AtliQo Bank Credit Card Project

Business Problem:

AtliQo Bank, a new player in the Indian banking sector, is preparing to launch its first credit card product. In a highly saturated and competitive market, the bank seeks to differentiate itself by precisely targeting the right customer segment. To do so, they aim to leverage historical customer, transaction, and credit profile data to make data-driven decisions.

The core challenge lies in identifying the most promising customer group whose financial behavior and credit readiness align with the bank's risk and profitability expectations. By understanding key customer attributes—such as income levels, credit scores, transaction trends, and spending behavior—AtliQo Bank intends to craft a personalized credit card offering.

Project Objective:

To identify a high-potential customer segment suitable for the launch of a new credit card by analyzing customer demographics, financial behavior, and credit attributes using a two-phase approach.

Phase 1: Data-Driven Target Market Identification

- **Data Cleaning:** Handling missing values and ensuring consistency
- **Distribution Analysis:** Evaluating normality and skewness of financial indicators
- **EDA (Exploratory Data Analysis):** Understanding behavioral and financial trends
- **Outlier Treatment:** Addressing extreme values to improve model accuracy
- **Visualization:** Summarizing insights to identify patterns and segment profiles

Phase 2: Pilot Launch & Validation

- **Trial Campaign:** Roll out the credit card to the identified segment on a small scale
- **Hypothesis Testing:** Validate business assumptions and test response rates and credit performance statistically

Data Description

The project uses three main datasets that were cleaned, explored, and loaded into a SQL database for efficient querying:

Customer Table dataset Information:

- **cust_id**: A unique identifier assigned to each customer
- **name**: Full name of the customer
- **gender**: Gender identity of the customer (Male or Female)
- **age**: Age of the customer, expressed in completed years
- **location**: Geographic location where the customer resides
- **occupation**: Primary profession or employment type (e.g., Business Owner, Consultant, Freelancer)
- **annual_income**: Reported yearly income of the customer (in standard currency units)
- **marital_status**: Current marital status (married or single)

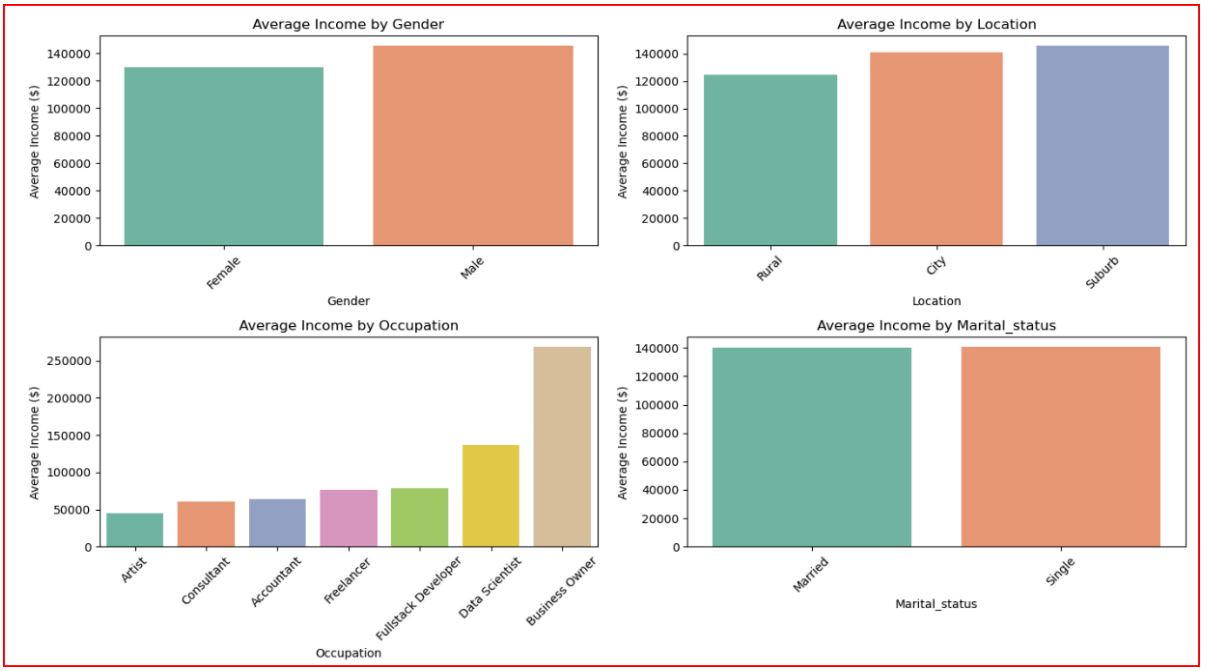
Credit Score Table dataset Information:

