Titanic Survivor Prediction Project Documentation

# 1. Project Overview

This project aims to predict the survival of passengers aboard the Titanic using machine learning techniques. The dataset used is the famous Titanic dataset, which contains details about the passengers, such as age, gender, class, and more. The main objective is to build a model that can predict whether a passenger survived or not.

# 2. Data Analysis

The dataset was first explored to understand the distribution of data and check for missing values. Common steps in this process include checking the summary statistics of the dataset, visualizing key attributes, and handling missing values.

# 3. Model Building and Training

Several machine learning algorithms were considered for this classification task. The models explored include:

* - Logistic Regression
* - Decision Tree Classifier
* - Random Forest Classifier

The dataset was split into training and testing sets, and each model was trained on the training set before being evaluated on the test set.

# 4. Evaluation and Results

The performance of each model was evaluated using accuracy, precision, recall, and F1-score. Based on these metrics, the best-performing model was selected and fine-tuned to improve its predictions. Additionally, feature importance was analyzed to understand which factors contributed the most to the model's decision-making.