

Financial Data Analysis Report

Name: Thota. Prudhvi Nath

Student Id: 23096383

GitHub Link:

https://github.com/thotaprudhvinath/Statistics-and-Trends/blob/main/23096383_Prudhvi.ipynb

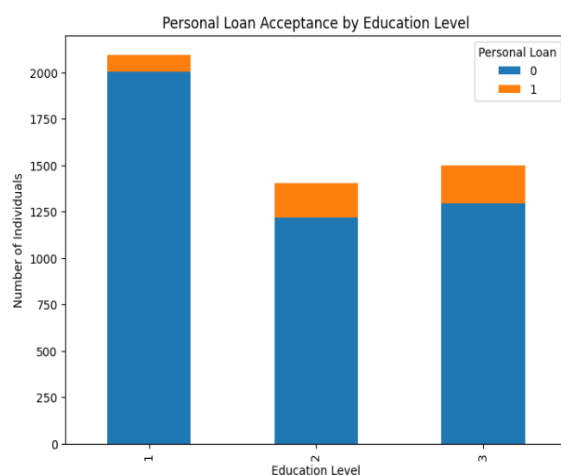
Introduction:

This report employs customer data on demographics, financial habits, and account details in studying the determining factors of the acceptance of a personal loan. In view of variable relationships and trends associated with income, credit card spending, and education level, our analysis identifies what kind of customer characteristics are related to loan acceptance. Based on this, we go on to discuss three key visualizations showing these key patterns and insights, backed up through statistical analysis.

Plot1: Personal Loan Acceptance by Educational Level (Histogram)

Overview: The histogram here represents the acceptance rate of personal loans across three different educational levels. This will help in deducing how the level of education might influence an individual's likelihood to take a personal loan.

Key Observations:

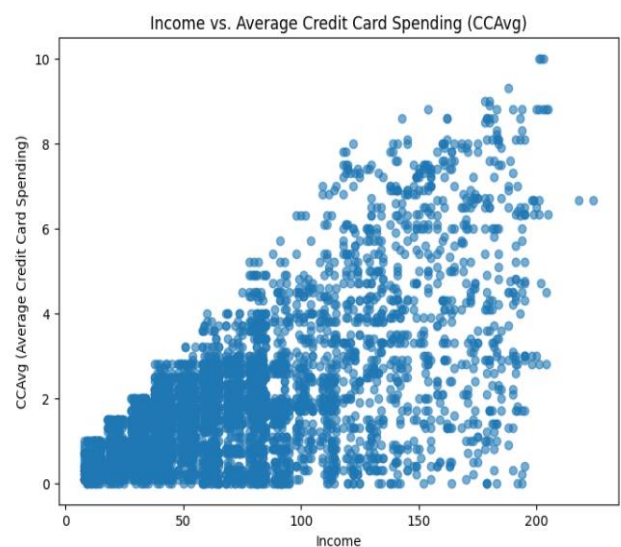


Education Level 1: This is the set of the biggest population, but only a tiny portion of them have accepted a personal loan (in orange). Most of them, in blue colour, have not accepted a loan, and therefore, loan acceptance in Education Level 1 is relatively low.

Education level 2: has fewer members than Level 1, but it has a higher percentage of the group having accepted a personal loan. That could, perhaps, indicate a greater openness to accepting personal loans among the moderately educated population as compared to Level 1.

Education Level 3: The same as Level 2 in aggregate number, but with a slightly higher loan acceptance proportion. This could suggest that greater lengths of education may bear a positive relationship with the likelihood of accepting a loan.

Plot2: Income vs. Average Credit Card Spending (Analysis)



Positive Correlation Exhibited: This scatter plot describes the positive relationship between Income (on the x-axis) and Average Credit Card Spending (y-axis). That suggests that as one's income

Financial Data Analysis Report

increases, the tendency is toward spending more on average with one's credit cards. The overall upward trend of the points indicates a correlation in which income may be one of the factors affecting increased credit card usage.

Behaviour at lower income levels: Up to an income level of about 50 units, credit card expenditure is quite low and huddled together within the 0 to 4 units range on the y-axis. This shows that the conservative lower-income level stratum of the population is either very conservative in credit card spending or has limited credit facilities, which may suppress overall use.

Diversification in spending at higher income levels: For higher classes of income, beyond 100 units of income level, one sees a scatter and spread on the charts showing credit card spending. Some show up to high expenditure levels at as high as 10 units, while others are conservative in their spending. This goes to show that while a higher income generally can afford higher credit card spending, higher-income groups might differ personally quite significantly in their spending habits and financial priorities.

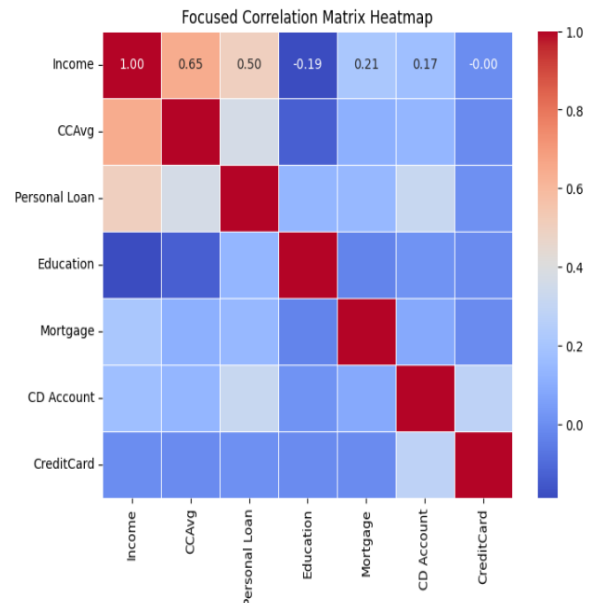
Plot3: Focused Correlation Matrix Analysis

Income vs. CC L Average: A positive correlation rate of 0.65, which is strong, indicates that with increased income, the credit card is used more.

Income vs. Personal Loan: A strong correlation, 0.50, indicating that the higher a person's income, the likelier they will accept a loan.

Education and Personal Loan: A moderate correlation of 0.52, which infers that

persons with more education are the ones who accept personal loans.



Education and Income: The correlation is a weak negative value of -0.19, an unexpected inverse relationship.

Mortgage and Income: Weak positive correlation of 0.21, indicating slightly larger mortgages for higher incomes.

Outcome: CD Account and Credit Card: A small positive correlation, 0.17, is observed, indicating little relationship between ownership of a CD account and use of credit cards.

Brief Statistical Summary

Uniform Distribution: ID, Age, Experience, Family, Education - low skewness and kurtosis.

Skewed to the right: These include Income, CCAvg, Mortgage, Personal Loan, Securities Account, CD Account, Credit Card for all these attributes, the values taken by them for a few individuals are extremely high.