**Investigation and Dataset overview**

This project is a part of Exploratory Data Analysis. The data set I choose is prosper Loan data. This data set contains 113,937 loans with 81 variables for each loan that has been issued. We will be analyzing the various factors that are affecting the loan status and visualize the relationship between various variables.

Variables that are used in the analysis BorrowerAPR: The Borrower's Annual Percentage Rate (APR) for the loan.

**CreditGrade**: The Credit rating that was assigned at the time the listing went live. Applicable for listings pre-2009 period and will only be populated for those listings.

**OnTimeProsperPayments** : Number of on time payments the borrower had made on Prosper loans at the time they created this listing. This value will be null if the borrower has no prior loans.

**IncomeRange** : The income range of the borrower at the time the listing was created.

**StatedMonthlyIncome** : The monthly income the borrower stated at the time the listing was created.

**LoanOriginalAmount**:The origination amount of the loan.

**ProsperRating** (**Alpha**):The Prosper Rating assigned at the time the listing was created between AA - HR. Applicable for loans originated after July 2009.

**DebtToIncomeRatio**:The debt to income ratio of the borrower at the time the credit profile was pulled. This value is Null if the debt to income ratio is not available. This value is capped at 10.01 (any debt to income ratio larger than 1000% will be returned as 1001%).

**LoanStatus**:The current status of the loan: Cancelled, Chargedoff, Completed, Current, Defaulted, FinalPaymentInProgress, PastDue. The PastDue status will be accompanied by a delinquency bucket.

**CreditGrade**:The Credit rating that was assigned at the time the listing went live. Applicable for listings pre-2009 period and will only be populated for those listings.

**EstimatedLoss**:Estimated loss is the estimated principal loss on charge-offs. Applicable for loans originated after July 2009.

**OnTimeProsperPayments**:Number of on time payments the borrower had made on Prosper loans at the time they created this listing. This value will be null if the borrower has no prior loans.

**Summary of Insights from the exploration**

In this exploration I have figured out two essential factors that affect the BorrowerAPR, Prosper ratings and loan amount. Borrowers with better prosper rating tend to have lower APR and borrowers with less prosper rating tend to have higher APR. Loan amount seems to be negatively correlated with the lAPR, with the increase in the loan amount borrower APR seems to be decreasing. Interestingly when we look at the relationship between term and prosper rating we can see that borrowers overall are preferring 36 month term loan but borrowers with B and C ratings have more 60 month term when compared to rest of the ratings. Employed and full time people are opting for 36 month loan but we do not enough data on other, not employed, part time and retired categories to determine a conclusive result, their data seems to be less to arrive at a conclusion. It looks like LoanOriginalAmount significantly differs with credit grade as well similar to prosper rating, Average loan amount for poor credit grades seems to be very low when compared with Loan amounts for good credit grade.

**Key Insights for Presentation**

For presentation I focused only on the factors that are affecting the borrower APR and loan amount, presentation starts with the distribution of APR and loan original amount and it continues to explain how prosper rating affects both Borrower APR and loan amount. It also explores the relationship of propser rating and employment status with the term and it finally concludes with the graph explaining the relationship between ProsperRating (Alpha) Vs LoanOriginalAmount,BorrowerAPR