

Lending Club Case Study

Presented by

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What is Lending Club:

Lending Club is consumer finance company which specializes in lending various type of loan. When company receives a loan application, it decides to accept or reject the loan based on applicant's profile.

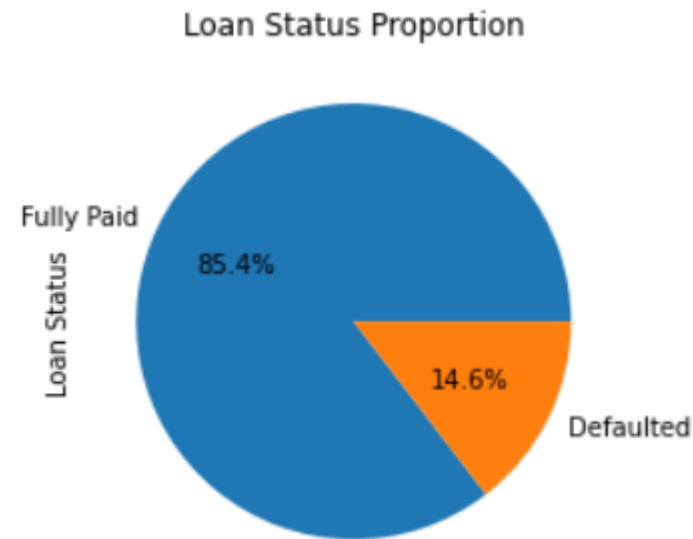
Problem Statement

When company receives a loan application, it decides to accept or reject the loan based on applicant's profile. Once loan is approved, there are two possibilities, either the applicant will repay the full loan amount or he will default on the loan amount. The past loan application data is available on whether they defaulted or not. The company wants to understand the driving factors behind loan default.

Data Analysis Results and Conclusions (with Visual representation)

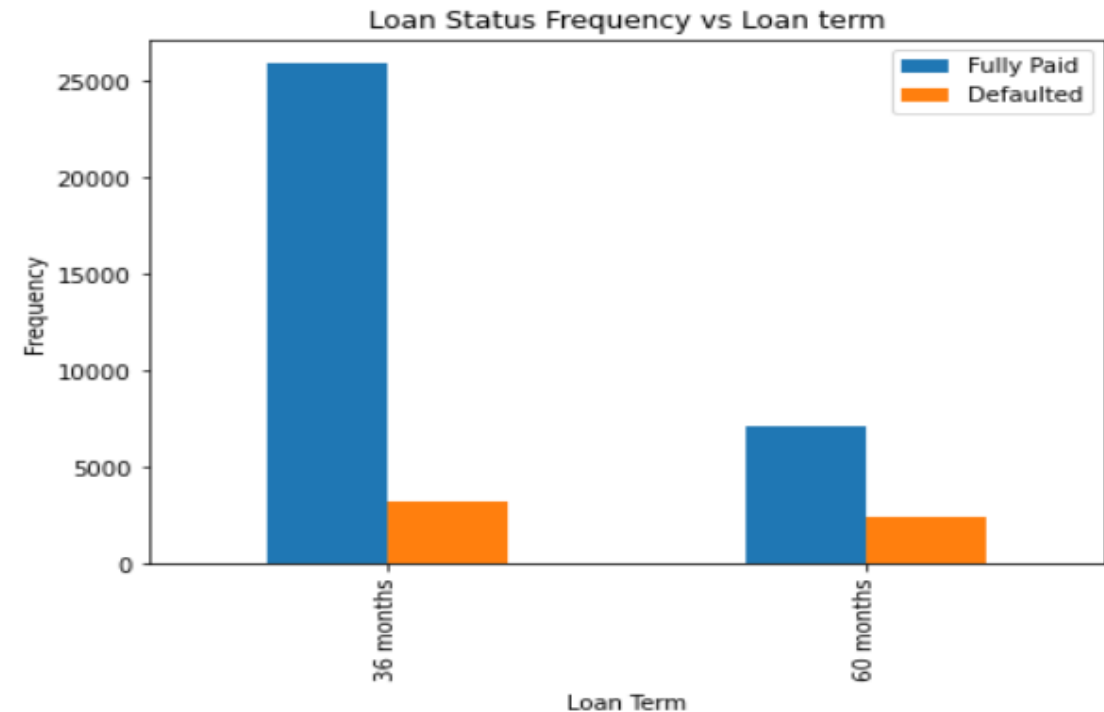
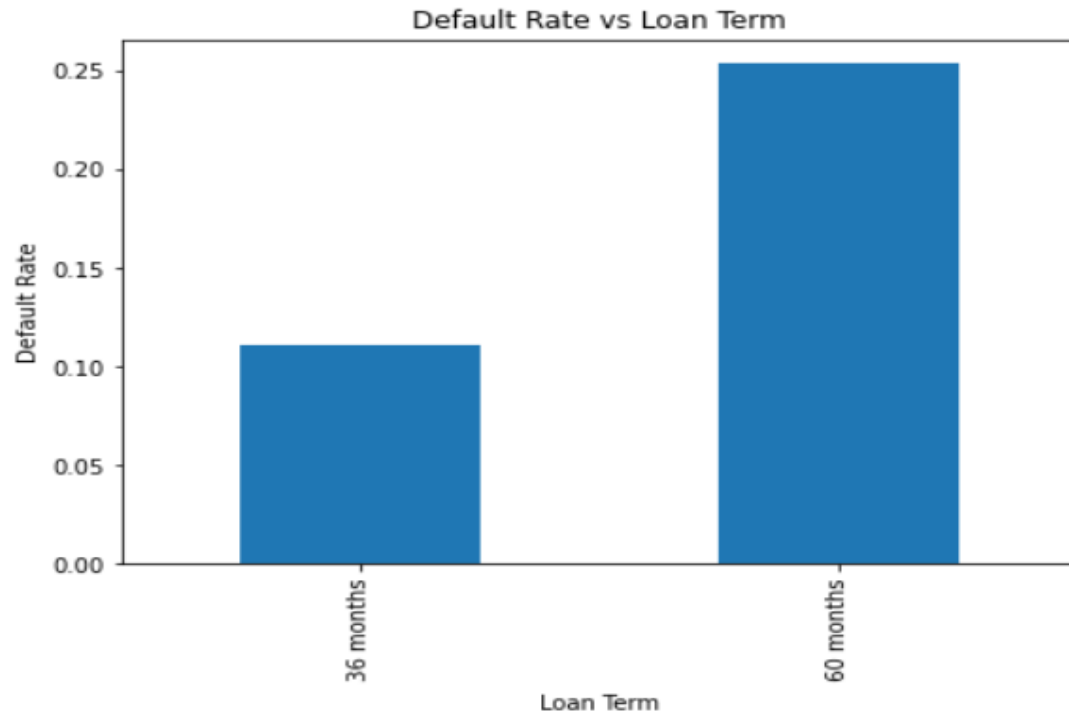
Loan Status Proportion:

- Out of loan borrowers (excluding current status) 85.4% has fully paid the loan and remaining 14.6% have defaulted the loan.



