



CREDIT CARD FINANCIAL DASHBOARD USING SQL AND POWERBI

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Project Objective

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

Import data to SQL Database

- Prepare csv file
- Create tables in SQL
- Import csv file into SQL

34	19:18:59	select * from cust_detail LIMIT 0, 1000	1000 row(s) returned
35	14:59:58	select * from cc_detail LIMIT 0, 1000	1000 row(s) returned

SQL Queries

-- SQL Query to create and import data from csv files:

-- 0. Create a database

CREATE DATABASE creditcard_db;

-- 1. Create cc_detail table

CREATE TABLE cc_detail (Client_Num INT, Card_Category VARCHAR(20), Annual_Fees INT, Activation_30_Days INT, Customer_Acq_Cost INT, Week_Start_Date DATE, Week_Num VARCHAR(20), Qtr VARCHAR(10), current_year INT, Credit_Limit DECIMAL(10,2), Total_Revolving_Bal INT, Total_Trans_Amt INT, Total_Trans_Ct INT, Avg_Utilization_Ratio DECIMAL(10,3), Use_Chip VARCHAR(10), Exp_Type VARCHAR(50), Interest_Earned DECIMAL(10,3), Delinquent_Acc VARCHAR(5));

SQL Queries

-- 2. Create cc_detail table

```
CREATE TABLE cust_detail ( Client_Num INT, Customer_Age INT, Gender VARCHAR(5), Dependent_Count INT,  
Education_Level VARCHAR(50), Marital_Status VARCHAR(20), State_cd VARCHAR(50), Zipcode VARCHAR(20),  
Car_Owner VARCHAR(5), House_Owner VARCHAR(5), Personal_Loan VARCHAR(5), Contact VARCHAR(50),  
Customer_Job VARCHAR(50), Income INT, Cust_Satisfaction_Score INT );
```

DAX Queries & Explanation

```
AgeGroup = SWITCH(  
    TRUE(),  
    'creditcard_db cust_detail'[customer_age] < 30, "20-30",  
    'creditcard_db cust_detail'[customer_age] >= 30 && 'public cust_detail'[customer_age] < 40, "30-40",  
    'creditcard_db cust_detail'[customer_age] >= 40 && 'public cust_detail'[customer_age] < 50, "40-50",  
    'creditcard_db cust_detail'[customer_age] >= 50 && 'public cust_detail'[customer_age] < 60, "50-60",  
    'creditcard_db cust_detail'[customer_age] >= 60, "60+",  
    "unknown"  
)
```

The AgeGroup formula uses the SWITCH function in Power BI (DAX) to categorize customers into age groups based on the customer_age column from the creditcard_db cust_detail table. It checks the age value and assigns it to predefined ranges: "20-30" for ages below 30, "30-40" for 30-39, "40-50" for 40-49, "50-60" for 50-59, and "60+" for 60 and above. If none of these conditions are met, it returns "unknown" as the default value.

DAX Queries & Explanation

```
IncomeGroup = SWITCH(  
    TRUE(),  
    'creditcard_db cust_detail'[income] < 35000, "Low",  
    'creditcard_db cust_detail'[income] >= 35000 && 'public cust_detail'[income] < 70000, "Med",  
    'creditcard_db cust_detail'[income] >= 70000, "High",  
    "unknown"  
)
```

The IncomeGroup formula in Power BI (DAX) categorizes customers based on their income from the creditcard_db cust_detail table. It uses the SWITCH function to assign income levels: "Low" for incomes below 35,000, "Med" for incomes between 35,000 and 69,999, and "High" for incomes of 70,000 or more. If none of these conditions are met, it returns "unknown" as the default value.

DAX Queries & Explanation

week_num2 = WEEKNUM('creditcard_db cc_detail'[week_start_date])

The week_num2 formula in Power BI (DAX) calculates the week number for each week_start_date in the 'creditcard_db cc_detail' table using the WEEKNUM function. This function converts a date into a numerical representation of the week within the year, which helps in aggregating and analyzing data on a weekly basis.