- **cust_id**: Unique identifier assigned to each customer
- **credit_score**: Numerical score representing the customer's creditworthiness
- **credit_utilisation**: Ratio of credit used relative to the total credit limit
- **outstanding_debt**: Total unpaid debt currently owed by the customer (in monetary units)
- **credit_inquiries_last_6_months**: Number of times the customer's credit report was pulled in the last 6 months
- **credit_limit**: Maximum credit amount allotted to the customer (in monetary units)

Transactions Table dataset Information:

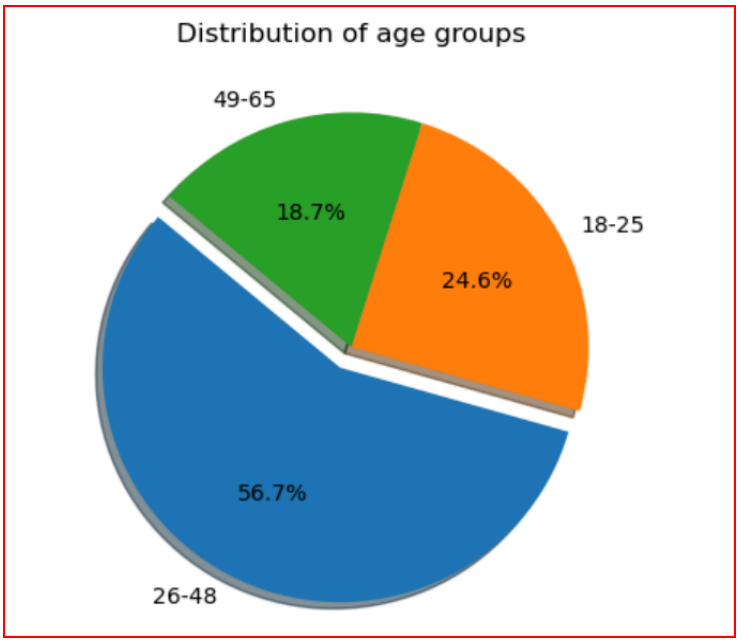
- **tran_id**: Unique identifier for each transaction record
- **cust_id**: Identifier linking the transaction to a specific customer
- **tran_date**: Date on which the transaction was executed
- **tran_amount**: Monetary value of the transaction
- **platform**: E-commerce platform where the transaction occurred (e.g., Flipkart, Amazon, Shopify, Alibaba)
- **product_category**: Category of the purchased product (e.g., Electronics, Fashion & Apparel, Sports)
- **payment_type**: Mode of payment used for the transaction (e.g., PhonePe, Credit Card, GPay, Net Banking)

Key Insights (From EDA)



