Binary Classification Problem

Problem Statement:

You are given a dataset collected from a bank containing customer information.

Your task is to build a binary classification model that predicts whether a customer

is likely to subscribe to a term deposit.

Dataset Features:

- age: Age of the customer (numeric)

- job: Type of job (categorical)

- marital: Marital status (categorical)

- education: Education level (categorical)

- balance: Account balance (numeric)

- housing: Has housing loan? (yes/no)

- loan: Has personal loan? (yes/no)

- contact: Type of communication contact (categorical)

- duration: Last contact duration (numeric)

- campaign: Number of contacts performed during this campaign (numeric)

Target:

- y: Whether the client subscribed to a term deposit (yes=1, no=0)

Objective:

- Perform exploratory data analysis to understand patterns.

- Preprocess the data (handle missing values, encode categoricals).

- Train a binary classification model (e.g., Logistic Regression, Random Forest).

- Evaluate the model using accuracy, precision, recall, and ROC-AUC score.