CreditWise Loan System

Problem Statement

A mid-sized financial company named **SecureTrust Bank** offers personal and home loans to customers across urban and rural regions of India. Every day, hundreds of customers apply for loans through online and branch applications.

Until now, SecureTrust Bank has been using a **manual verification process** where loan officers evaluate applications by checking income proofs, employment details, credit history, and other documents. This process is time-consuming, biased & inconsistent.

As a result, the bank faces two major challenges:

1. **Good customers sometimes get rejected**, leading to loss of business.

2. **High-risk customers sometimes get approved**, leading to financial losses.

To solve this problem, the bank wants to introduce an **intelligent loan approval system** powered by Machine Learning that can automatically analyse applicant details and **predict whether a loan should be Approved or Rejected** before final human verification.

You are hired as a **Machine Learning Engineer** to design and develop this intelligent system using historical loan application data. The system must learn hidden patterns from previous customer records and provide accurate, fast, and unbiased loan approval decisions.

Dataset Description

Each row in the dataset represents a **loan applicant** and contains multiple attributes describing their personal, financial, and credit information.

Column	Description
Applicant_ID	Unique applicant ID
Applicant_Income	Monthly income of applicant
Coapplicant_Income	Monthly income of co-applicant
Employment_Status	Salaried / Self-Employed / Business
Age	Applicant age
Marital_Status	Married / Single
Dependents	Number of dependents
Credit_Score	Credit bureau score
Existing_Loans	Number of already running loans
DTI_Ratio	Debt-to-Income ratio
Savings	Savings balance
Collateral_Value	Value of collateral provided
Loan_Amount	Loan amount requested
Loan_Term	Loan duration (months)
Loan_Purpose	Home / Education / Personal / Business
Property_Area	Urban / Semi-Urban / Rural
Education_Level	Graduate / Postgraduate / Undergraduate
Gender	Male / Female
Employer_Category	Govt / Private / Self
Loan_Approved (Target)	1 = Approved, 0 = Rejected