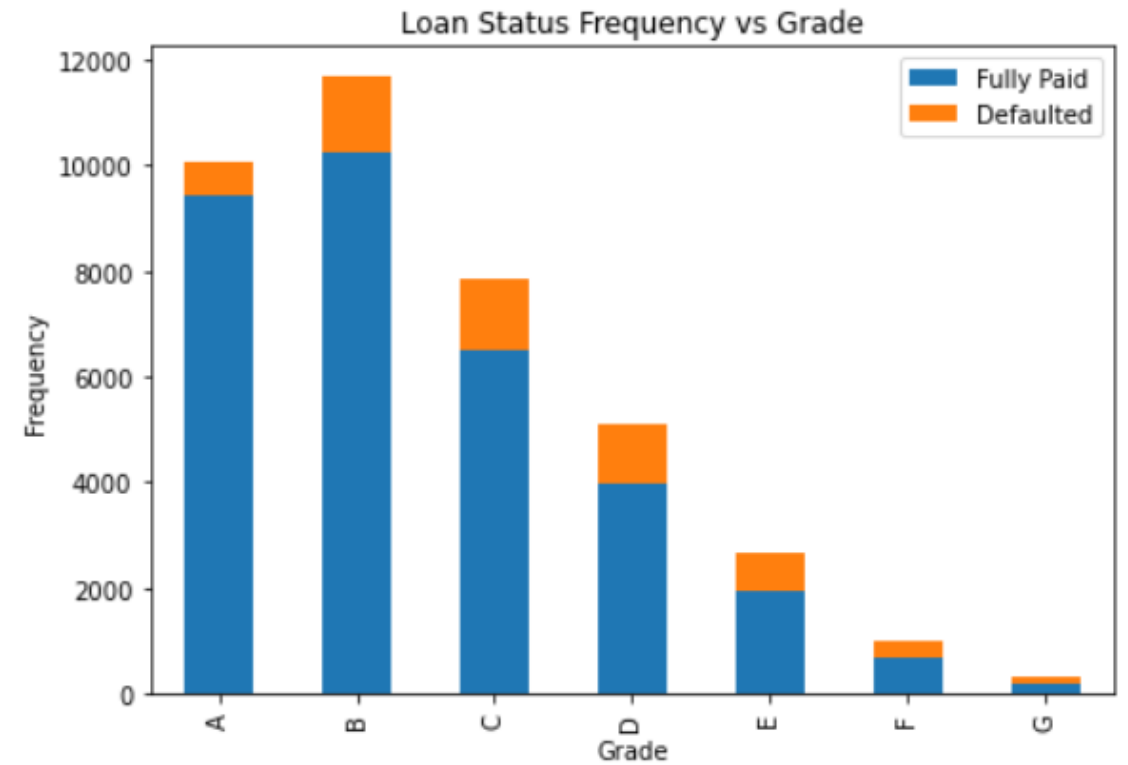
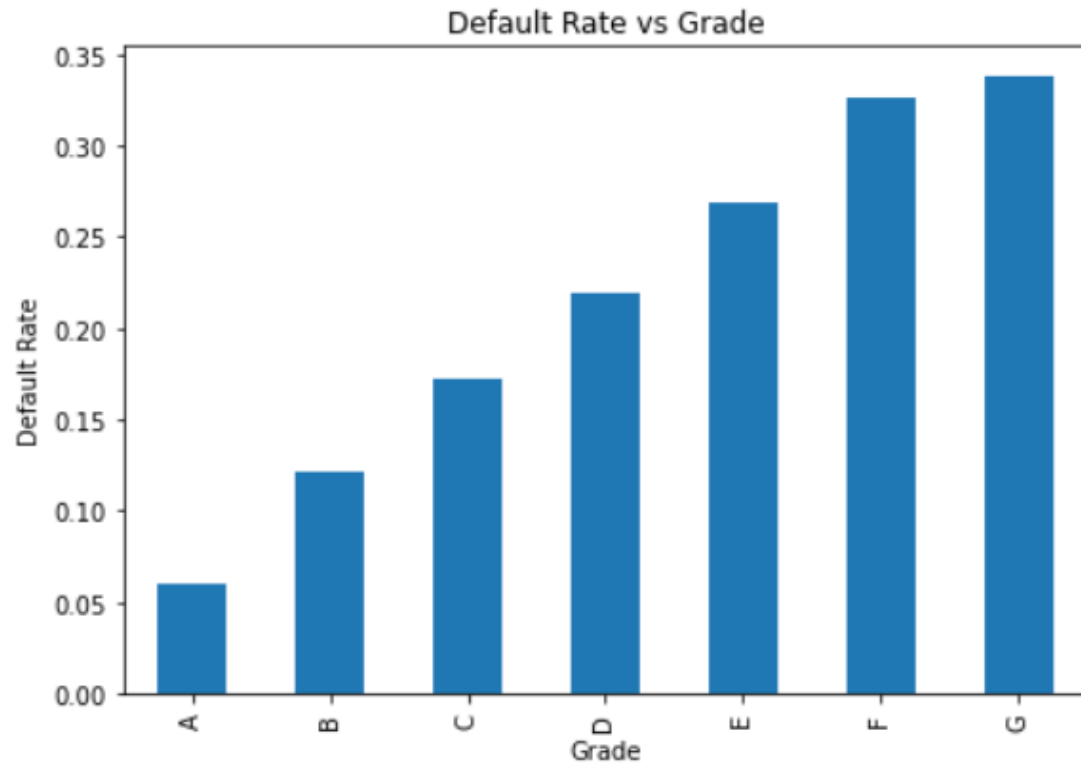
The Default Rate against Loan Term

- Borrowers taking loan for 60 months tenure have the higher default rate compared to borrowers taking loan for 36 months.



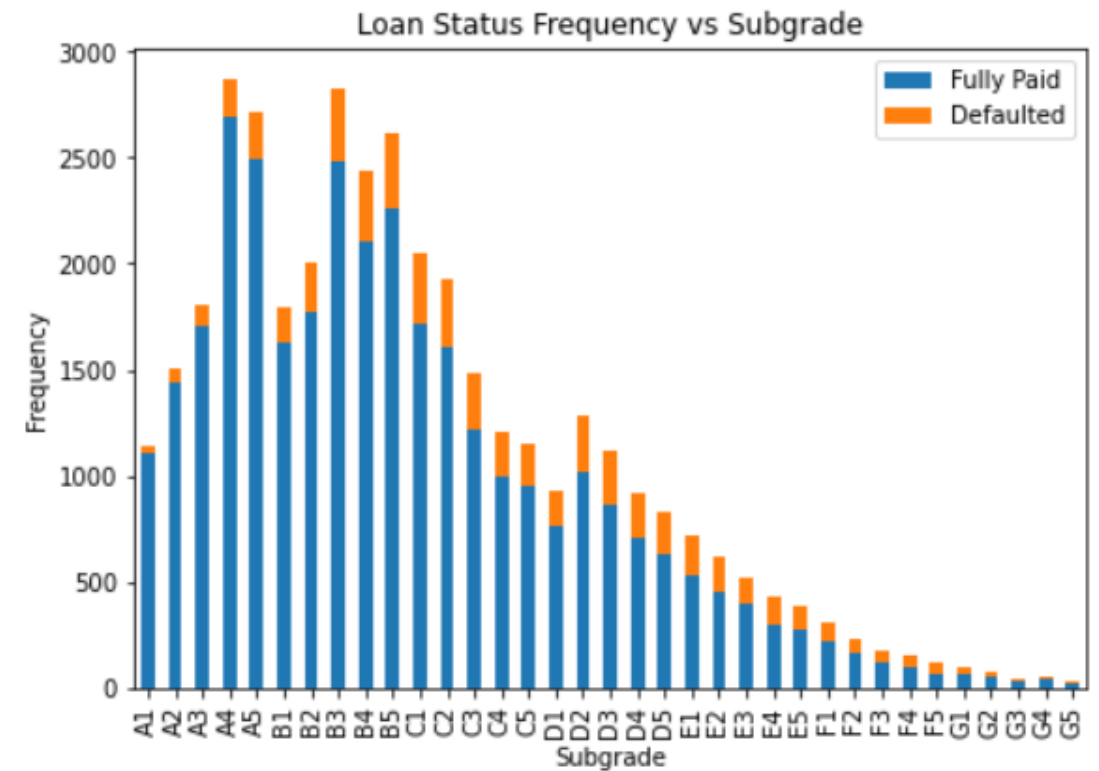
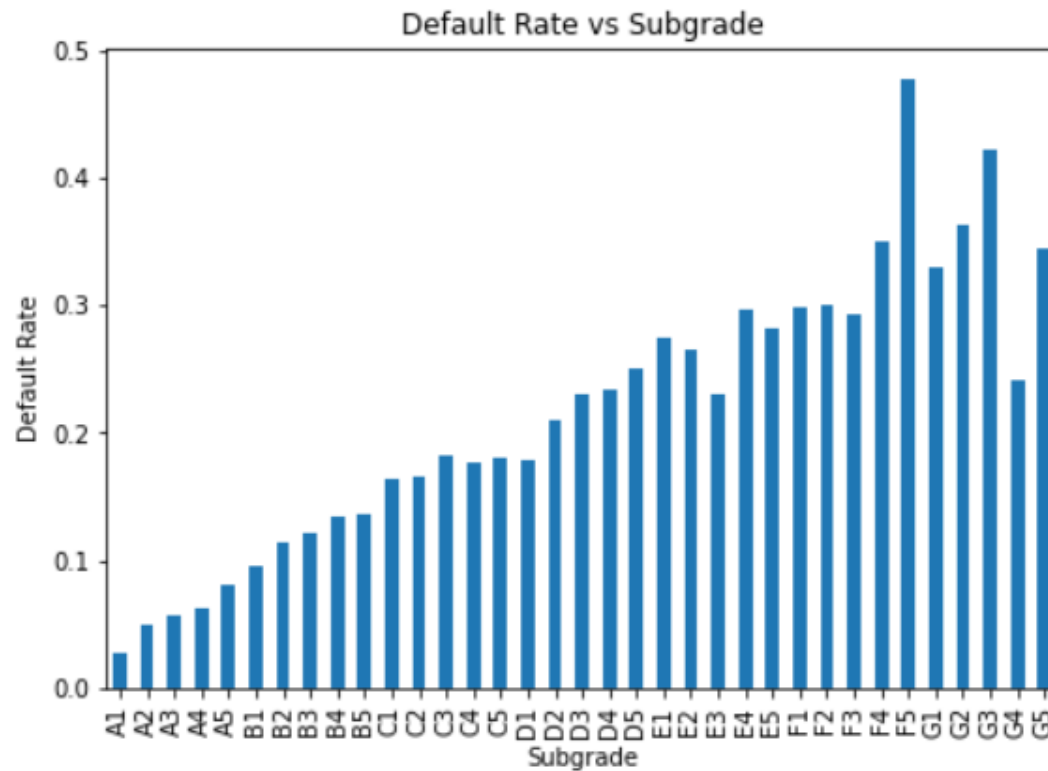
Default Rate against Grade