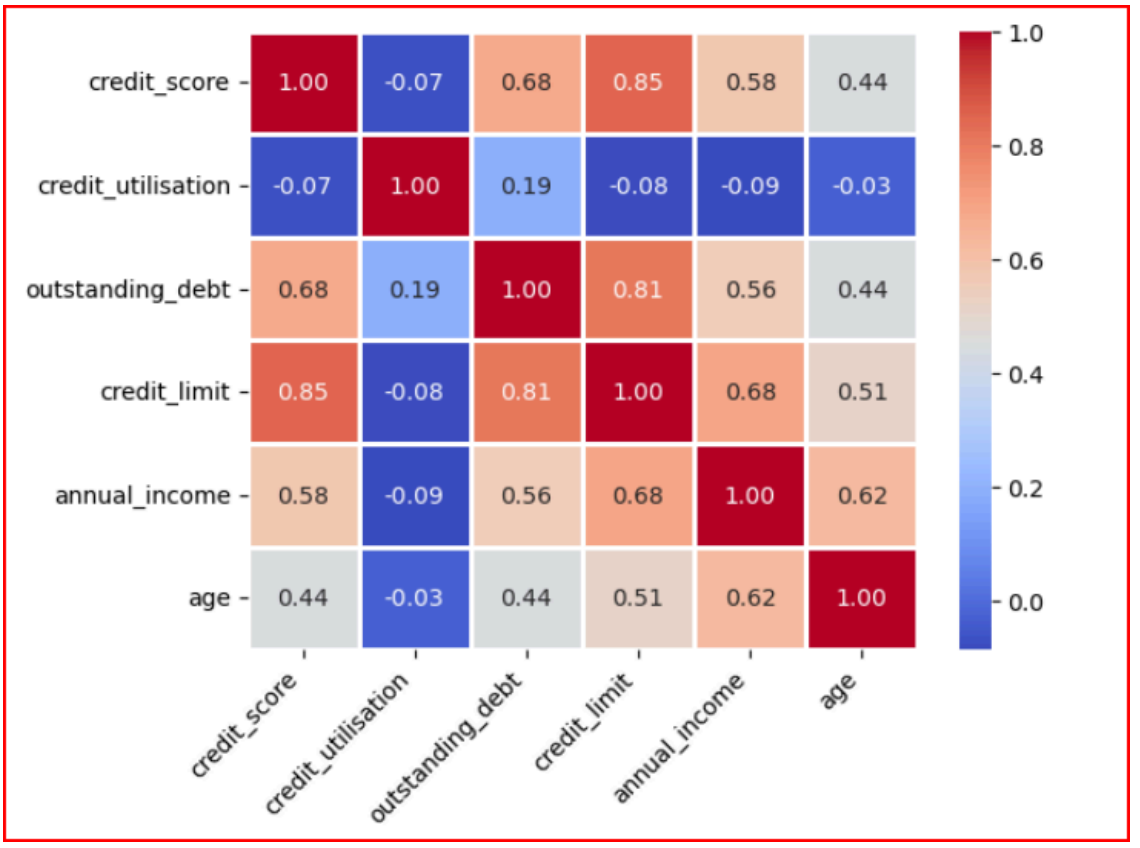
Insights from Categorical Analysis of Average Annual Income w.r.t Gender, Location, Occupation, Marital Status:

- **Gender:** Males have a slightly higher average income than females.
- **Location:** Customers living in city and suburban areas earn noticeably more than those in rural regions.
- **Occupation:** Business Owners lead significantly in average income, followed by Data Scientists. Occupations such as full stack developers, freelancers, consultants, and accountants fall in the middle income range, while artists represent the lowest average earners in the dataset.
- **Marital Status:** Married and single customers have similar income levels, suggesting marital status has little to no impact on average earnings in this dataset.



