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Data Science and Analytics Certification Course Assignment

Gramener Case Study
Loan Data Set

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Background- Gramener Loan Case Study

Background

Lending club is the largest peer-to-peer marketplace connecting borrowers with lenders. Borrowers apply through an online platform where they are assigned an internal score. Lenders decide 1) whether to lend and 2) the terms of loan such as interest rate, monthly instalment, tenure etc.

Some popular products are credit card loans, debt consolidation loans, house loans, car loans etc.

Business Objective

To identify variables which are strong indicators of default and potentially use the insights in approval / rejection decision making.

Data Understanding

Types of variables

- Customer (applicant) demographic
- Loan related information & characteristics
- Customer behaviour (if the loan is granted)

Customer's Demographics
Employement Length
Employement title
Annual Income
Zip Code
Description

Loan Information & Characteristics
Loan Amount
Funded Amount
Funded Amount Investment
Interest Rate
Loan Status
Laon Grade

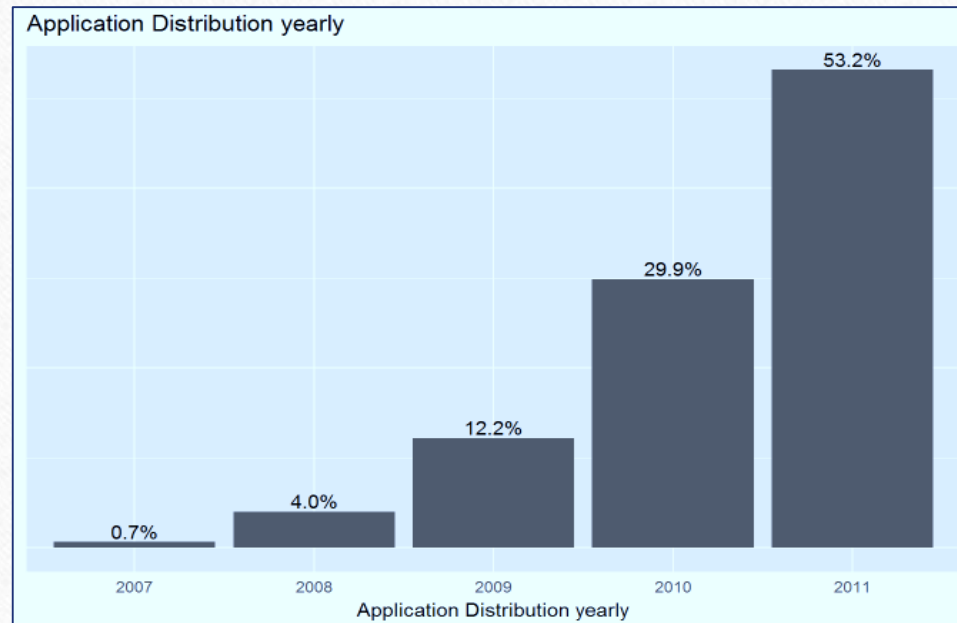| Customer Behaviour variables |
| --- |
| Delinquency year -2 |
| earliest credit line |
| Revolving balance |
| Recoveries |
| Application type |
| Loan purpose |

Data Understanding – Overall Default Rate is 14%
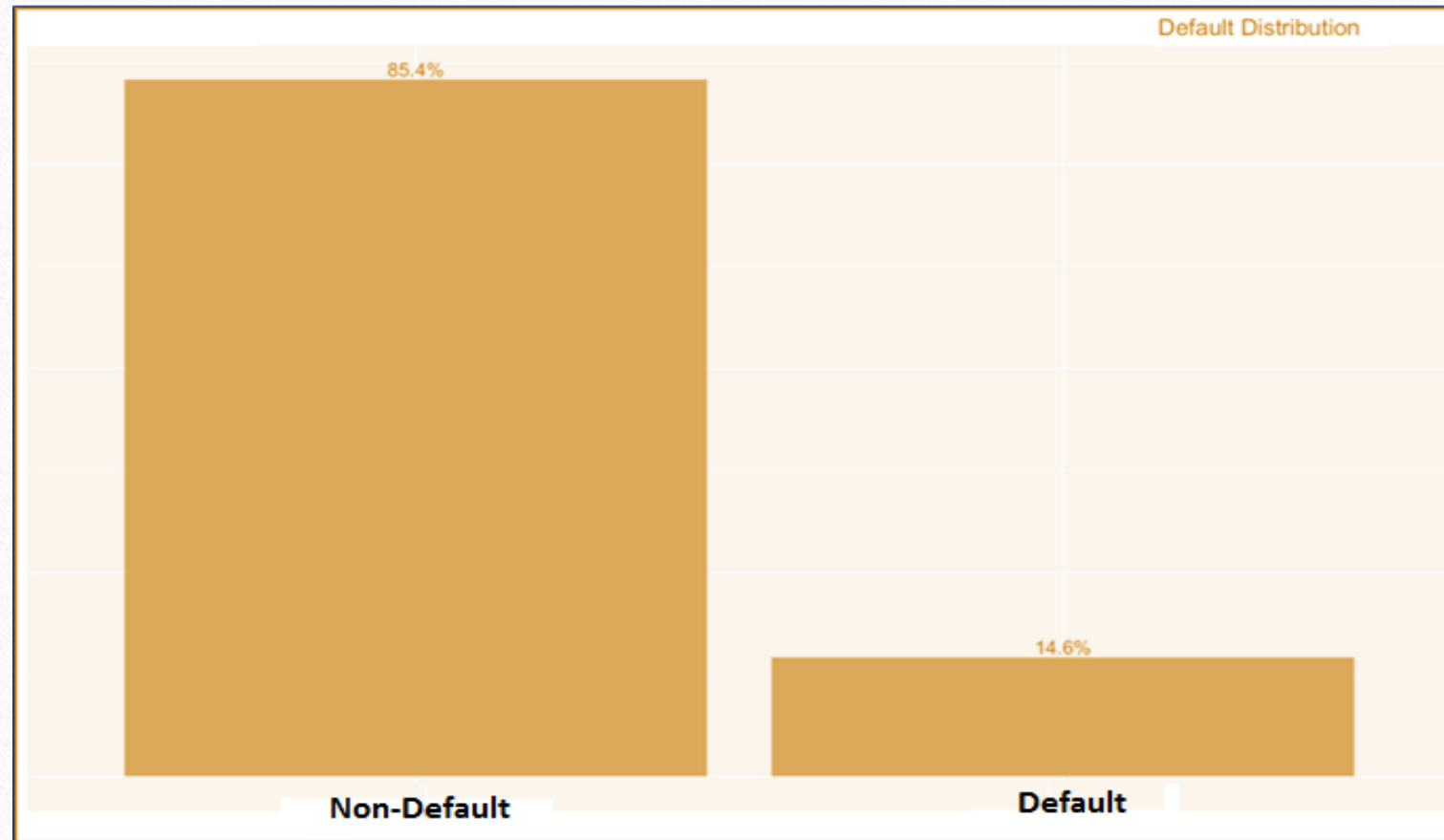
# Time Frame of Data – 2007-2011