- Borrowers in grade F and G has highest default rate.



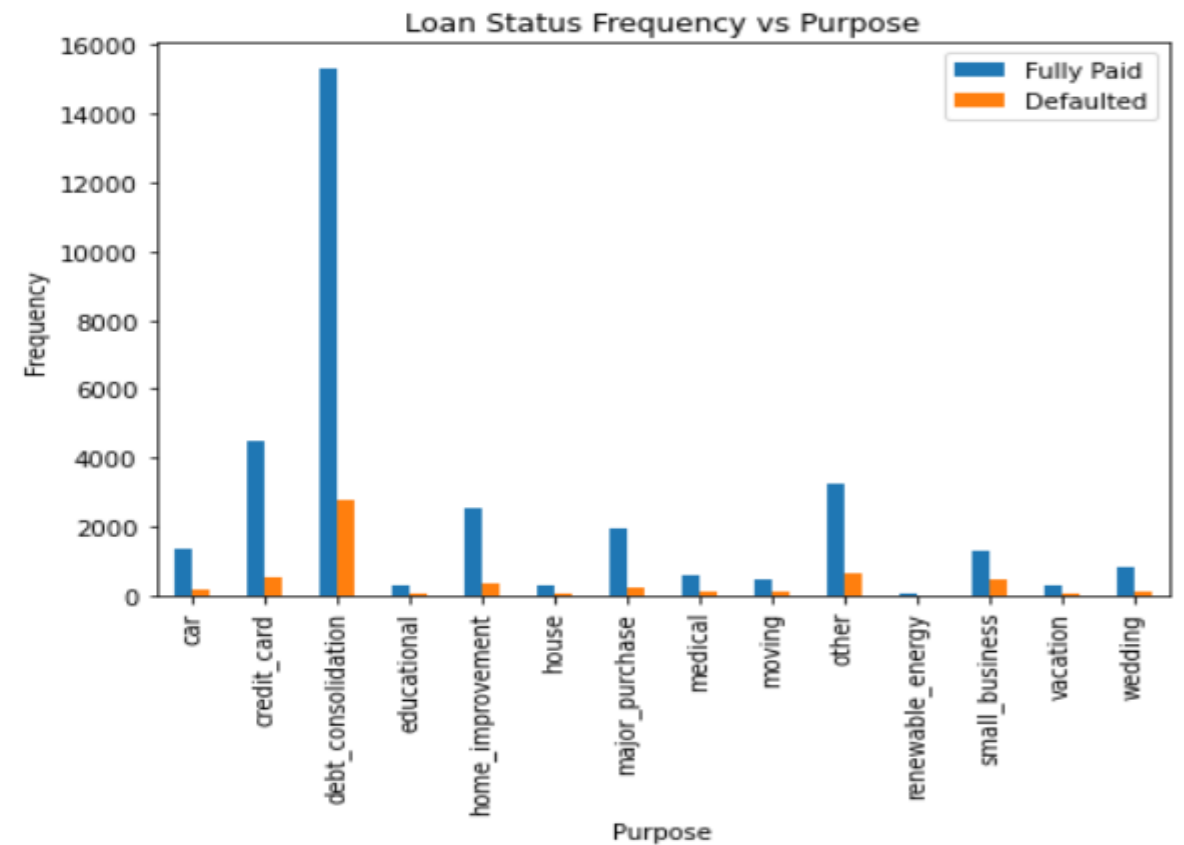
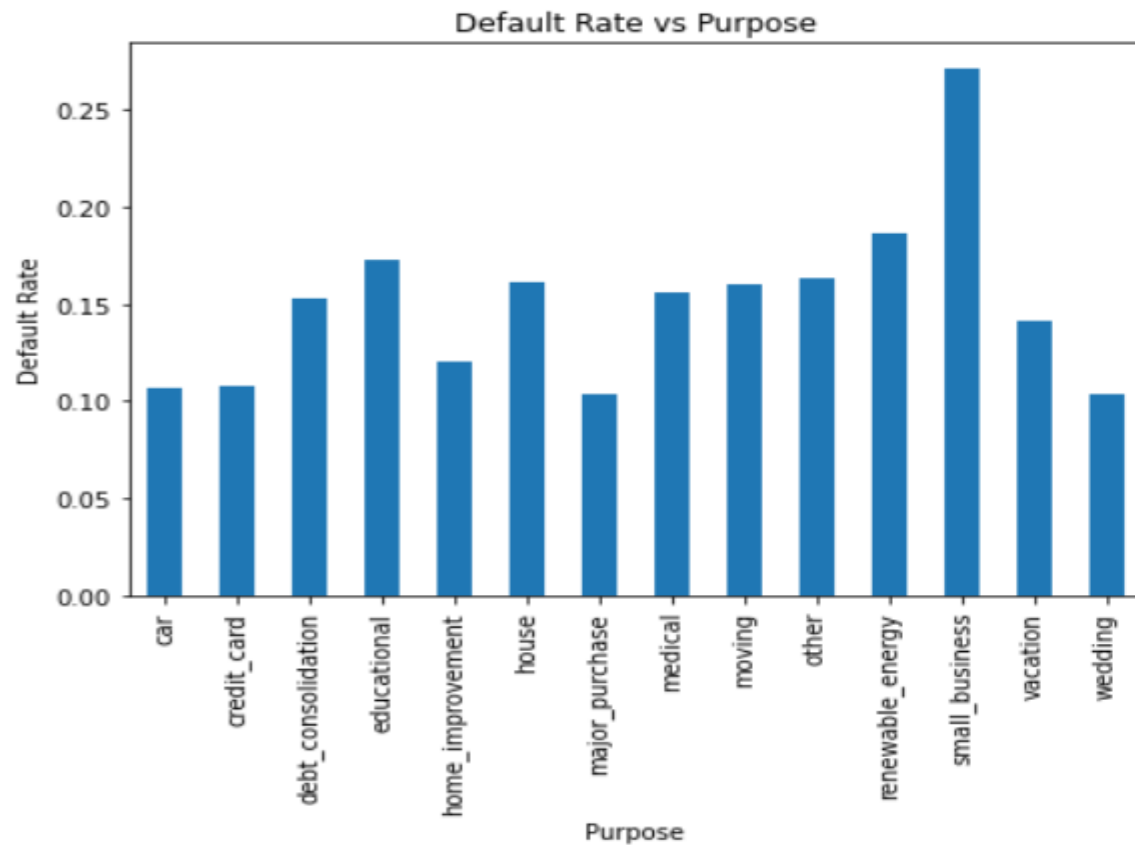
Default Rate against Subgrade

- Borrowers in subgrade F5 and G3 has highest default rate.



