**Fraudulent Banking Operations Recognition Using Machine Learning Algorithm**

Reference IEE Published Journal: [Developing AI-based Fraud Detection Systems for Banking and Finance | IEEE Conference Publication | IEEE Xplore](https://ieeexplore.ieee.org/document/10220838/keywords#keywords)

We have taken a published journal on Fraudulent Banking Operations Recognition.CreditCard dataset is taken into account.

Data is already already standardized due to security concerns.

**Steps Followed:**

1. **Feature Engineering:**
   1. **Data Cleaning:**
      1. Data has no missing values as it's already processed.
   2. **Feature selection:** We are taking every feature into account excluding the time
   3. **Dimensionality Reduction:**
      1. We got all the features after applying the PCA.So we are not again applying the PCA
   4. **Feature Scaling:**
      1. Applied Standard Scaler for Amount column as it's in the Dollars.
2. **Treating the imbalanced Data**
   1. Data is imbalanced so we can use either oversampling or undersampling technique. Here we are using the undersampling technique to balance the data with a minor number of rows.
3. **Splitting the Data into dependent and independent features**
4. **Splitting data for training and testing**
   1. 80% for Training
   2. 20% for Testing

**5. Selecting the Machine Learning Algorithms**

a.Selected Logistic Regression, Decision Tree Classifier, Random Forest, Support Vector Machine

b.RandomForest outperformed among other Algorithms