- 78% increment in applicants in 2011 compared to 2010
- 145% increment in applicants in 2010 compared to 2009

Application Distribution yearly

53.2%

29.9%

12.2%

4.0%

0.7%

2007   2008   2009   2010   2011

Application Distribution yearly

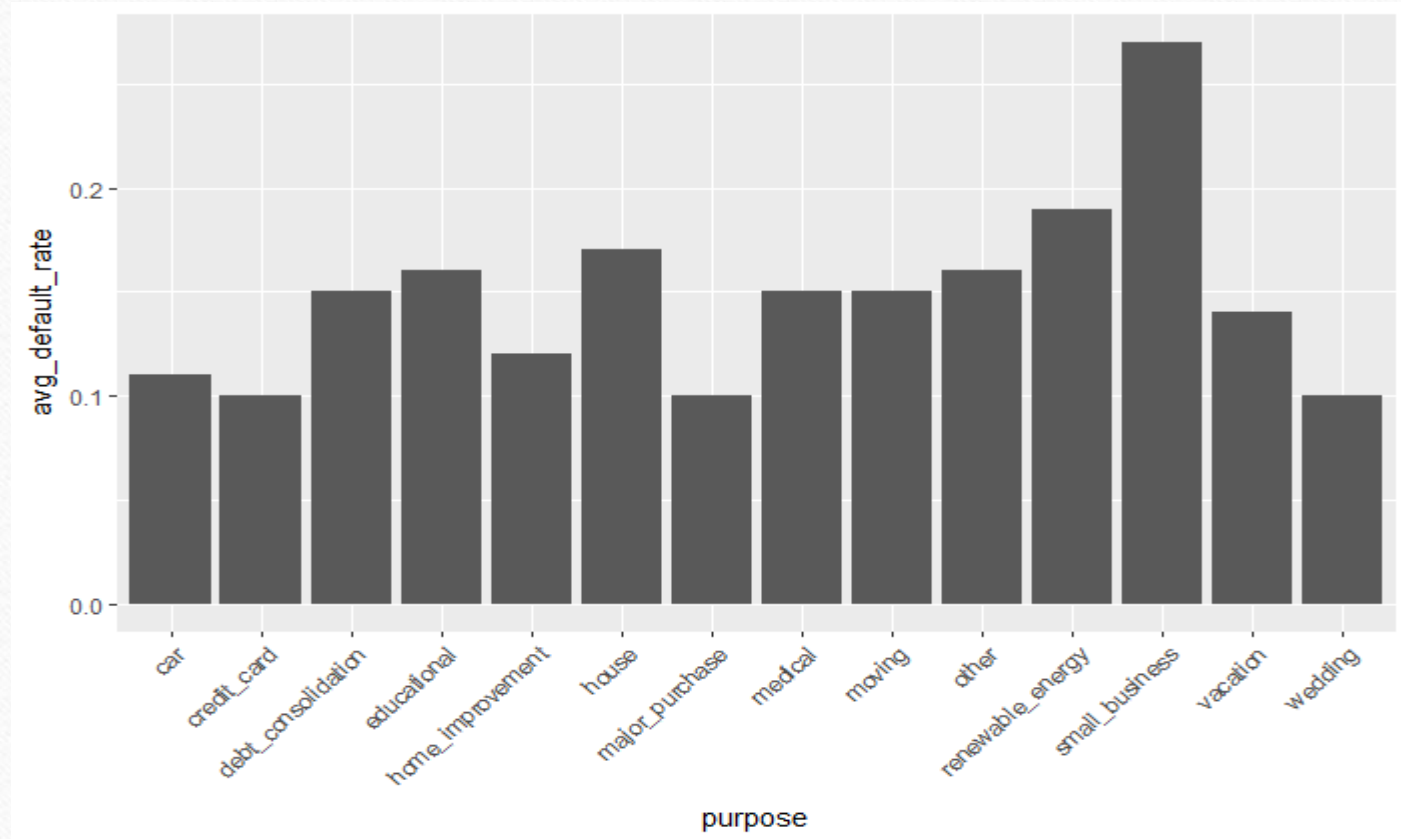# Loan Purpose Distribution :
Debt Consolidation Loan is the most popular