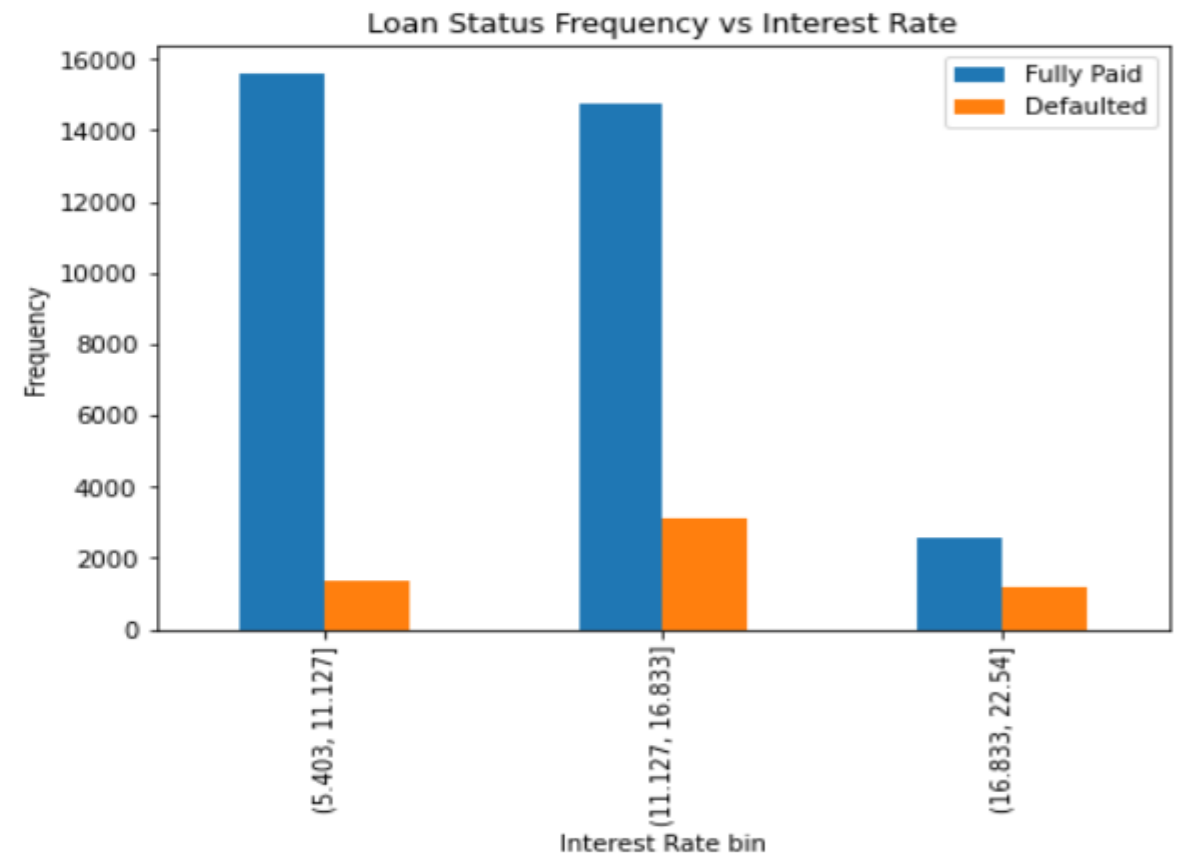
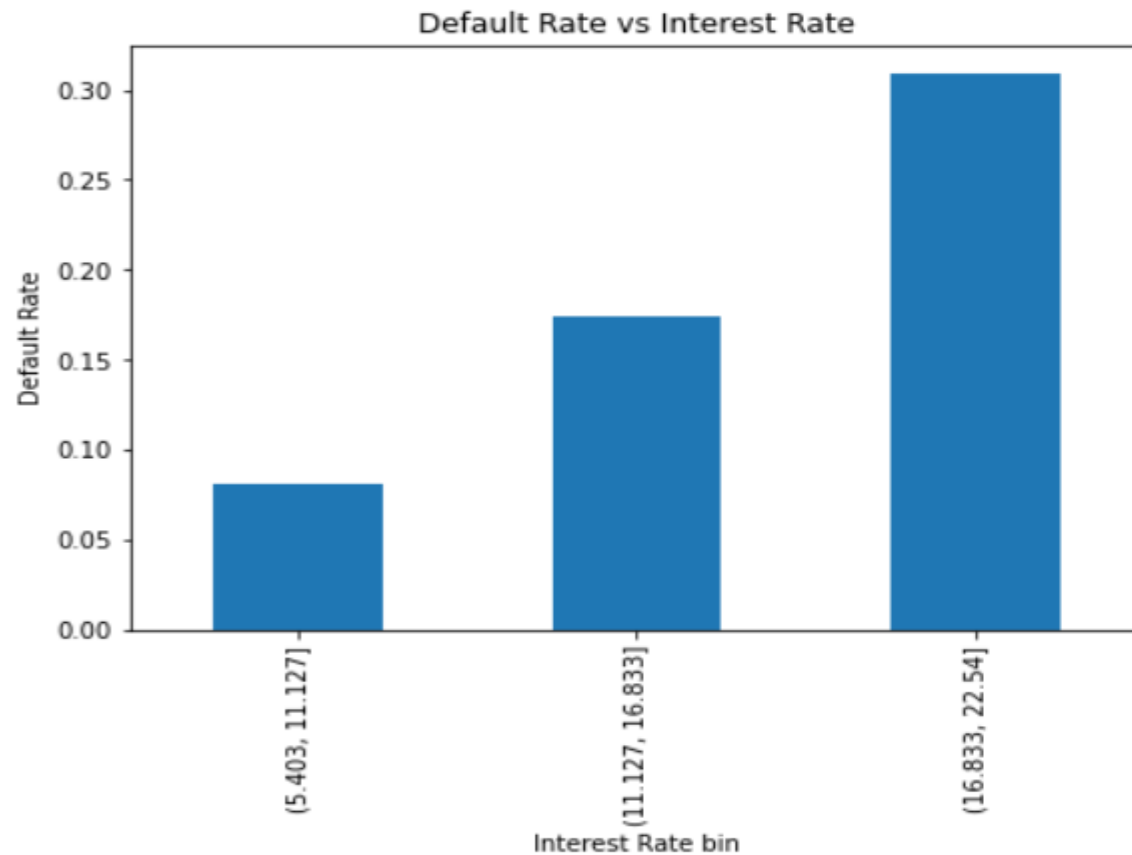
Default Rate against Purpose

- Loan taken for small business purpose has the highest default rate.