Revenue = 'creditcard_db cc_detail'[annual_fees] + 'creditcard_db cc_detail'[total_trans_amt] + 'creditcard_db cc_detail'[interest_earned]

The Revenue formula in Power BI (DAX) calculates the total revenue for each record in the 'creditcard_db cc_detail' table. It sums up three financial components: annual fees, total transaction amount, and interest earned. This derived revenue metric helps in analyzing overall earnings from credit card operations.

DAX Queries & Explanation

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

The Current_week_Revenue formula in Power BI (DAX) calculates the total revenue for the most recent week in the 'creditcard_db cc_detail' table. It uses the CALCULATE function to sum the Revenue column while applying a filter that selects only the data for the latest week (determined by the MAX value of week_num2). The ALL function ensures that the filter applies across the entire dataset, ignoring any existing filters on the table.

Previous_week_Revenue = CALCULATE(SUM('creditcard_db cc_detail'[Revenue]), FILTER(ALL('creditcard_db cc_detail'), 'creditcard_db cc_detail'[week_num2] = MAX('creditcard_db cc_detail'[week_num2]) - 1))

The Previous_week_Revenue formula in Power BI (DAX) calculates the total revenue for the week before the most recent one in the 'creditcard_db cc_detail' table. It uses CALCULATE to sum the Revenue column while applying a filter that selects records where week_num2 is equal to one week before the maximum week number in the dataset (MAX(week_num2) - 1). The ALL function ensures that the filter considers the entire dataset, ignoring any existing filters.



DASHBOARD AND INSIGHTS



Credit Card Transaction Report

Revenue

55M

Total Intrest

8M

Transaction
Amount

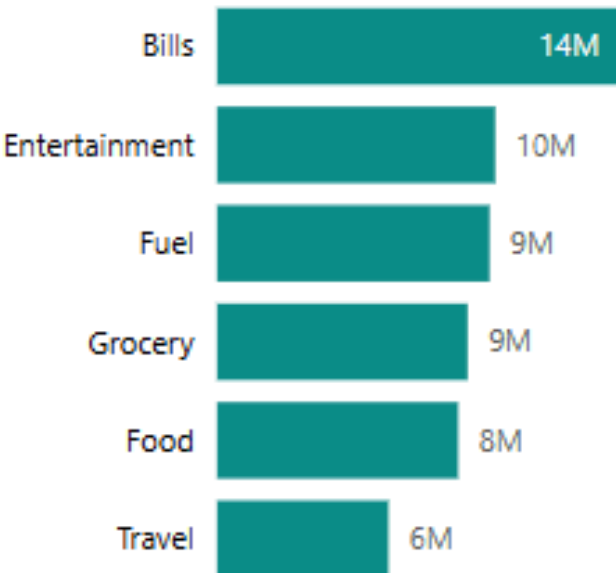
45M

Transaction
Count

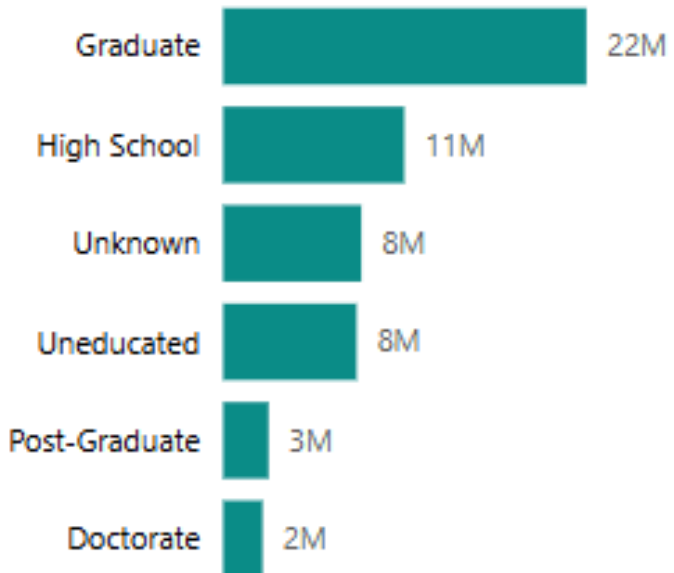
656K

Card_Category	Sum of Revenue	Sum of Total_Trans_Amt	Sum of Interest_Earned
Blue	46139398	36957875	6495888
Gold	2454072	2024078	373784
Platinum	1135608	953314	161629
Silver	5586332	4586746	812081
Total	55315410	44522013	7843382

