**Project 2**

**Topic Proposal**

**Title:** LOAN APPROVAL PREDICTION

**Project Team:** Team 2 (Aswin Balaji Thippa Ramesh, Abhilasha Singh, Lixing Pan)

**Research Topic:** Our research aims to analyze the relationship between applicant financial profiles and loan approval outcomes through an exploratory data analysis (EDA). The dataset captures key applicant variables such as credit score, annual income, employment status, debt-to-income ratio, and previous payment history, alongside loan-related metrics like interest rate, loan amount, and risk score. By exploring this data, we seek to identify patterns and correlations that affect loan approval decisions and assess the influence of financial behaviors on credit risk and loan terms.

**SMART Question(s):**

The following questions are the main subjects which this project focuses on-

1. What are the strongest predictors of loan approval or rejection?
2. How does debt-to-income ratio impact loan approval, interest rates, and risk scores?
3. What are the financial and demographic profiles of high-risk versus low-risk applicants?
4. How does credit score impact interest rates, loan approval, and loan amount?
5. What is the relationship between loan purpose and repayment behavior, and how does it affect risk?

These questions cover a broad range of critical insights, from understanding loan approval determinants to exploring risk factors associated with different applicant profiles and loan purposes. Analyzing these questions can inform decisions on risk management, loan structuring, and credit

**Source of Data Set(s):** The dataset is sourced from Kaggle website []Dataset([https://www.kaggle.com/datasets/](https://www.kaggle.com/datasets/cyclicbytes/weather-quality-and-health-impact) ).

**Dataset Details:**The dataset used in this project comprises over 20001 observations and includes 36 variables.

**Git Hub Repository**: https://github.com/AswinBalajiTR/6101\_Project.git