# Lending Club Loan Data Analysis

Domain : Finance

## Introduction

Lending Club is a peer-to-peer lending platform that connects borrowers with investors. As an investor on Lending Club, you can choose to invest in loans that match your investment criteria, such as loan grade, term, and purpose. The aim of this analysis is to explore the Lending Club loan data and gain insights into loan characteristics, default rates, and other factors that may affect loan performance.

## Data

For companies like Lending Club correctly predicting whether or not a loan will be a default is very important. In this project, using the historical data from 2007 to 2015, you have to build a deep learning model to predict the chance of default for future loans. As you will see later this dataset is highly imbalanced and includes a lot of features that make this problem more challenging.

## Steps to perform:

Perform exploratory data analysis and feature engineering and then apply feature engineering. Follow up with a deep learning model to predict whether or not the loan will be default using the historical data.

### Tasks:

1. Feature Transformation
   - Transform categorical values into numerical values (discrete)
2. Exploratory data analysis of different factors of the dataset.
3. Additional Feature Engineering

- You will check the correlation between features and will drop those features which have a strong correlation
- This will help reduce the number of features and will leave you with the most relevant features

4. Modeling

- After applying EDA and feature engineering, you are now ready to build the predictive models

## Deep Learning :

While deep learning models can be effective for complex problems, such as image recognition and natural language processing, the performance of these models on the Lending Club loan data may not be significantly better than that of traditional machine learning algorithms.

## Conclusion

Overall, the Lending Club Loan Data Analysis project provides a valuable opportunity to apply data analysis and machine learning techniques to a real-world problem, and can help improve our understanding of loan defaults and their underlying causes.