL 6M 4M
- NJ 3M

Revenue by dependent count
- 4 5M 4M
- 8M 6M
- 2 8M 7M
- 5M 4M
- 0 2M

Sum of Revenue by Card_Category
- Blue 46M
- Silver 6M
- Gold 2M
- Platinum 1M

week number	previous_week_revenue	current_week_revenue	WOW_revenue
52	1070439	933134	-12.8%
51	1026549	1070439	4.3%
50	980152	1026549	4.7%
49	1008777	980152	-2.8%
48	1047120	1008777	-3.7%
47	1078915	1047120	-2.9%
46	1094927	1078915	-1.5%
45	1063063	1094927	3.0%
44	934631	1063063	13.7%
43	1080205	934631	-13.5%

Total transaction amount by week number
(0.7M – 1.0M)

Activation_30_Days	%GT Count of Delinquent_Acc
0	42.53%
1	57.47%
Total	100.00%

Delinquent_Acc	Blue-collar	Businessman	Govt	Retirees	Selfemployeed	White-collar	Total
0	14.76%	17.81%	13.97%	9.15%	23.82%	14.41%	93.93%
1	0.86%	1.00%	1.12%	0.60%	1.65%	0.84%	6.07%
Total	15.62%	18.81%	15.09%	9.75%	25.47%	15.26%	100.00%

Developed by
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Project Insights Report

Overall Performance :

- The credit card portfolio shows a robust financial performance with **total revenue of $55 million,** and **interest earned of $7.84 million.**
- **Total transaction amount of $45 million** across **656,000 transactions**. A closer look reveals a significant week-over-week fluctuation in transaction amounts, with a notable **13.7% increase in week 44** and a sharp **13.5% decrease in week 43 .**

Revenue by Card Category :

The **Blue card** is the clear leader in the portfolio, contributing **$46 million in revenue**, which is substantially higher than Silver ($6 million), Gold ($2 million), and Platinum ($1 million) cards. The Blue card also dominates in terms of transaction amount and interest earned, bringing in **$36.9 million in transaction volume** and **$6.5 million in interest**. While the Platinum card generates the least revenue, it's important to analyse the average revenue per customer for each card type to understand the complete picture of profitability.

Customer Demographics and Behaviour :

- **Job Type:** Businessmen are the most lucrative customer segment, generating $17 million in revenue , followed by white-collar professionals ($10 million). This aligns with the income data, where businessmen also have the highest income levels.
- **Education Level:** Customers with a graduate-level education contribute the most to revenue, at $22 million. This is followed by high school graduates ($11 million).
- **Age and Marital Status:** The 40-50 age group is the highest revenue generator, bringing in $14 million. Married individuals contribute more to revenue ($15 million) than single individuals ($12 million).
- **Geographic Location:** The top 5 states for revenue are Texas and New York, both contributing $7 million each.

Transaction Insights :

- **Expenditure Type:** Bills are the largest spending category, accounting for $14 million in revenue. This is followed by entertainment ($10 million) and fuel ($9 million).
- **Transaction Method:** Swiping the card is the most common method of transaction, generating $35 million in revenue, significantly more than chip ($17 million) and online ($3 million) transactions.

Recommendations to Increase Profit Margin and Overall Revenue :

Based on the insights from the dashboard, these are actionable steps to enhance profitability:

Targeted Marketing and Customer Segmentation :

- **Focus on High-Value Segments:** Develop targeted marketing campaigns aimed at businessmen and graduates, as they are the highest revenue-generating segments. Offer premium benefits and personalized rewards to further incentivize their spending.
- **Promote Premium Cards:** Create a strategic marketing plan to upsell existing Blue cardholders to Silver, Gold, or Platinum cards. Highlight the enhanced benefits, such as higher credit limits, better rewards, and exclusive access, to justify the upgrade.
- **Geographic Targeting:** Concentrate marketing efforts in Texas and New York, as these are the top revenue-generating states. Consider local partnerships and offers to increase card usage.

Enhance Product Offerings and Usage :

- **Incentivize Online and Chip Transactions:** Given the high revenue from swipe transactions, there's an opportunity to encourage more secure payment methods. Offer bonus reward points or cashback for online and chip transactions to drive adoption.
- **Category-Specific Promotions:** Launch targeted promotions for high-spending categories like bills, entertainment, and fuel. For instance, offer a higher cashback rate on bill payments made through the card or provide discounts on entertainment spending.
- **Develop Loyalty Programs:** Implement a tiered loyalty program based on spending levels and card type. This will encourage customers to consolidate their spending on your card to unlock better rewards.

Improve Customer Engagement and Retention :

- **Personalized Communication:** Utilize customer data to send personalized offers and communications. For example, if a customer frequently spends on travel, send them travel-related offers and benefits.
- **Proactive Customer Service:** Monitor transaction data for any signs of decreased activity and proactively reach out to customers with offers to re-engage them.
- **Financial Wellness Tools:** Offer tools and resources to help customers manage their finances better. This can build trust and loyalty, leading to a longer-term customer relationship.

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