- 46.8% debt consolidation loans

- 13% credit card loans

- 7.5% home improvement loans

- 5.6% major purchase loans

Types of Products offers by Lending club
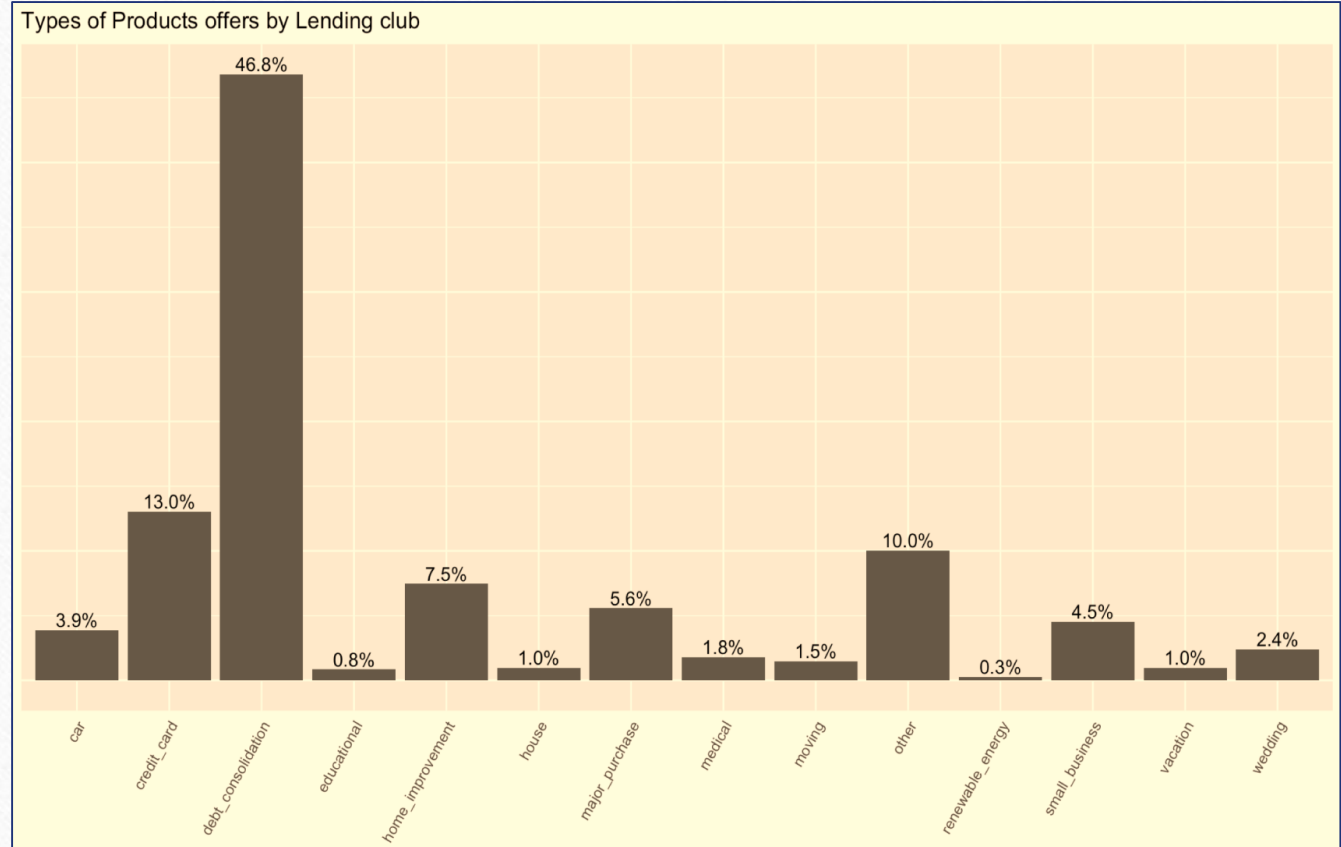
Default Rates By Loan Purpose

- Small business: 27%

- House: 17%

- Educational: 16%

- Debt consolidation: 15%

- Credit card: 10%

- Major purchase: 10%

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Top-4 Products over time: Credit Card, Debt Consolidation, Home Improvement & Major purchase