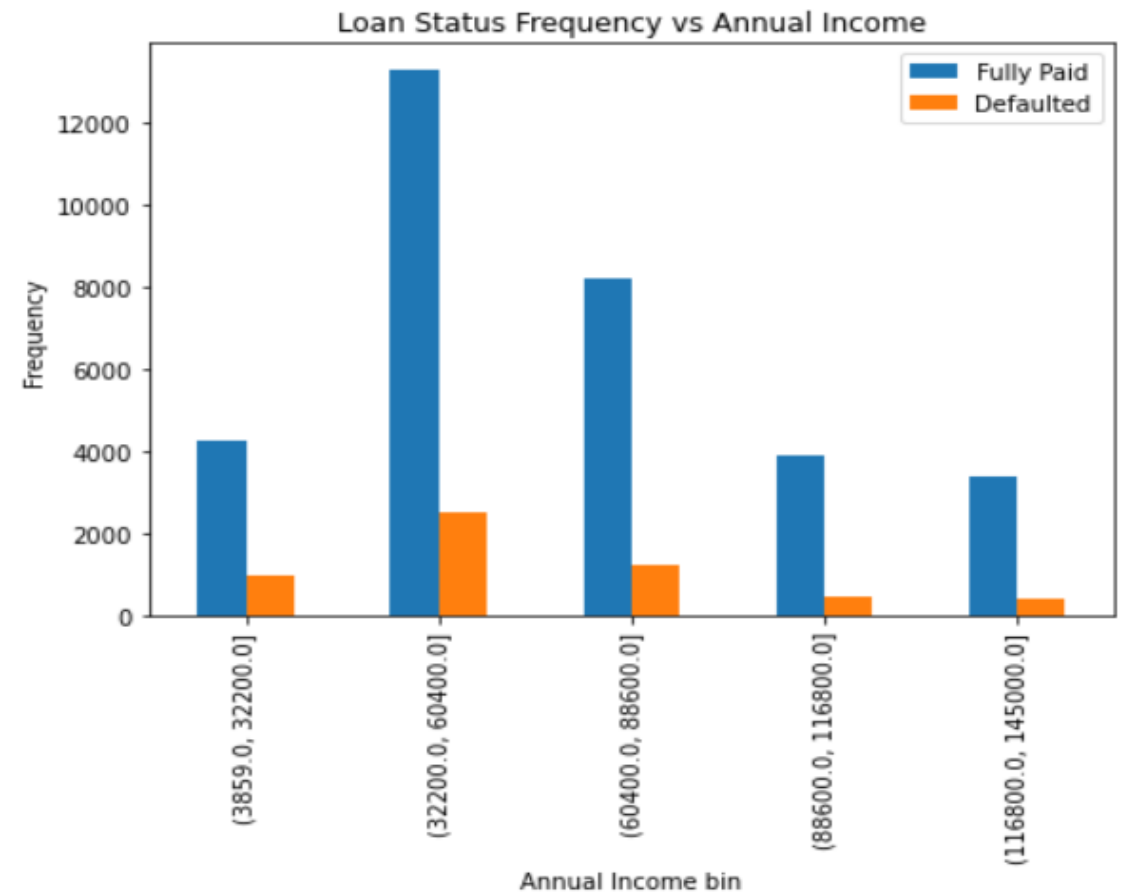
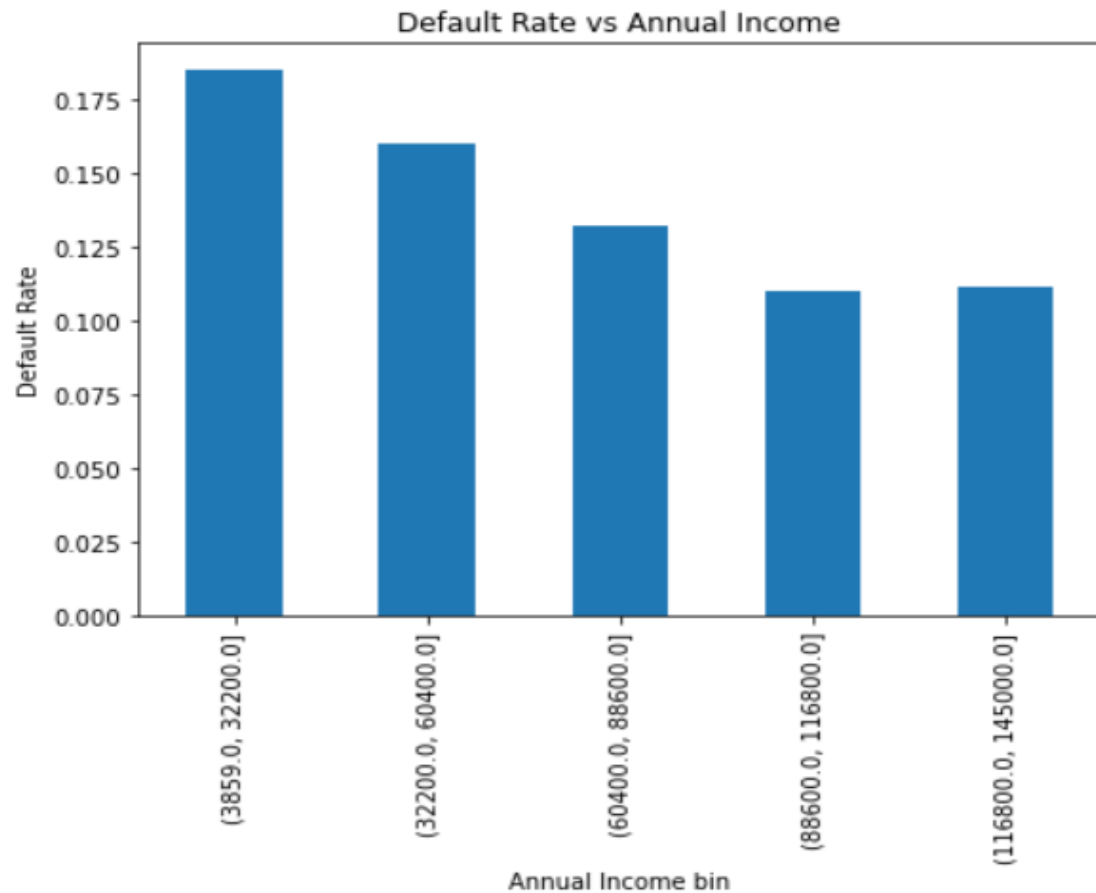
Default Rate against Interest Rate

- Default rate increases with increase in interest rate.



