Lending Club Case Study: Leveraging Data for Informed Decision Making

This case study explores the key factors influencing loan approval and default risk at Lending Club, a leading peer-to-peer lending platform. By conducting a comprehensive exploratory data analysis, we aim to uncover valuable insights that can inform strategic decision-making and risk management for lending operations.

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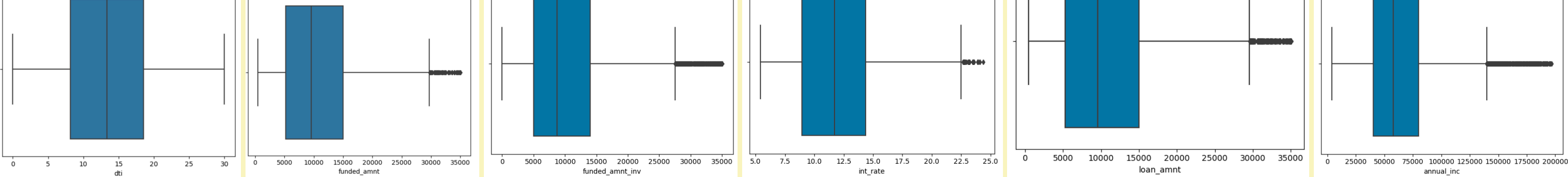# Defining the Problem and Analysis Approach

1   **Problem Statement**

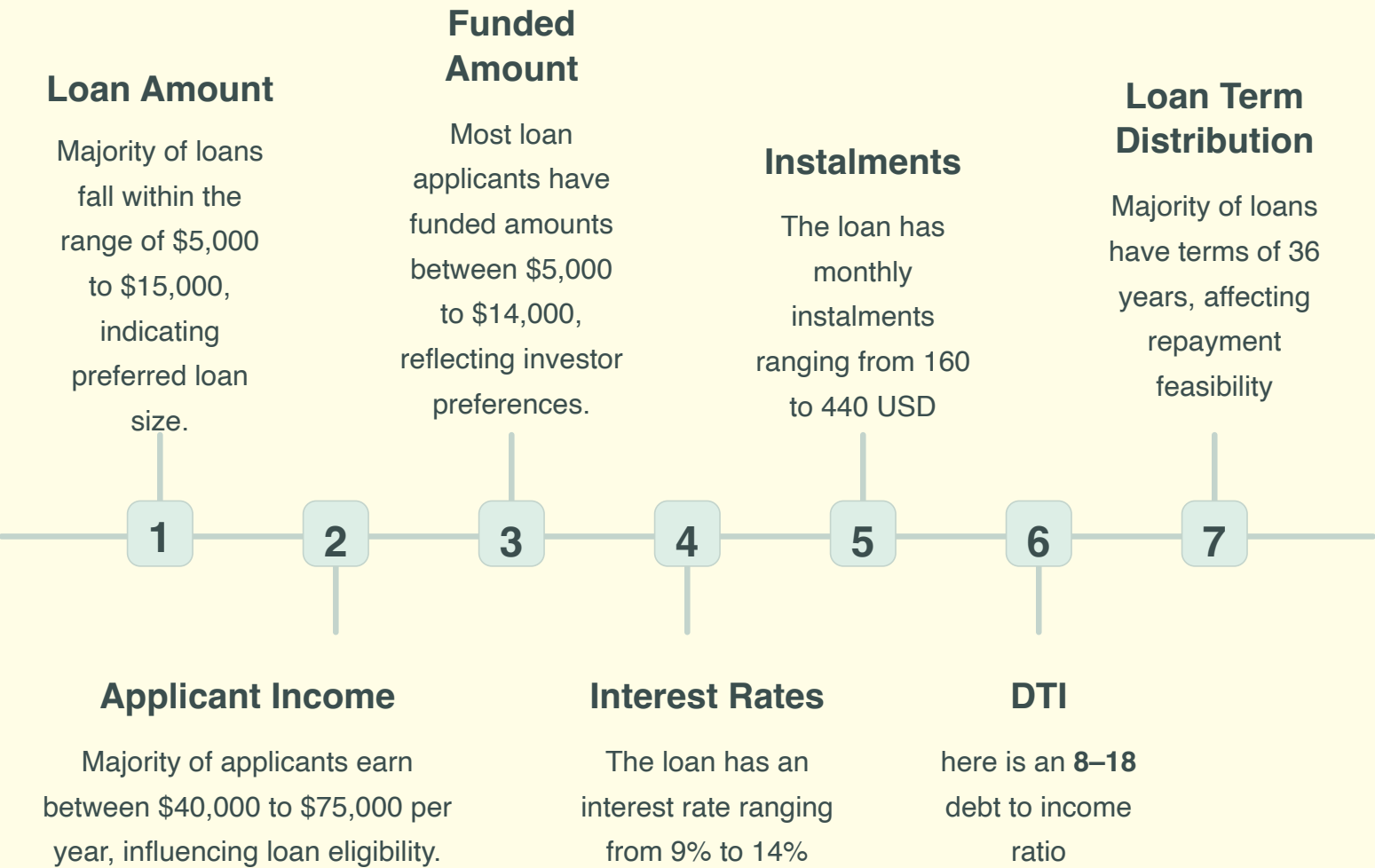Determining the factors for loan approval and predicting loan default risk.

2   **Analysis Approach**

Utilizing exploratory data analysis steps like data cleaning, identify the missing values, data optimisation using standardising the data, univariate, bivariate analysis and derived metrics to identify key variables influencing loan decisions and default rates.

Unveiling Univariate Analysis Insights

Loan Amount

Majority of loans fall within the range of $5,000 to $15,000, indicating preferred loan size.

Funded Amount

Most loan applicants have funded amounts between $5,000 to $14,000, reflecting investor preferences.

Instalments

The loan has monthly instalments ranging from 160 to 440 USD

Loan Term Distribution

Majority of loans have terms of 36 years, affecting repayment feasibility

1 **2** **3** **4** **5** **6** **7**

Applicant Income

Majority of applicants earn between $40,000 to $75,000 per year, influencing loan eligibility.

Interest Rates

The loan has an interest rate ranging from 9% to 14%

DTI

here is an **8–18** debt to income ratio

Uncovering Bivariate Analysis Findings

Credit Score vs. Loan Default

Applicants with lower credit scores have a higher likelihood of default, emphasizing the importance of creditworthiness.

Income vs. Loan Default

Lower-income applicants are more likely to default, indicating the need for robust income verification.

Deriving Meaningful Insights from Metrics

Debt-to-Income Ratio

Applicants with a high DTI ratio are at a higher risk of default, suggesting stricter DTI requirements.

Loan-to-Value Ratio

Higher LTV ratios correlate with increased default rates, necessitating lower LTV thresholds.

Summarizing the Key Findings

1 **Key Takeaways**

Derived metrics like DTI and LTV provide additional insights into default risk.

2 **Recommendation**

Stricter criteria for creditworthiness and risk assessment are recommended to mitigate defaults.

Recommendations for Lending Operations

| 1 | 2 | 3 |

Credit Scoring Models

Implement automated credit scoring models to evaluate applicant creditworthiness.

Income Verification

Introduce income verification procedures to ensure borrower ability to repay.

Loan Adjustments

Adjust loan terms and amounts based on the risk factors identified in the analysis.

Conclusion: The Power of Data-Driven Decisions

Exploratory data analysis has provided valuable insights into loan approval and default prediction, underscoring the importance of data-driven decision-making for mitigating risks and maximizing profitability in lending operations.