- In 2007 & 2008, Lending Club focused on major purchase loans

- In 2009, they started lending money for home improvement purpose also

- In 2010, they started lending loan for debt consolidation
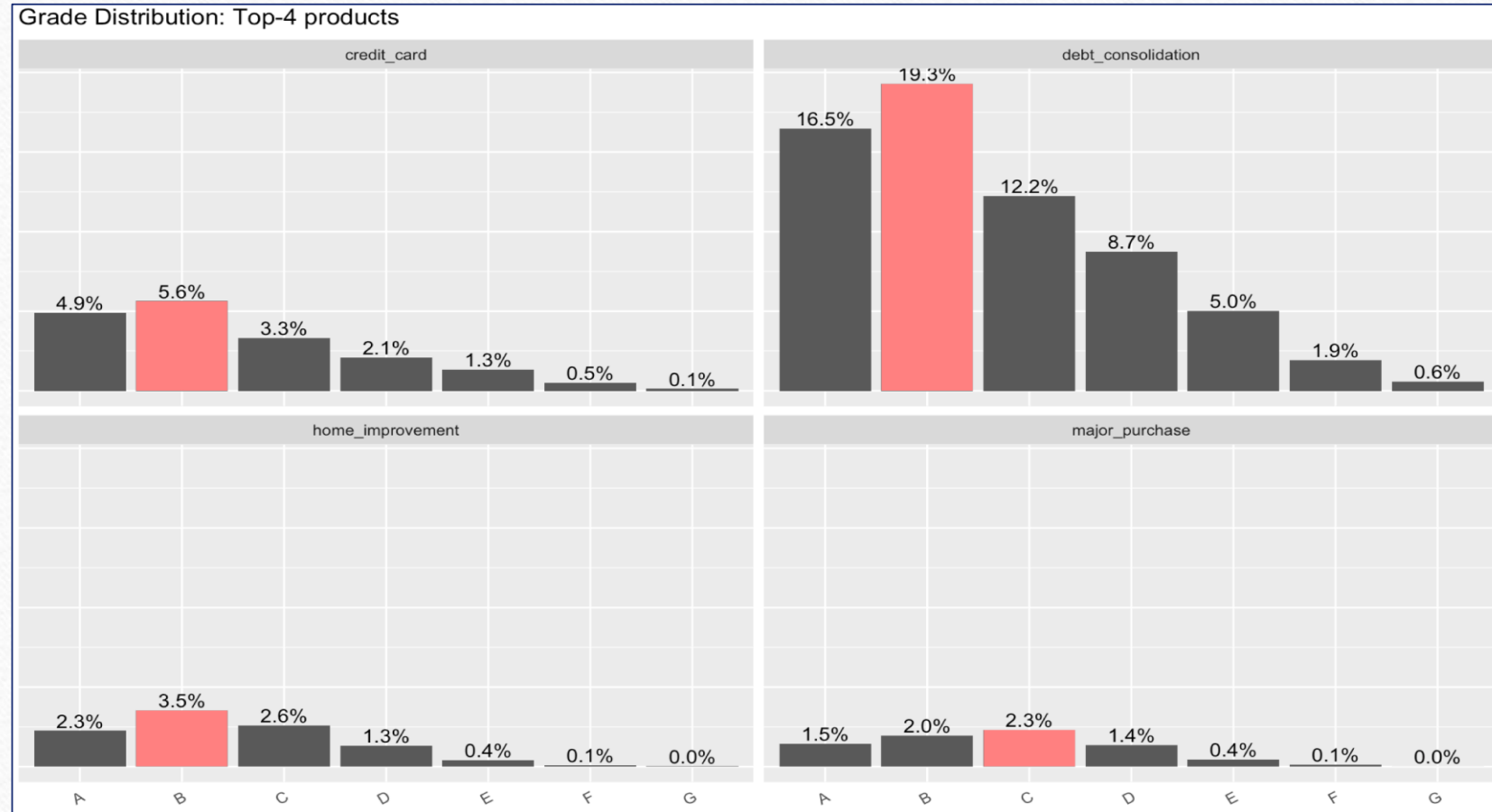
- In 2011, credit card loans were introduced