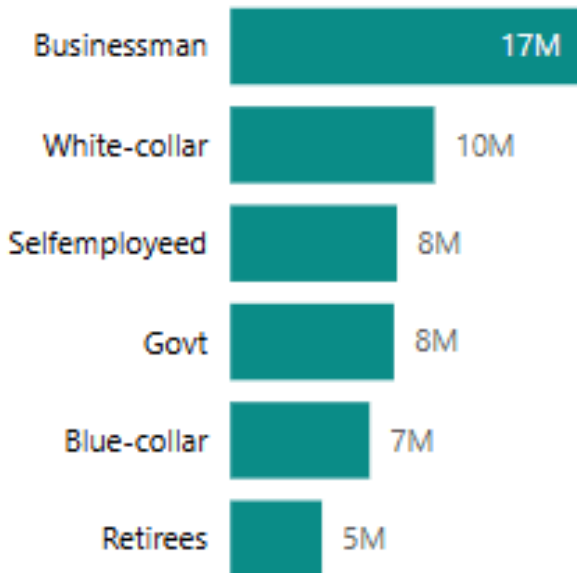
Revenue by Expenditure Type



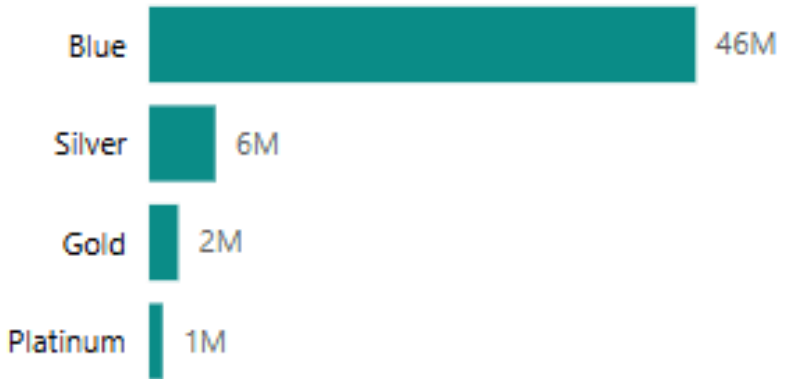
Revenue by Education Level



Revenue by Customer Job



Revenue by Card Category



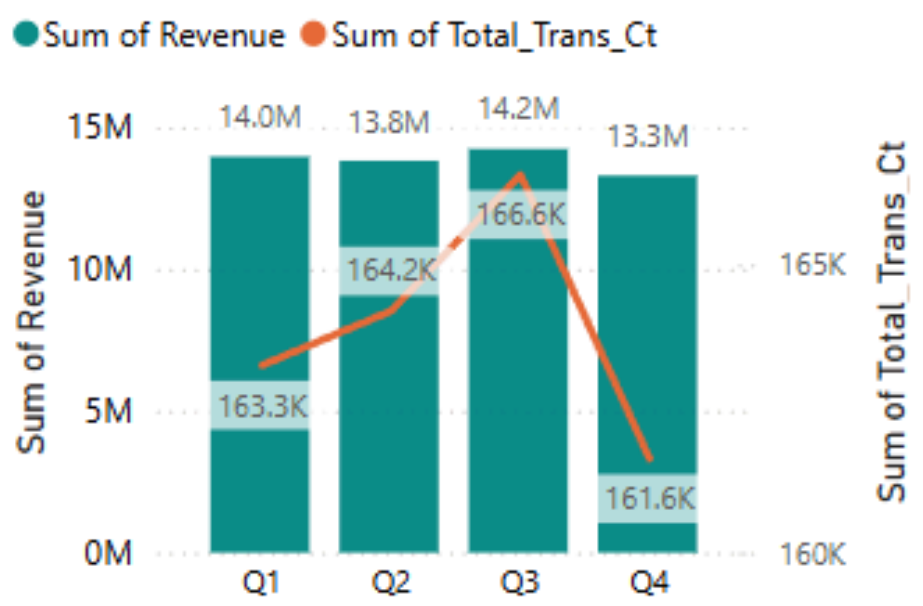
Week_Start_Date
All

F M

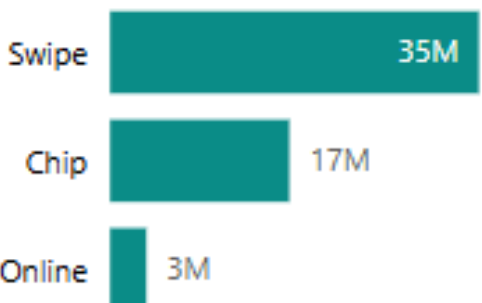
Silver Blue Gold Platinum

Med Low High

QTR Wise Revenue and Total Trans Count



Revenue by Use Chip



Insights from the Credit Card Transaction Report Dashboard

1. Overall Revenue Performance

- Total Revenue: 55M
- Total Interest Earned: 8M
- Total Transaction Amount: 45M
- Total Transaction Count: 656K
- The revenue is significantly driven by transaction amounts and interest earned.

2. Revenue Breakdown by Card Category

- Highest Revenue Generating Card: Blue (46M)
- Other Card Categories:
 - Silver: 6M
 - Gold: 2M
 - Platinum: 1M
- Blue cards contribute the highest revenue, indicating they are the most widely used or have the highest transaction amounts.

3. Quarterly Performance Trends

- Revenue remains relatively stable across quarters (between 13.3M - 14.2M).
- Q3 recorded the highest revenue (14.2M) and transactions (166.6K), while Q4 showed a slight decline.

4. Revenue by Expenditure Type

- Top Spending Categories:
 - Bills: 14M
 - Entertainment: 10M
 - Fuel & Grocery: 9M each
- Utility and lifestyle expenses contribute significantly to revenue.

Insights from the Credit Card Transaction Report Dashboard

5. Revenue by Education Level

- Graduates contribute the highest revenue (22M), followed by high school (11M).
- Post-graduates and doctorate holders contribute relatively lower revenue.

6. Revenue by Customer Job

- Top Contributing Segments:
 - Businessmen: 17M
 - White-collar employees: 10M
 - Self-employed and government employees: 8M each
- Business professionals are the highest spenders, suggesting higher transaction volumes.

7. Revenue by Payment Method

- Swipe transactions generate the most revenue (35M), followed by chip (17M), and online (3M).
- Low online transaction revenue could indicate fewer digital transactions or lower adoption of online payments.

8. Customer Segmentation Filters

- The dashboard allows segmentation by:
 - Gender (Male/Female)
 - Card Category (Silver, Blue, Gold, Platinum)
 - Income Groups (Low, Medium, High)
 - Week Start Date (Time-based analysis)

Key Takeaways:

- Blue card users drive the majority of the revenue.
- Q3 was the best-performing quarter.
- Bills and entertainment are the top spending categories.
- Graduates and businessmen are high-value customer segments.
- Swipe transactions dominate over chip and online payments.