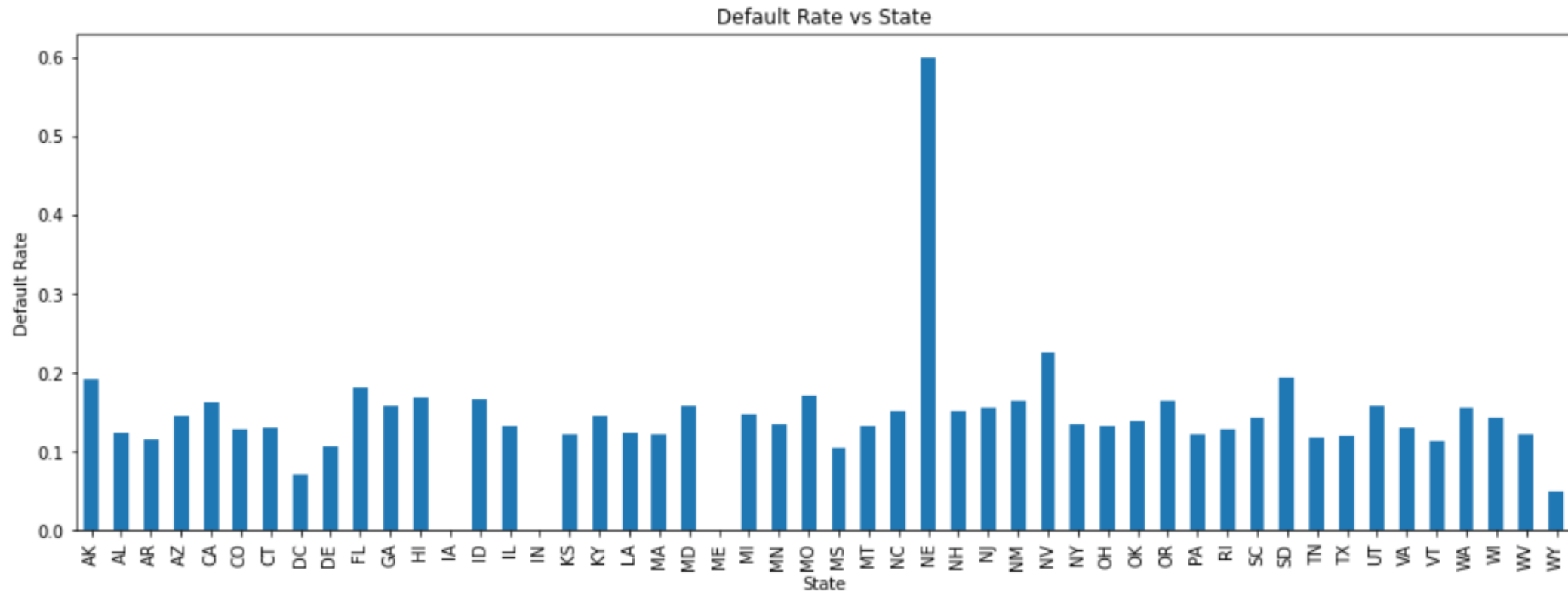
Default Rate against Annual Income

- The borrowers of lower annual income are mostly defaulting the loan



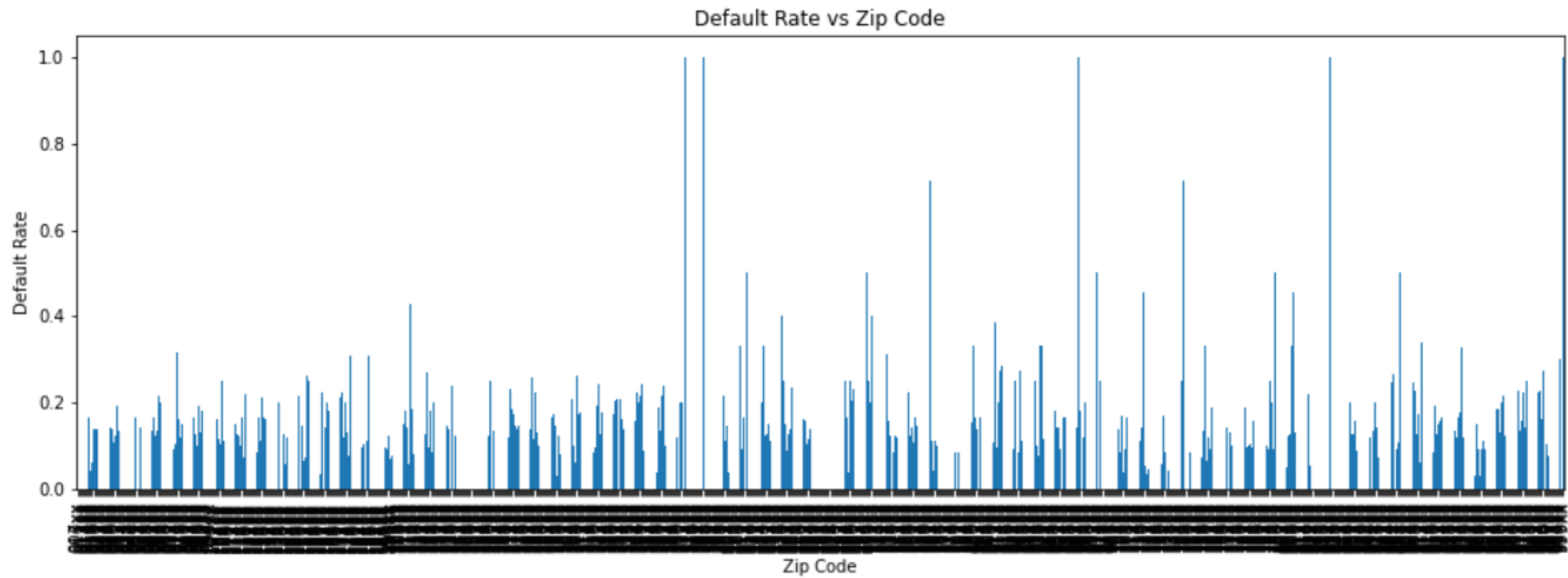
Default Rate against State

- The borrowers from NE address are mostly defaulting the loan



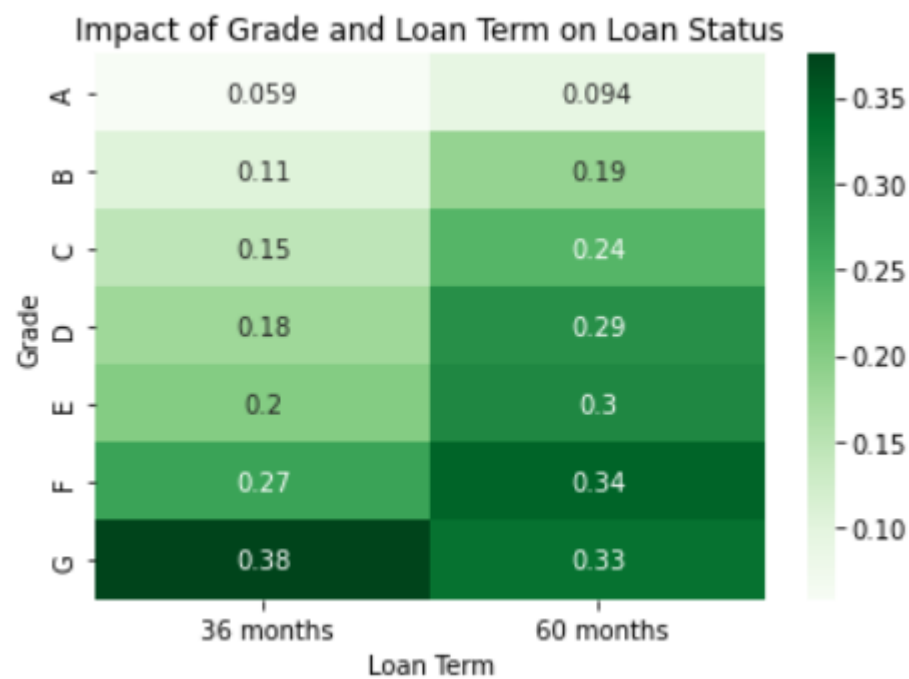
Default Rate against Zip Code

- Borrowers belonging to these zip codes has more than 50% default rate
- 094xx, 373xx, 385xx, 561xx, 663xx, 669xx, 685xx, 689xx, 746xx, 833xx, 999xx



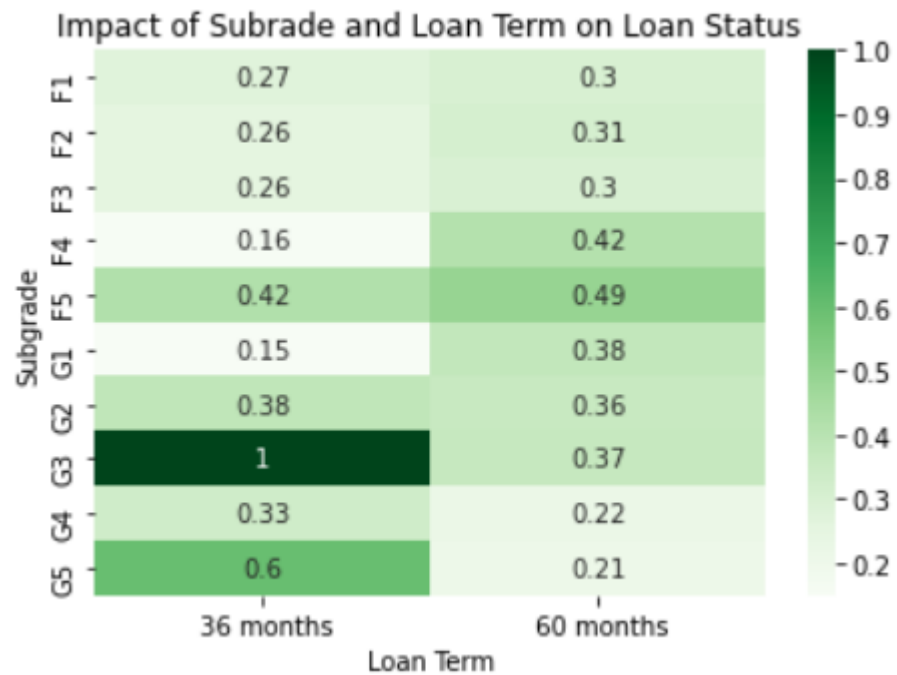
The impact of borrower's Grade and Loan Term on Loan Status

Borrowers of Grades F and G has higher default rate percentage across loan term. Highest for grade G in the loan term of 36 months.