Product-wise Distribution:2007-2011
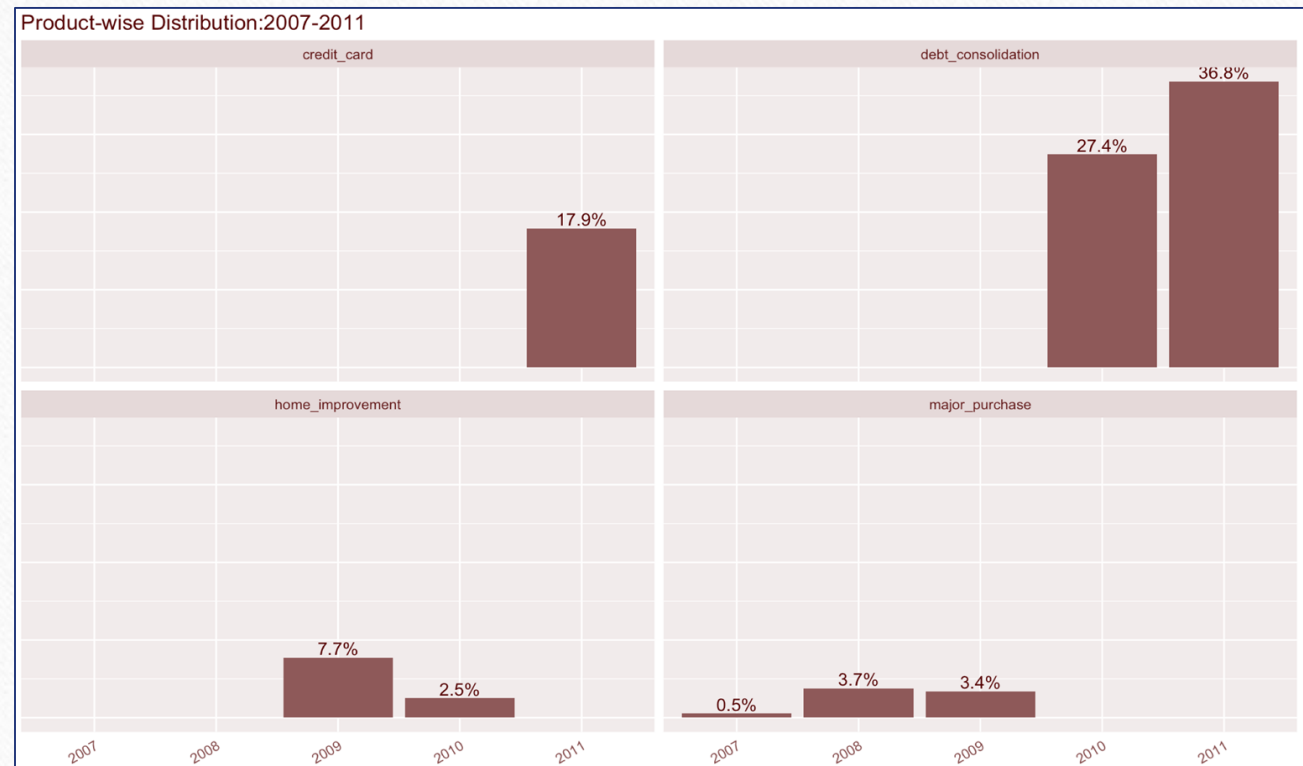
Term Distribution in Top-4 products

- Lending club has given out 36 month term period loan for major purpose and home improvement.

Term Distribution within the four types of loans

Grade Distribution in top-4 products
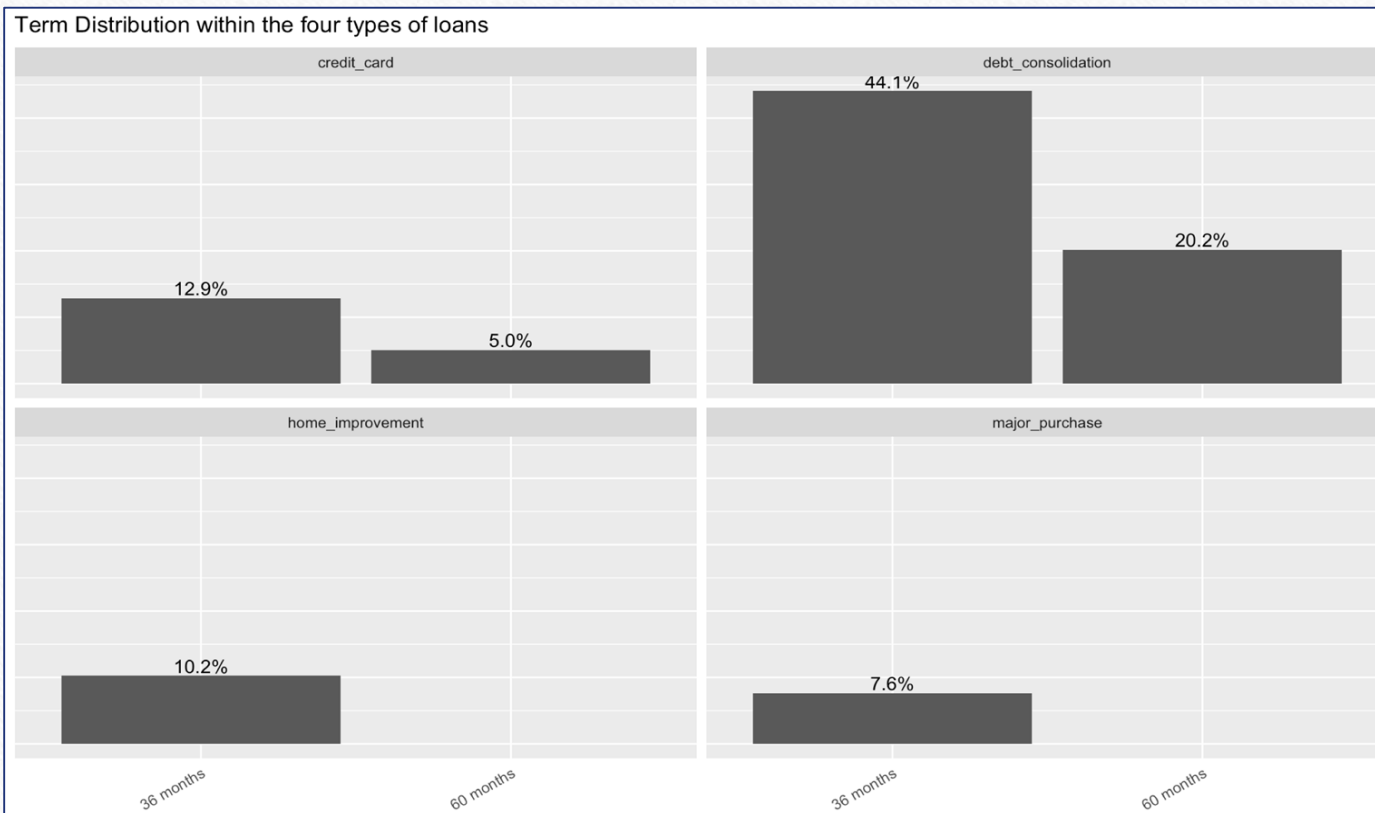
Grade Distribution: Top-4 products