Credit Card Customer Report

Q4

Q3

Q2

Q1

Week_Start_Date

All

Revenue

55M

Total Intrest

8M

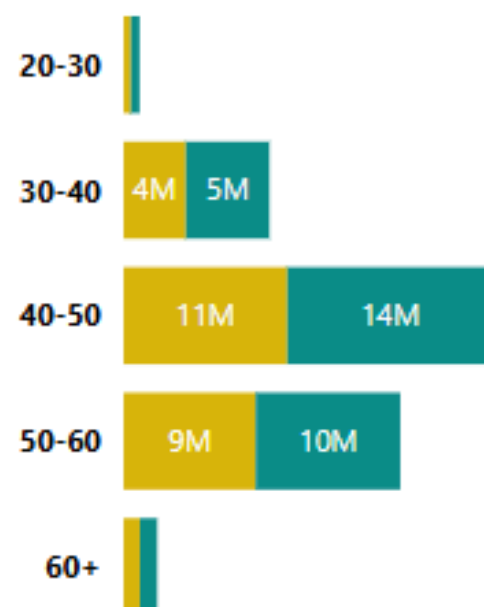
Income

576M

CSS

3.19

Revenue by Age Group



M

30M

F

25M

Silver

Blue

Gold

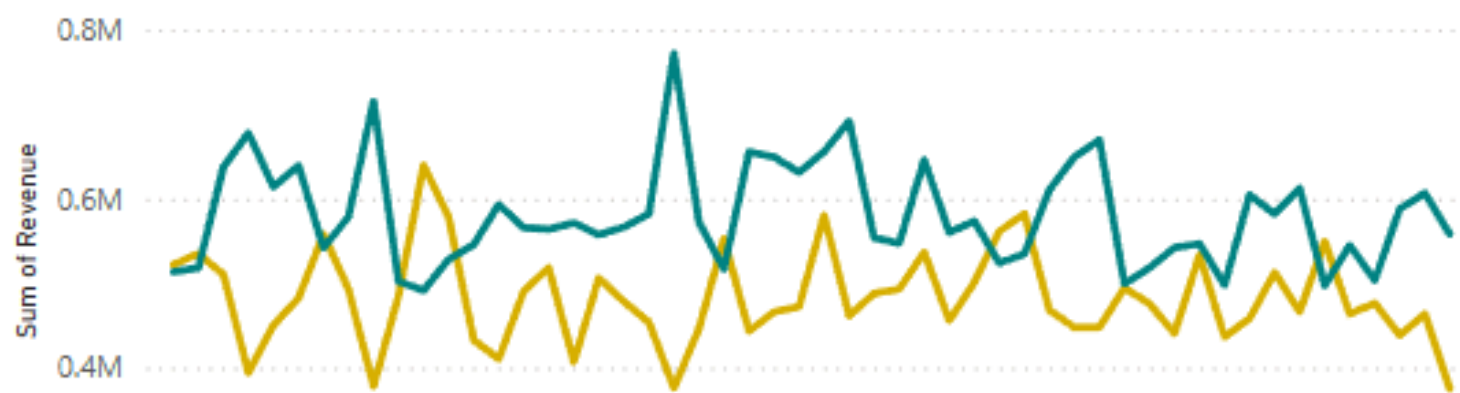
Platinu...