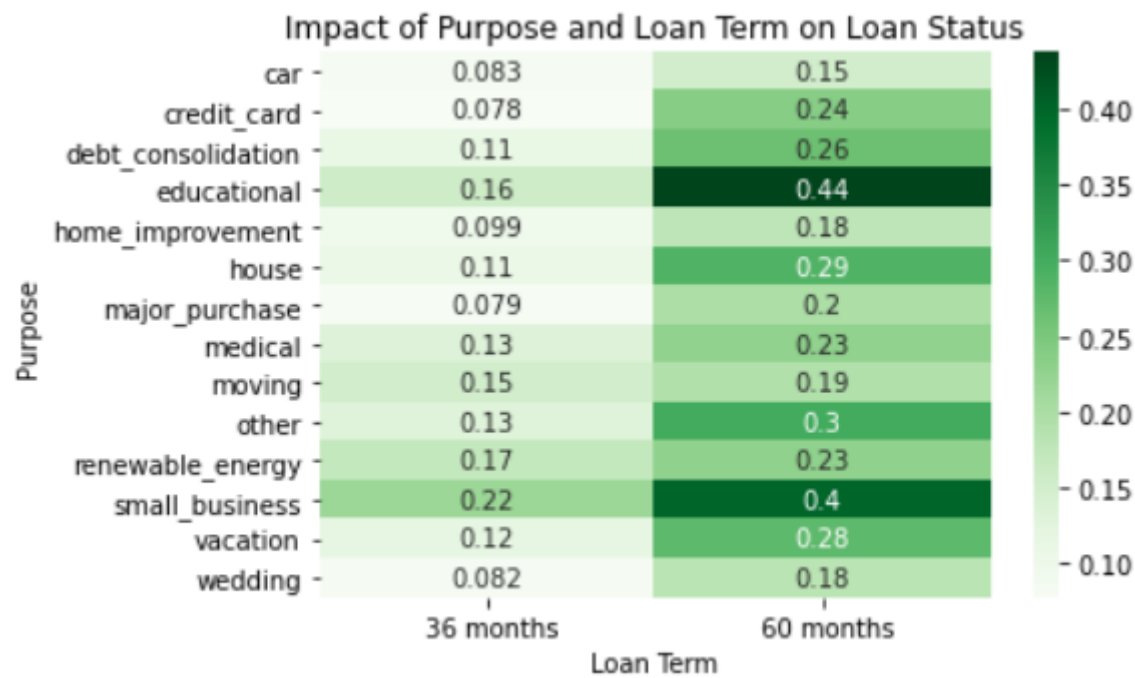
The impact of borrower's Subgrade and Loan Term on Loan Status

Borrowers who have taken loan for 36 months term and belongs to subgrade G3 has 100% default rate and who belongs to G5 has 60% default rate.



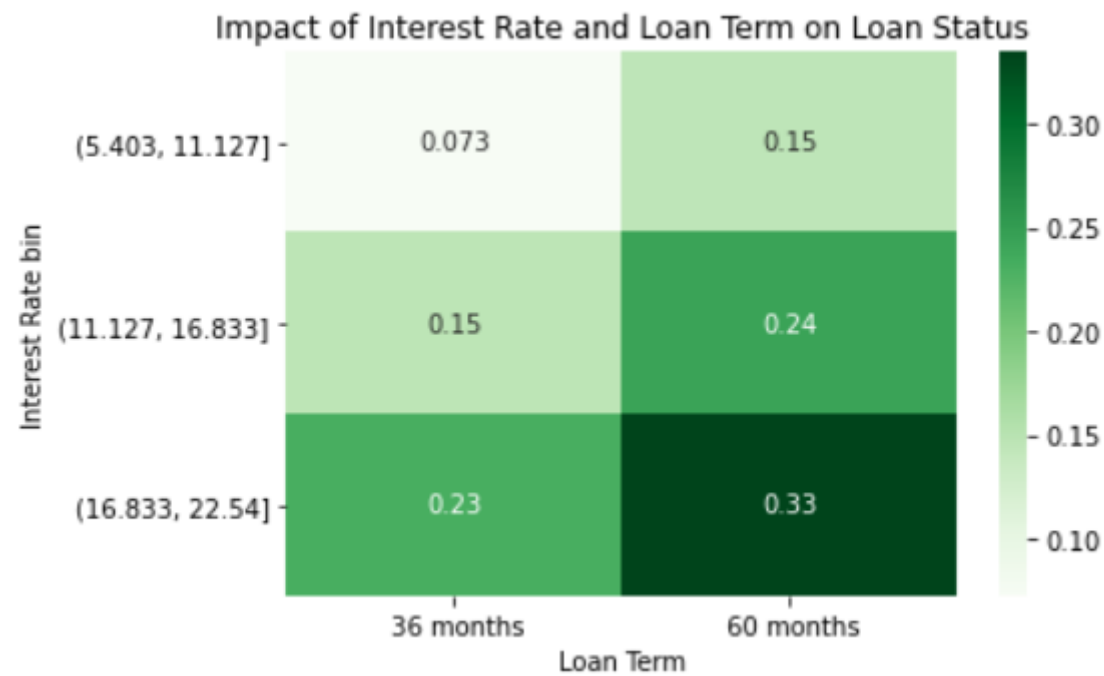
Impact of Purpose and Loan Term on Loan Status

Loan taken by borrowers for Small Business and Education have the highest default rate of 40% and 44% respectively for loan term of 60 months.

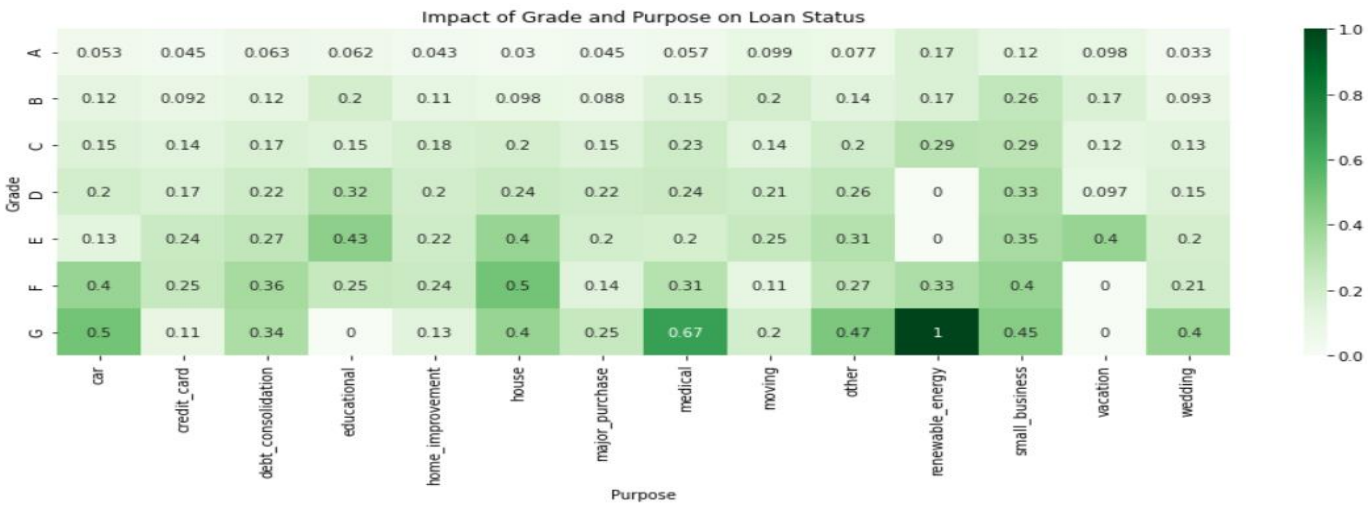


Impact of Interest Rate and Loan Term on Loan Status

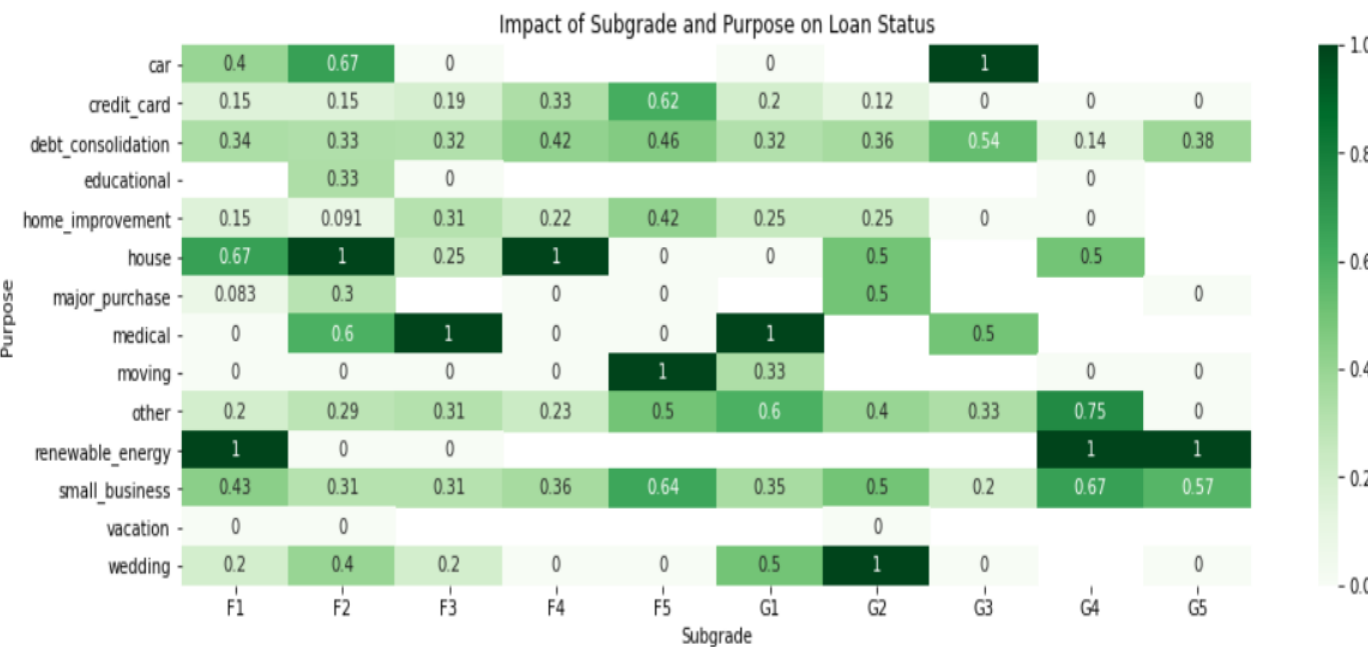
Loan taken by borrowers with interest rate higher than 16.83% has highest default rate of 33% of borrowers for 60 months loan term