Average Interest Rate in top-4 products
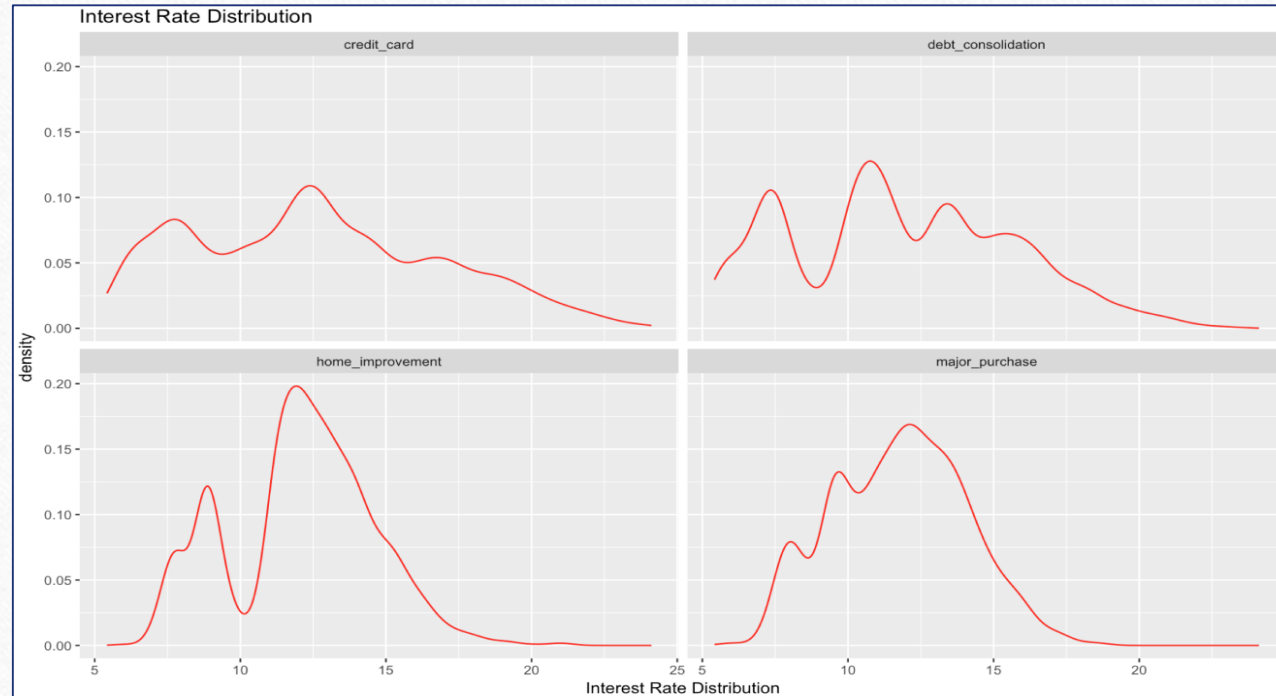
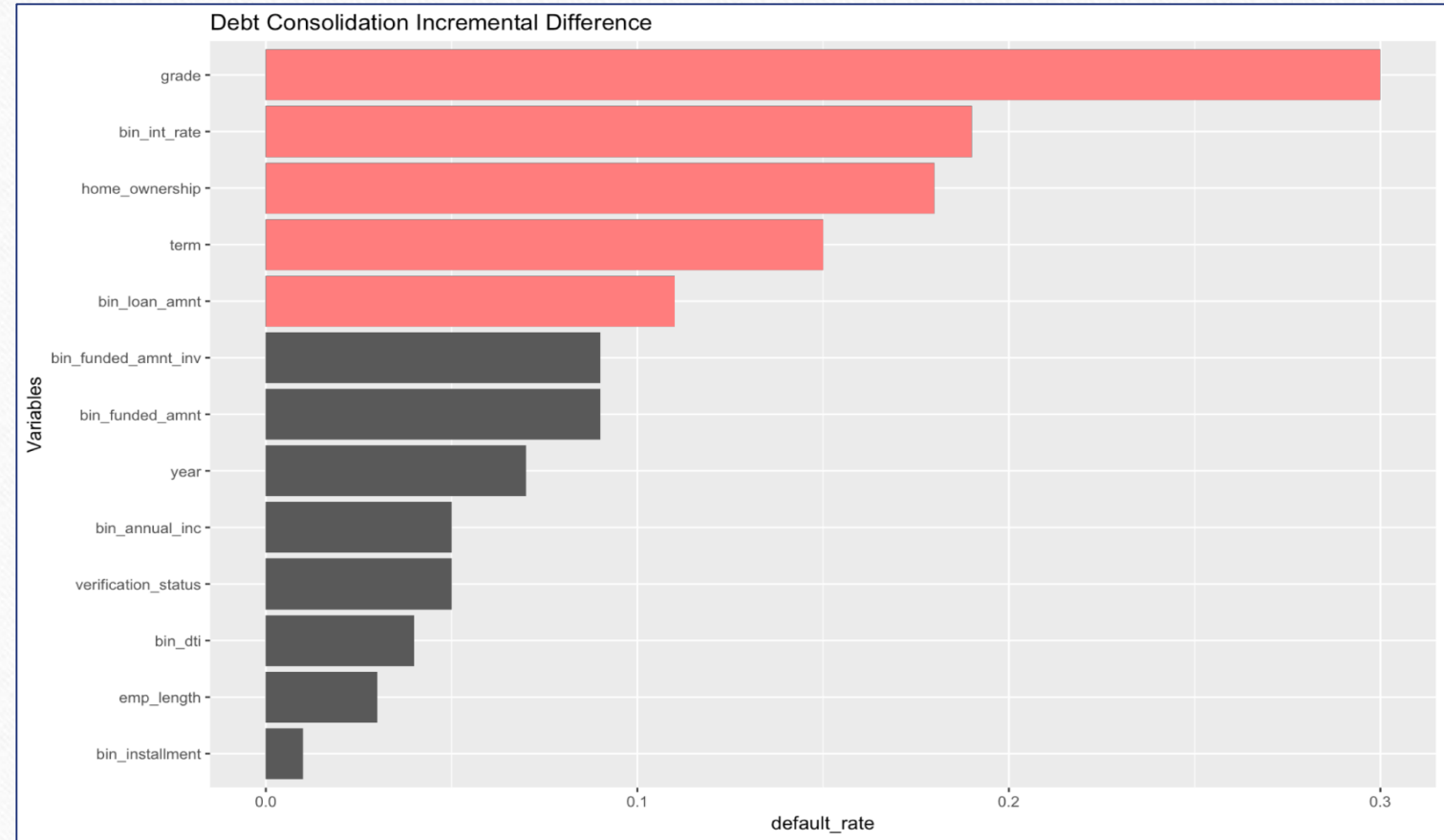| Credit Card	Debt Consolidation	Home improvement	Major purchase
11.62%	12.40%	11.29%	10.80%