Swipe

Online

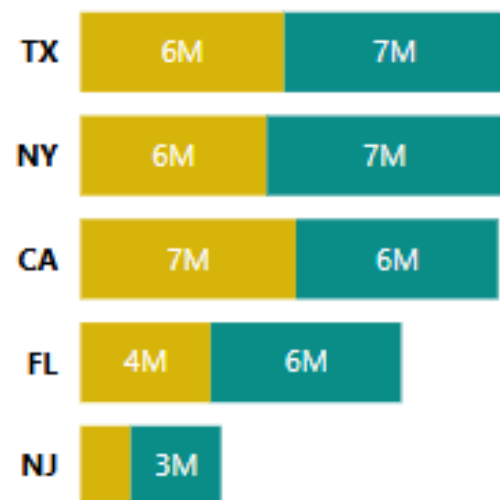
Chip

Revenue by Week

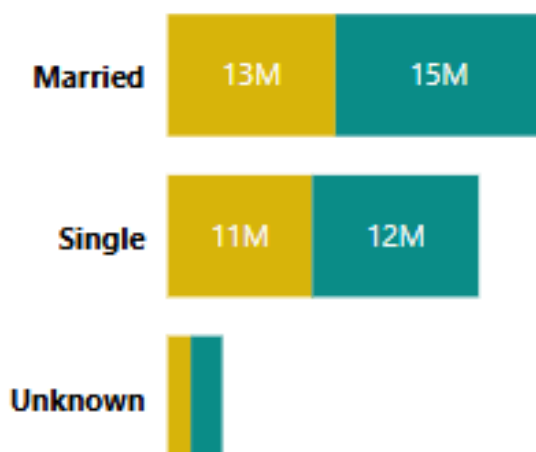


Customer_Job	Sum of Revenue	Sum of Income	Sum of Income
Blue-collar	6904279	72262158	
Businessman	17387832	186959919	
Govt	8111701	88773989	
Retirees	4535184	48675030	
Selfemployed	8261758	75313288	
Total	55315410	575914439	

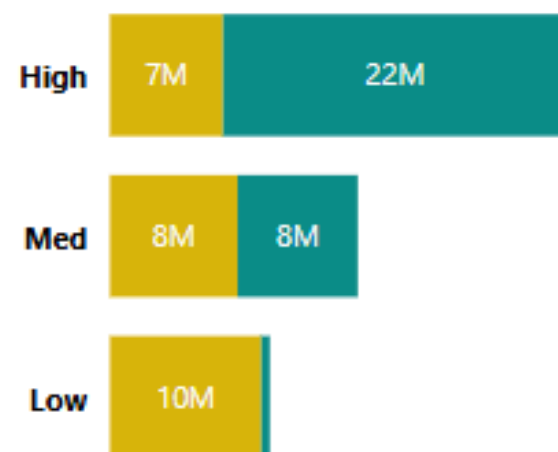
Top 5 States



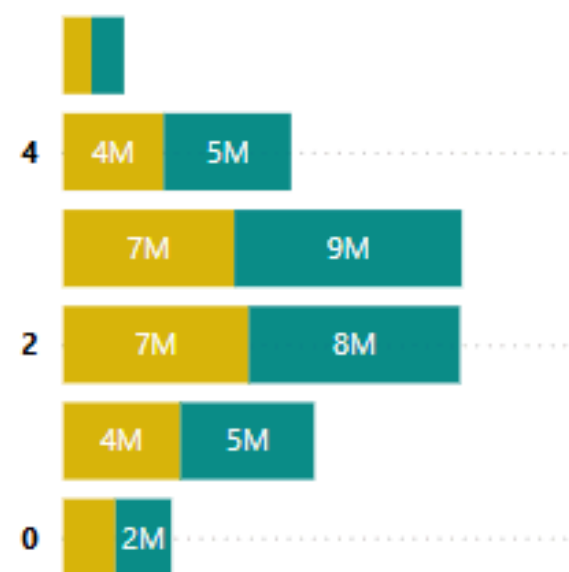
Revenue by Marital Status



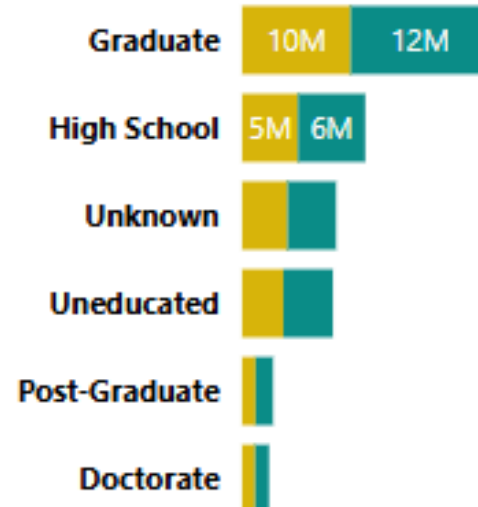
Revenue by Income Group



Revenue by Dependent Count



Revenue by Education level



Insights from the Credit Card Customer Report Dashboard

1. Overall Financial Metrics

- Total Revenue: 55M
- Total Interest Earned: 8M
- Total Income of Customers: 576M
- Customer Satisfaction Score (CSS): 3.19

This indicates strong financial performance, but the CSS score of 3.19 suggests potential areas for improving customer satisfaction.

