**Credit Score Classification**

**Introduction**

An individual's creditworthiness is represented numerically by their credit score based on their credit history. Lenders use it to evaluate the danger of giving a borrower a loan. Many elements, including payment history, credit use, length of credit history, types of credit accounts, and new credit applications, are considered when calculating a credit score.

Often, credit ratings are divided into several groups or ranges. Depending on the credit bureau and scoring algorithm being utilized, these categories might change. Better loan terms, such as lower interest rates and bigger credit limits, might result from having a higher credit score, which is typically regarded as more favourable. On the other hand, a lower credit score could lead to less advantageous loan terms or perhaps getting turned down for credit entirely.

Anybody trying to increase their creditworthiness or apply for credit should understand how credit scores are categorized. People may evaluate their credit risk and, if required, take action to raise their score by understanding the range in which their score falls. Individuals may also make wise choices when applying for credit or negotiating loan conditions by learning how lenders interpret various credit score ranges.

**Problem Statement**

People's lack of comprehension and awareness regarding the importance and classification of credit ratings. Many individuals don't understand how their credit score is determined, how it affects their ability to get credit, or how to raise it if required. This ignorance may result in adverse loan conditions, lost credit prospects, and money problems. As a result, there is a need to inform people about credit score categorization and the need of having a good credit score in order to succeed financially.

Lenders can automate the process of classifying credit scores by using machine learning. To effectively forecast creditworthiness, machine learning algorithms may be taught using past credit data. The algorithms may be taught to recognize trends and traits linked to successful borrowers by being trained on a range of data, such as income, assets, and credit history. Algorithms for machine learning may also be trained to recognize anomalies and possible fraud. The application of machine learning to credit score categorization has the potential to completely change how lenders evaluate potential borrowers and can offer a more accurate and reliable method of determining credit worthiness.

**Aim and Objectives: -**

**Aim: -** Develop an accurate, fair, and transparent credit scoring system using the Random Forest Classifier algorithm.

**Objectives: -**

1. Provide a reliable credit scoring system that can categorize people into various credit score ranges in accordance with a number of criteria, including payment history, credit usage, length of credit history, types of credit accounts, and new credit applications.
2. Create a machine learning model that can accurately and precisely categorize credit ratings using the Random Forest Classifier technique.
3. To guarantee that the resultant credit ratings are not skewed based on criteria like ethnicity, gender, or age, train the model on a broad, diversified dataset that contains a range of demographic and financial information.
4. By assessing the model's performance and looking for any potential bias against any group or individual based on demographic or financial attributes, evaluate the model's fairness and equality.

**Dataset Description: -**

A person's creditworthiness is determined by their credit score. It aids financial institutions in figuring out if you can pay back the loan or credit you're looking for. The dataset below contains 28 columns and 5 rows. The Credit Score column is the target variable in this problem.

Link to dataset: - <https://statso.io/wp-content/uploads/2022/12/Credit-Score-Data.zip>