Project Proposal

1. Project Description

The aim for our project is to build loan approval prediction system powered by machine learning which helps to a borrower to assess his eligibility for a loan based on his personal and financial information. This system is also useful for lenders to visualize and analyze various factors influencing loan approval decisions, behavior and the associated risk. This system enhances Peer-to-Peer lending facility wherein a borrower gets the transparency about their loan estimate they can qualify for and the interest rate which helps them make an informed decision. The process leads to faster approval loans by automating the decision which helps lenders to have better insights about their funding including their profitability and the associated risk.

2. Requirements

a. Stakeholders

i. Borrowers- Individuals applying for loans.
ii. Lenders- Individual lenders, financial institutions or banks offering loans.
iii. Financial Analysts- Analysts working to optimize lending strategies and assess market conditions.
iv. Software and system engineers- Developers responsible for building this end-to-end application.
v. Machine Learning engineers- Professionals responsible for developing, training and maintaining models.
vi. DevOps Engineer- Responsible for deployment on cloud.

b. Functional Requirements

i. User Registration and Authentication- Lenders and Borrowers must be able to create their accounts and implement role-based access to access distinct services.
ii. Borrower Profile- Borrowers must be able to submit the required details including their personal and financial statements to get the necessary predictions of loan estimate and interest rate.
iii. Financial Dashboard for Lender and analysts- Lenders and analysts can access dashboard showing the factors influencing the loan status, their profitability and risks and also the financial health of the borrowers.
iv. Retraining the model- Automating the retraining of models to ensure they keep up with the data drift.

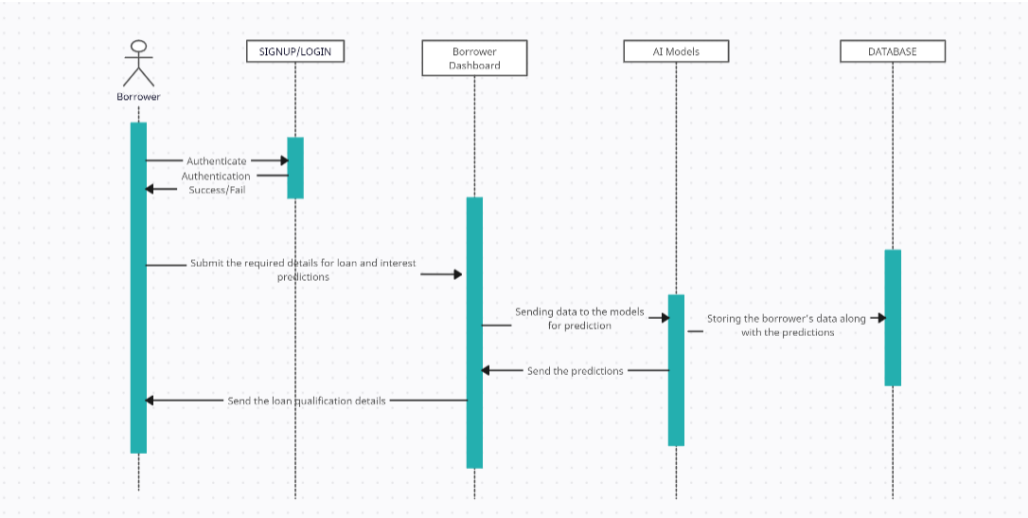
c. Non-Functional Requirements

i. Performance- The system will provide near real time predictions upon the receival of the necessary inputs from the borrower. The financial dashboard will have the updated information for visualizations.
ii. Security- Multifactor authentication for lenders and borrowers and implement encryption for storing the sensitive information.
iii. Maintainability- Modular codebase and automated deployment and testing of the system.

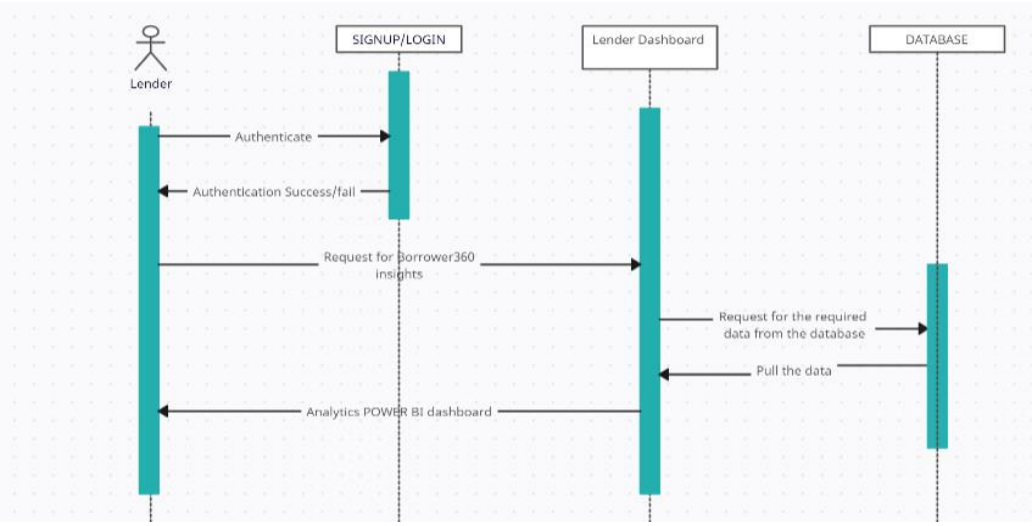
iv. Model monitoring and retraining- The system will have monitoring mechanism to keep track of model's performance metrics and ensuring that the model stays updated with the data.

3. System Architecture

a. Borrower



b. Lender/Analysts



c. Use case diagram