2. Revenue by Age Group

- 40-50 age group generates the highest revenue (14M) followed by 50-60 age group (10M).
- The younger segment (20-30) contributes the least, which might indicate lower credit card usage or income levels.

3. Revenue by Customer Job

- Businessmen contribute the highest revenue (17M), followed by blue-collar workers, government employees, and retirees.
- The highest income segment also belongs to businessmen, suggesting a strong correlation between income and transaction volume.

4. Revenue by Gender

- Males generate more revenue (30M) than females (25M), indicating a higher spending trend among male customers.

5. Revenue by State

- Top contributing states:
 - California (7M), Texas (7M), and New York (7M).
 - Florida and New Jersey have lower revenue contributions, indicating potential for growth in these regions.

6. Revenue by Marital Status

- Married customers contribute the highest revenue (15M), followed by single customers (12M).
- Understanding spending patterns based on marital status can help in targeted credit card offers.

Insights from the Credit Card Customer Report Dashboard

7. Revenue by Income Group

- High-income group contributes the most revenue (22M), while low-income individuals generate around 10M.
- Middle-income group customers have an 8M contribution, showing a balanced mix of spending.

8. Revenue by Dependent Count

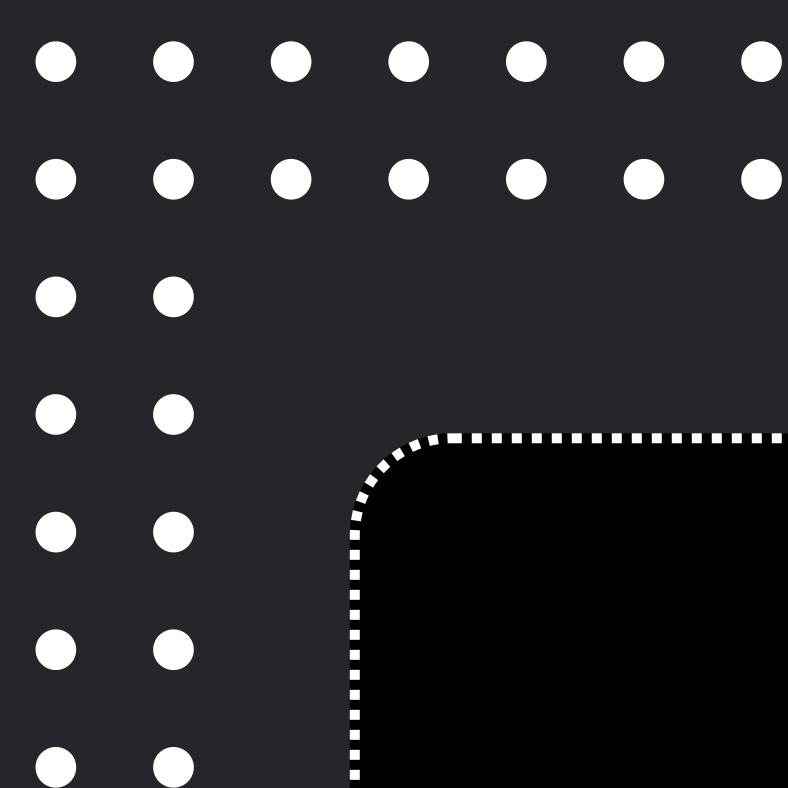
- Customers with 3 or more dependents contribute higher revenue, suggesting families drive spending.
- Those with no dependents contribute the least.

9. Revenue by Education Level

- Graduates contribute the most (12M), followed by high school-educated individuals (6M).
- Post-graduates and doctorate holders contribute the least, possibly due to lower usage of credit cards.

Key Takeaways:

- Businessmen and high-income groups are the most valuable customer segments.
- 40-50-year-olds are the top spenders.
- Males contribute more revenue than females.
- Top states for revenue are CA, TX, and NY.
- Married individuals and customers with dependents contribute higher revenue.



THANK YOU