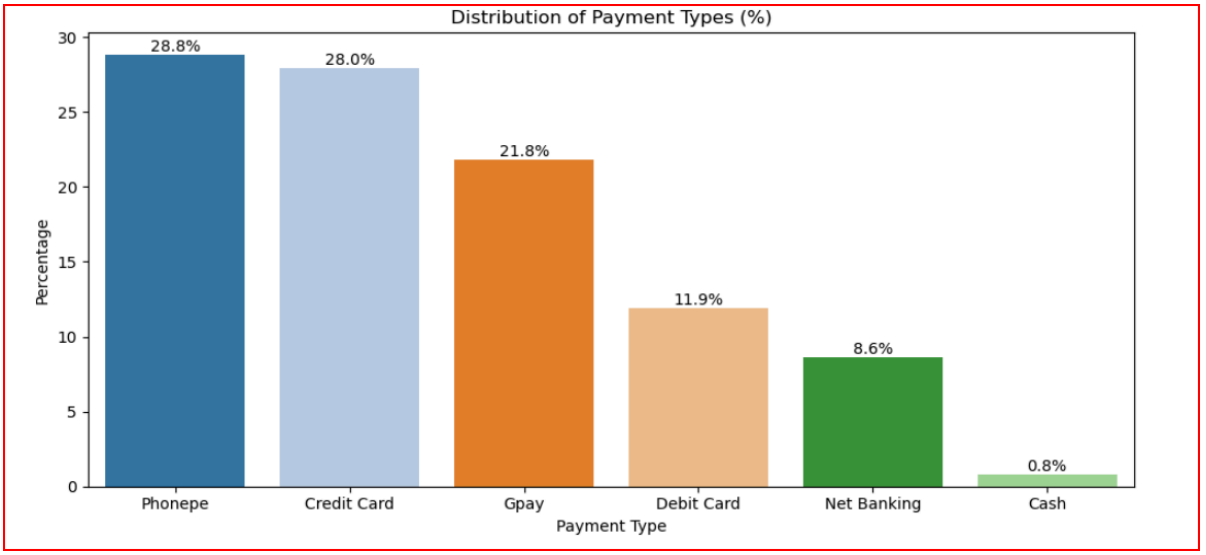
Insights: Age Group Distribution

- Over 56% of customers fall into the 26–48 age group, representing the core customer segment.
- Around 25% of customers are in the 18–25 age bracket, suggesting a strong presence of younger.
- The 49–65 group accounts for 19% of the customer base. While smaller in proportion, they may represent a more financially stable or retirement-focused segment.



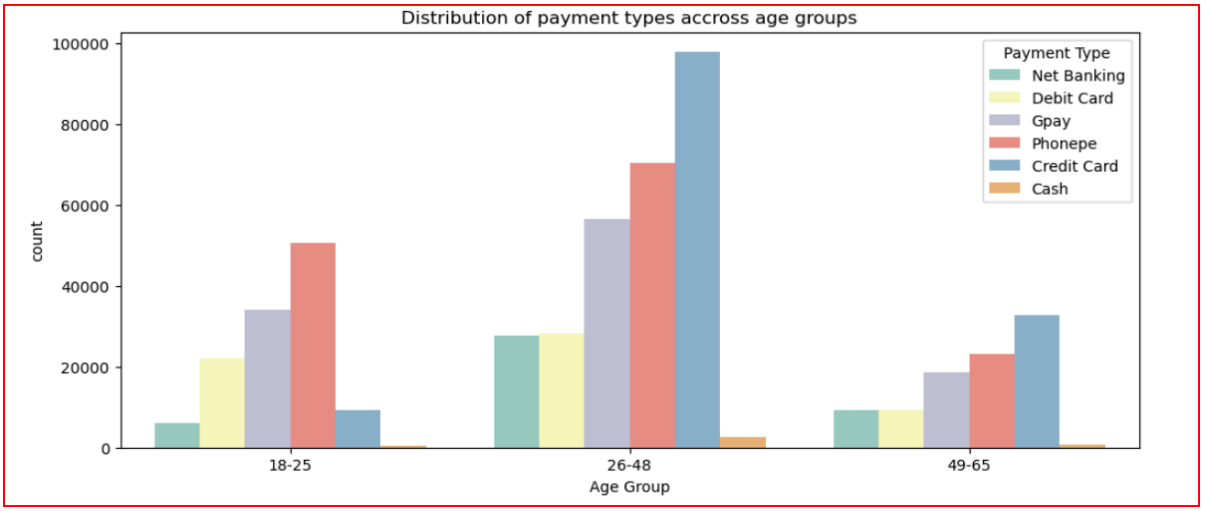
Insights from heatmap of the correlation:

- Credit Score and Credit Limit: A strong positive correlation (0.85) indicates that customers with higher credit scores are typically granted higher credit limits.
- Outstanding Debt and Credit Limit: The high correlation (0.81) suggests that individuals with larger credit limits often carry higher levels of outstanding debt.
- Credit Score and Outstanding Debt: A moderate positive correlation (0.68) implies that customers with higher credit scores also tend to manage higher amounts of debt, potentially reflecting stronger creditworthiness.
- Annual Income and Age: With a correlation of 0.62, this relationship shows that older customers generally report higher annual incomes.
- credit_utilisation shows negligible or slightly negative correlation with all other variables, suggesting that it behaves independently and may reflect individual credit usage patterns rather than financial strength.



