

Lending Club Case Study

Comprehensive Analysis and Recommendations

Problem Statement

Lending Club aims to minimize credit losses by identifying key factors influencing loan defaults.

Major Risks:

1. Rejecting loans for applicants likely to repay, resulting in lost business.
2. Approving loans for applicants likely to default, leading to financial loss.

Objective: Use Exploratory Data Analysis (EDA) to identify patterns behind defaults and provide actionable recommendations.

Analysis Approach

1. Data Cleaning: Removed irrelevant columns, handled missing values, and addressed outliers.
2. Univariate Analysis: Explored distributions of key variables (e.g., loan amount, interest rate).
3. Bivariate Analysis: Examined relationships (e.g., loan amount vs grade, loan status vs purpose).
4. Multivariate Analysis: Studied interactions using heatmaps, grids, and pair plots.

Results and Insights

1. Higher loan amounts are linked to higher interest rates and default likelihood.
2. Lower grades (e.g., D, E, F, G) are associated with higher defaults and interest rates.
3. Verified income correlates with lower default likelihood.
4. Renters show a higher default rate compared to homeowners.
5. Shorter employment lengths increase default risk.

Recommendations

1. Stricter Approval Criteria: Tighten rules for higher loan amounts and lower grades.
2. Tailored Interest Rates: Offer lower rates to applicants with higher incomes and stable employment.
3. Prioritize Homeowners and Verified Borrowers: Focus on verified income to reduce defaults.
4. Enhance Risk Models: Regularly update models based on historical data.
5. Financial Education Programs: Educate borrowers to improve financial literacy and manage loans better.