🏦 Loan Eligibility Predictor

A Machine Learning project to predict whether a loan applicant is eligible for loan approval, based on applicant information like income, education, credit history, and more.

🎯 Objective

To build and evaluate classification models (Logistic Regression and Random Forest) that determine loan approval status using applicant details from a public dataset.

📁 Dataset

- Source: Kaggle
- File Used: `loan-predictor-train.csv`
- Features include:
  - Gender
  - Married

- Dependents
- Education
- Self_Employed
- ApplicantIncome
- CoapplicantIncome
- LoanAmount
- Loan_Amount_Term
- Credit_History
- Property_Area

🛠️ **Tools & Libraries Used**

- Python
- pandas, numpy
- scikit-learn
- matplotlib
- IPython display (for output formatting)

🚀 Features

- Data Cleaning and Preprocessing
- Label Encoding of Categorical Variables
- Feature Scaling using `StandardScaler`
- Model Training using:
  - Logistic Regression
  - Random Forest Classifier
- Model Evaluation:
  - Accuracy
  - AUC Score
  - ROC Curve
  - Confusion Matrix
- Custom user input for prediction
- Best model automatically selected based on accuracy

📈 Model Performance

Model	Accuracy	AUC Score
Logistic Regression	~78%	~0.82
Random Forest	~82%	~0.85

The best-performing model is automatically used to predict new loan applications.

📊 Visual Evaluations

- ROC Curve
- Confusion Matrix for both models (side-by-side)