Important Variables: Credit Card

- Grade
- Term
- Bin interest rate
- Year
- Home Ownership
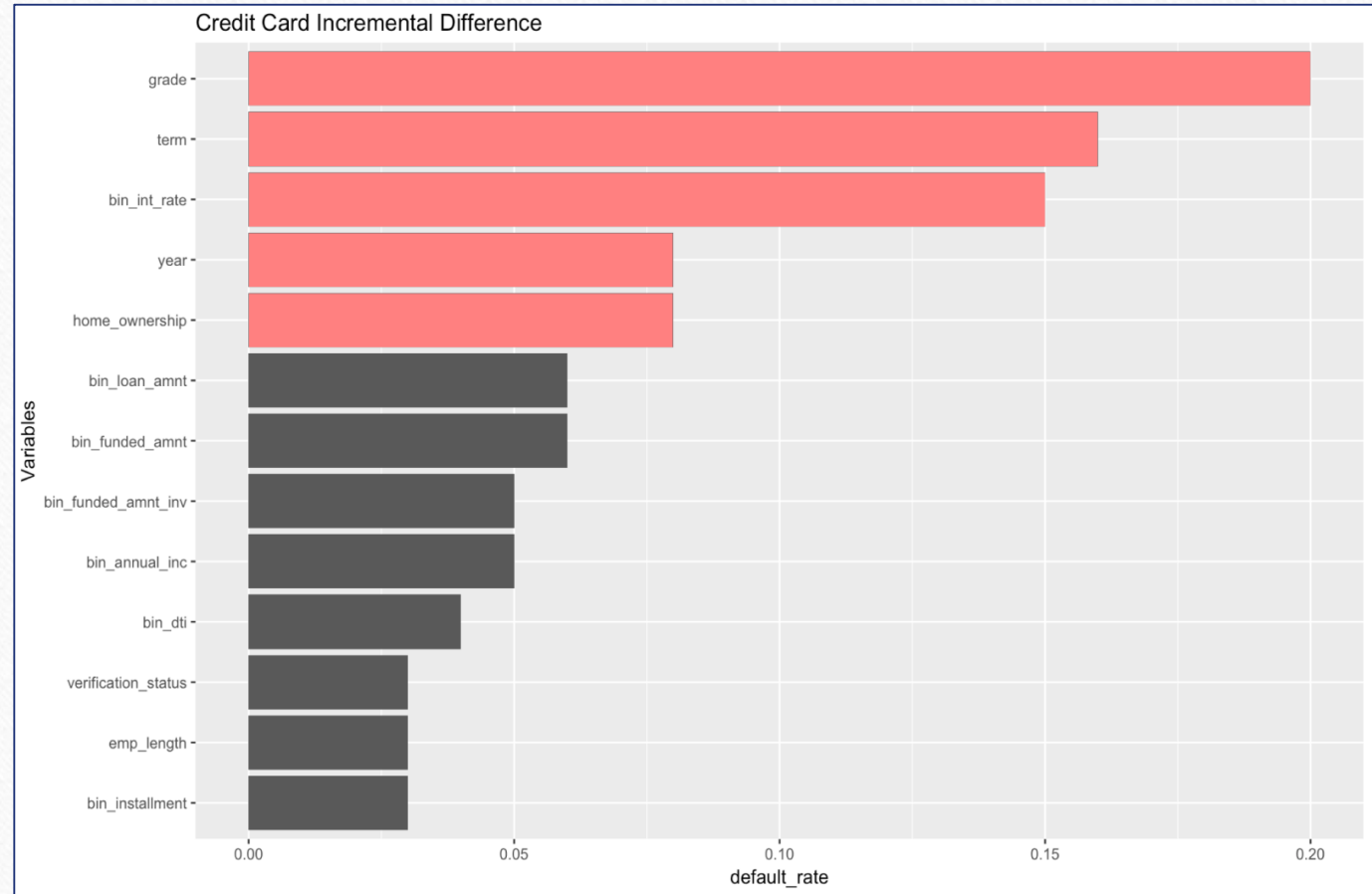
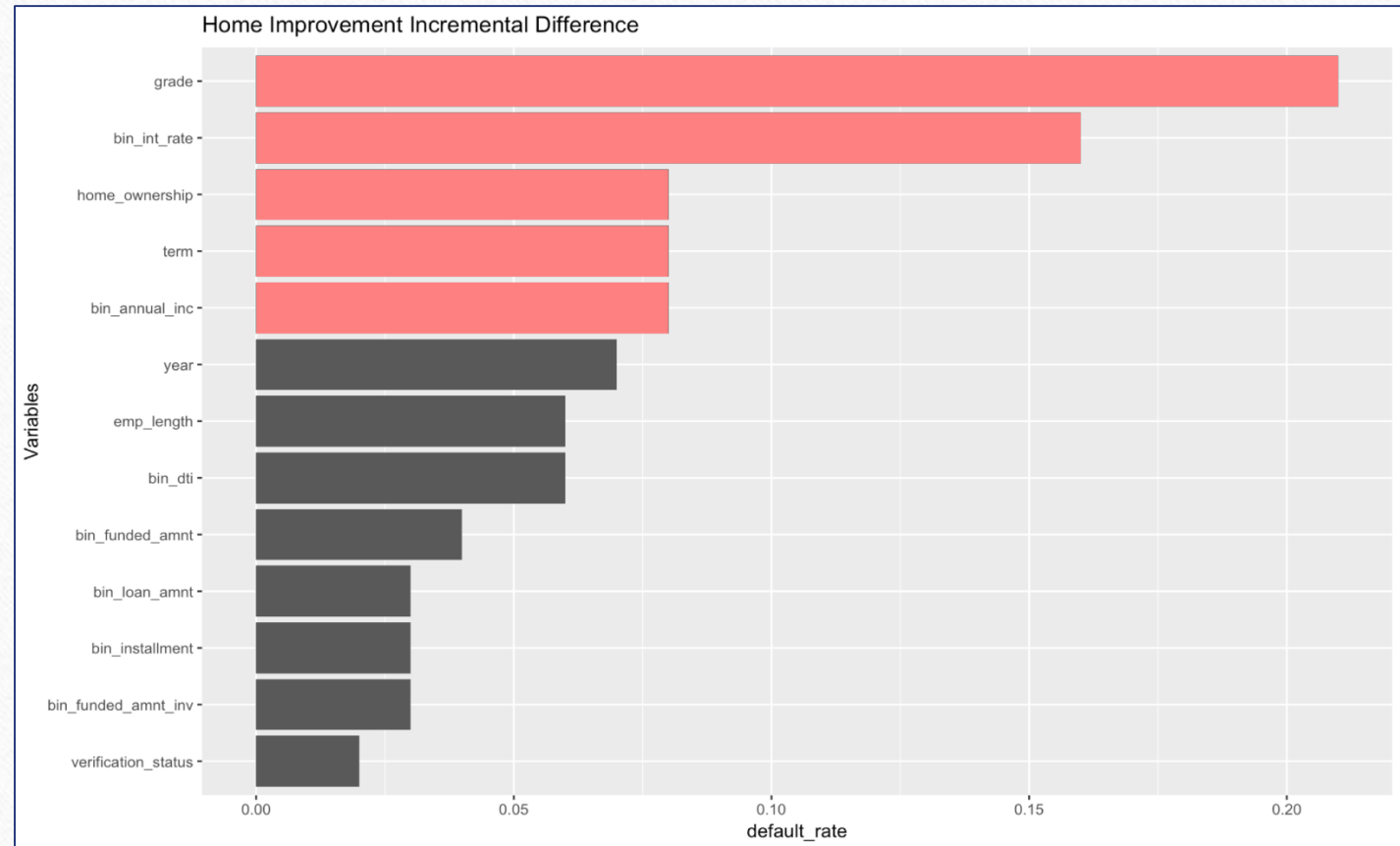# mportant Variables– Debt Consolidation

- Grade
- Bin interest rate
- Home Ownership
- Term
- Bin loan amount

Debt Consolidation Incremental Difference

Important Variables - Home Improvement

- Grade
- Bin interest rate
- Home Ownership
- Term
- Bin Annual Income

Important Variables– Major Purchase

- Grade
- Bin interest rate
- Term
- Home Ownership
- Year