Impact of Grade, Subgrade and Purpose on Loan Status



- Loan taken by borrowers from Grade G for renewable energy purpose has 100 % default rate and for medical purpose has around 67% default rate



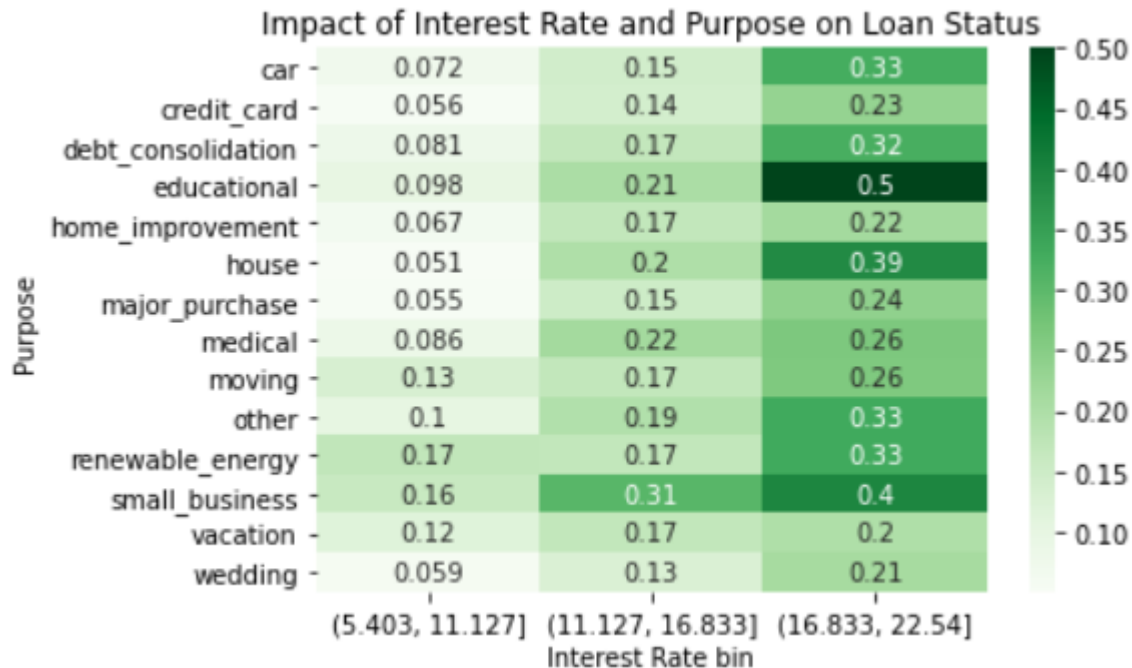
- These combination of borrowers of subgrade and purpose of loan has 100% default rate

Purpose	Sub Garde
Car	G3
House	F2, F4
Medical	F3, G1
Renewable Energy	F1, G4, G5
Wedding	G2
Moving	F5

Impact of Interest Rate and Purpose, Grade on Loan Status

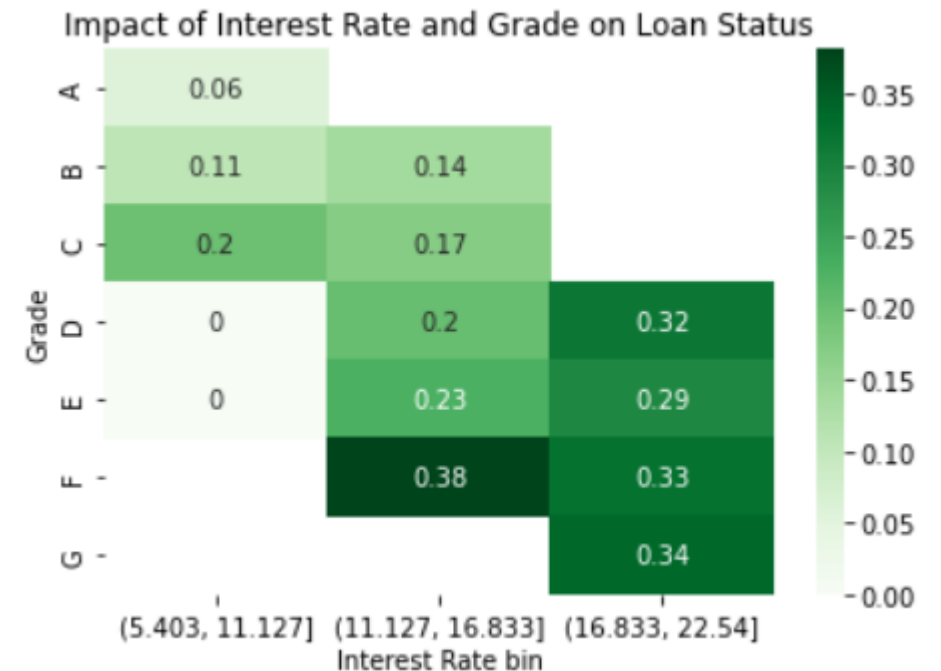
- Loan taken by borrowers with interest rate higher than 16.83% has highest default rate if loan is taken for renewable energy, small business, house, medical and car purpose.

Interest Rate vs Purpose on Loan Status



- Borrowers with grade D,E,F and G has very high default rate for loan taken with interest rate higher than 16.83%. Borrowers with grade F has the highest default rate even for loan taken with interest rate greater than 11% and less than 16.83%.

Interest Rate vs Grade on Loan Status



Recommendations:

- Lending club should give most of the loan for 36 months term.
- Grade F and G consumers should not be preferred to give loans as they have 35% default rate.
- Subgrade F5 and G3 should not be preferred to give any loans as they have more than 40% default rate.
- Lending Club should not prefer giving loans for small business purpose as they have 25% default rate.
- Lending Club should not give loans for higher interest rates. Interest rate above 16% has around 30% default rate.
- Avoid giving loans for consumer belonging to “NE” state as they have 60% default rate.
- Avoid giving loans to consumers belonging to these zip codes as they have more than 50% default rate. Some zip codes has 100% default rate.- 094xx,373xx,385xx,561xx,663xx,669xx,685xx,689xx,746xx,833xx,999xx
- Consumers belonging to grade G should not be preferred to give loans for 36 months loan term.
- Consumers belonging to subgrade G3 should not be given loan for 36 months loan term as they have 100% default rate.
- Consumers belonging to subgrade G5 should not be preferred to give loan for 36 months term as they have around 6% default rate.
- Lending club should not prefer to give loan for small business and education purpose on 60 months loan term as they have more than 40% default rate.
- Lending club should not give loan to grade G consumers for renewal energy purpose as they have 100% default rate.
- Lending club should not give loan to grade G consumers for medical purpose as they have 67% default rate.
- These combination of subgrade and purpose of loan should be avoided to give loan as they have 100% default rate
 1. Car- G3
 2. house- F2,F4
 3. medical- F3,G1
 4. moving- F5
 5. renewal energy- F1,G4,G5
 6. wedding- G2

Thank You !