

Project #3: Personal Loans

Background

You don't always need a bank, credit union, or wealthy relative to take out a personal loan. Online marketplaces are among the newer financial innovations in which personal loans are financed through private investors. They work something like this. Applicants fill out the usual financial information on a loan application. That information goes to a pool of private investors who assess the financial status of the applicant and decide whether to approve all or part of the loan.

If the loan is approved, a decision must be made about the appropriate interest rate. Riskier loans mean higher interest rates to compensate the lender for possibilities of late payments, defaults, and so forth. Similarly, lower interest rates accompany less risky loans.

This project involves using information on loan applications from an online personal loan marketplace to propose appropriate interest rates. The data file named "Personal Loans.jmp" contains information about all active loans as of the end of last month; "New Applications.jmp" comes directly from current loan applications for which the interest rate has not yet been determined.

Variables

Amt Requested:	Dollar amount requested on the loan application
Amt Funded:	Dollar amount funded
Length:	Length of the loan in months
Monthly Pmt:	Monthly payment in dollars
Pmts to Date:	Payments (\$) made on the loan to date
State:	Applicant's state of residence
Income:	Applicant's gross monthly income in dollars
Open LoC:	Applicant's number of open lines of credit
Total LoC:	Applicant's total number of lines of credit
Employ:	Length of employment of the applicant (years)
Purpose:	Purpose of the loan
FICO:	Applicant's FICO score
Home:	Applicant's home ownership status
Utilization:	Applicant's revolving line of credit utilization rate
Rate:	Interest rate charged on the loan
D/I:	Applicant's debt to income ratio
Standing:	Status of the loan at the time the data file was created
Balance:	Applicant's balance (\$) on revolving lines of credit
Delinquent:	Applicant's number of delinquencies over the two years prior to the application
Months:	Number of months since the last delinquency

What to turn in

Prepare these two items:

1. An Excel file that contains the predicted interest rate for the new applications *in the order in which they appeared in the original data set*.
2. A document that:
 - a. Shows your name(s) and a chosen “fake” name for you or your group.
 - b. Part A: Briefly describe any data cleansing/preparation and exploratory data analysis. What did you do and why? Limit: one page. (Hint: to meet the page limitation, don’t provide graphs and limit your comments only to those things that are unique to this project; i.e., don’t waste words on things like “we conducted univariate and bivariate analyses...”)
 - c. Part B: Briefly describe your final model. How did you arrive at model? What variables does it use? How good is it? Limit: one page.

Please note that it is not necessary for you to provide me with a table that shows your different data set *versions and descriptions*. (Here, I am referring to “Data Set Documentation and Tracking” in Canvas, Module 3.) That table is for your use only.

Please note, too, that the page limitations refer to a document with 1” margins all around, 12 pt. font, double-spaced. Brevity is what I’m looking for here. If you have exceeded these limits, edit, summarize, or reorganize your work.

The due date and time are shown in the syllabus.