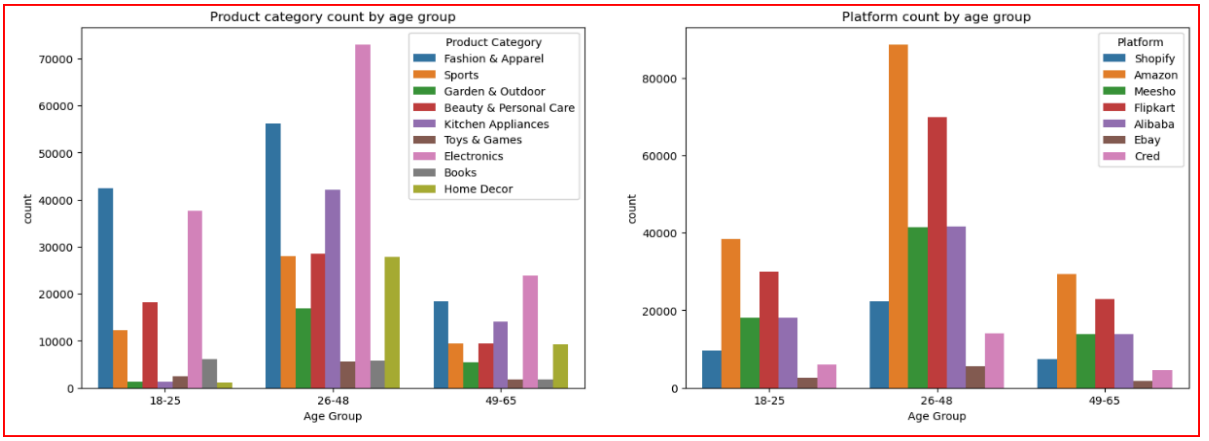
Insights from distribution of Payment types:

- PhonePe (28.8%) is the most widely used payment method, indicating a strong preference for UPI-based mobile wallets among customers.
- Credit Card usage (28.0%) closely follows PhonePe, suggesting that a significant portion of users still rely on traditional credit based transactions , possibly for benefits like EMI options or reward points.
- GPay (21.8%) holds a solid third position, further confirming the growing adoption of UPI and mobile-first payment solutions.
- Debit Cards (11.9%) and Net Banking (8.6%) are used less frequently, showing that customers are increasingly shifting away from conventional banking methods for online purchases.
- Cash (0.8%) is almost negligible, underscoring a near-complete shift toward digital payments.



Insights from distribution of payment types across age groups:

- Age Group 18–25 relies more on UPI payments, especially PhonePe and GPay indicating a preference for digital payment methods. Credit Card usage is lowest here, likely due to limited credit access or lower income eligibility.
- Age Group 26–48 shows the highest transaction volume across all payment methods, reflecting this segment's dominance in digital and card-based transactions. Credit Card usage is most prominent in this group, indicating higher financial maturity and purchasing power.
- Age Group 49–65 shows moderate preference toward Credit Card and PhonePe, but overall transaction volume is lower than younger groups.
- Overall, digital payment methods like Phonepe and Gpay are popular among younger age groups, while Credit Card usage is high across all age groups, particularly in the 26-48 range.Age group 18-25 has less exposure to credit cards compared to other groups.



Insights from

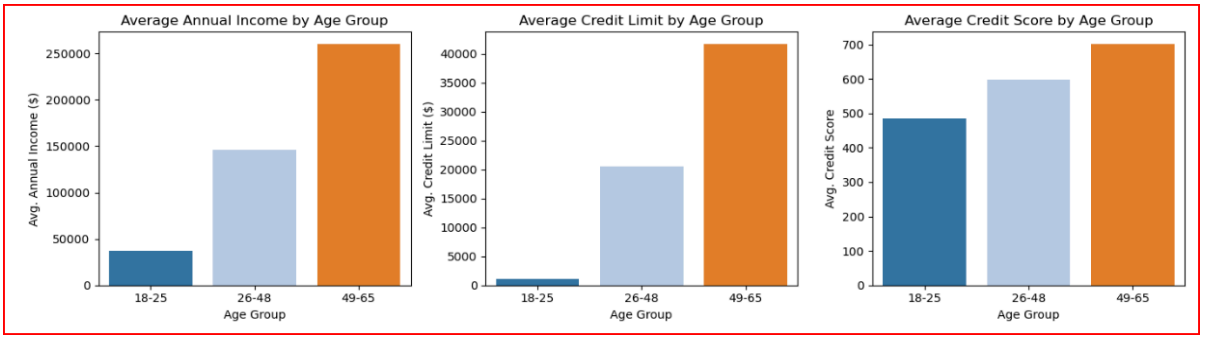
Product Category Preferences by Age Group

- Age Group 18–25 shows strong interest in Fashion & Apparel, Electronics, Beauty & Personal Care. These trends reflect youth-driven shopping behaviors focused on tech, lifestyle, and personal grooming.
- Age Group 26–48 dominates across most product categories, especially in Electronics, Fashion & Apparel, Kitchen Appliances, Home Decor. This group represents the most active and diverse segment of shoppers.
- Age Group 49–65 contributes less in volume but still engages in Electronics, Fashion & Apparel, Home Decor

Platform Usage by Age Group

- Amazon is the leading platform across all age groups — especially dominant among 26–48 users.
- Flipkart and Alibaba are strong alternatives, particularly for the 26–48 and 18–25 groups.

- Meesho sees noticeable activity in 18–25 and 26–48, likely due to its budget-friendly, trend-driven product range.
- Shopify and Cred are more active in the 26–48 segment, indicating a skew toward entrepreneurial or premium consumer behavior.
- Ebay has minimal usage.



Finalize Target Market For a Trial Credit Card Launch

Insights for the Age Group 18–25

Customer Base Share:

- Individuals aged 18–25 account for ~24.6% of the total customer base.

Income & Financial Background:

- The average annual income is below $50,000, indicating limited earning capacity.
- This age group shows limited credit history, as reflected in their low credit scores and modest credit limits.

Spending & Card Behavior:

- Credit card usage is relatively low compared to older age groups. Likely due to a combination of income level and lack of prior credit experience.

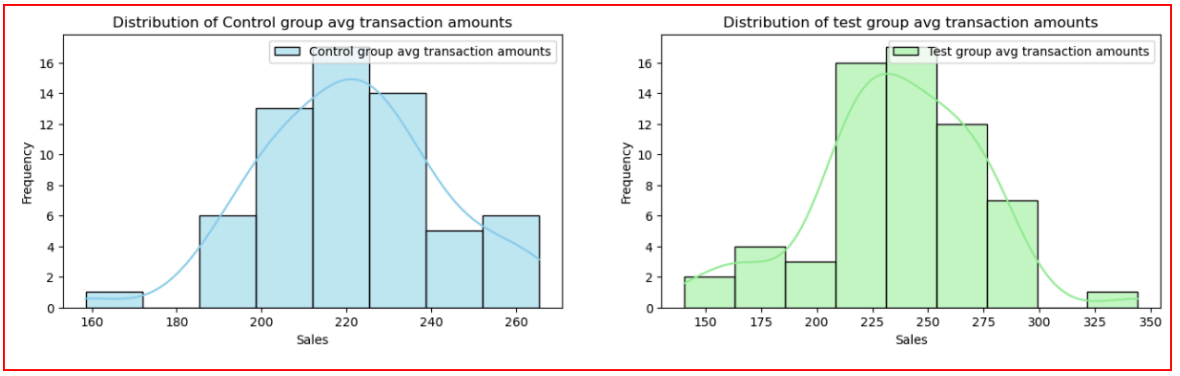
Top Spending Categories:

- The most popular product categories among this group are:
  - Electronics
  - Fashion & Apparel
  - Beauty & Personal Care
  - These categories suggest a high interest in lifestyle and aspirational spending, despite limited financial leverage.

In the Phase 2 of the project, Business Analysis and launch of AB testing

Pre-Campaign

To conduct a trial run for the new credit card, it is necessary to determine the number of customers required for A/B testing. This involves forming both a control and a test group. The number of customers in each group will be based on the agreed-upon statistical power and effect size, following discussions with the business team.



Hypotheses:

- Null Hypothesis (H0): The new credit card does not significantly increase the usage or transaction amounts compared to the existing credit card.
- Alternative Hypothesis (H1): The new credit card significantly increases the usage or transaction amounts compared to the existing credit card.

Conclusion

- Statistical Significance, Since the p-value (0.003) is well below the common significance level of 0.05, we reject the null hypothesis. This indicates a statistically significant difference between the test group and the control group.
- The new credit card offering in the test group had a positive impact, leading to higher average transaction amounts. This suggests that the campaign or card features may be effectively influencing spending behavior.
- Based on this result, the campaign appears to be successful.

Author: Kiran Kumar N C