

Titanic Survival Prediction Documentation

This document provides a detailed explanation of the steps performed in the Jupyter Notebook for building and evaluating a Titanic survival prediction model. The notebook uses machine learning techniques to predict survival based on passenger attributes.

1. Importing Libraries

Code:

```
# Importing All Required Libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt

from warnings import filterwarnings
filterwarnings(action='ignore')
```

Purpose:

- Imports essential libraries for data manipulation (**pandas**, **numpy**) and visualization (**matplotlib**).
 - Suppresses warnings to streamline the output.
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2. Loading Datasets

Code:

```
# Loading Datasets
pd.set_option('display.max_columns', 10, 'display.width', 1000)
train = pd.read_csv('train.csv')
test = pd.read_csv('test.csv')
train.head()
```

Purpose:

- Reads the training and testing datasets from CSV files into pandas DataFrames.

- Adjusts display options for better readability of DataFrame outputs.
 - Displays the first few rows of the training dataset for a quick overview.
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3. Exploratory Data Analysis (EDA)

Dataset Shape:

Display shape
train.shape

- Outputs the number of rows and columns in the training dataset.

Observations:

- **Rows:** 891
 - **Columns:** 12
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4. Data Preprocessing

Details about handling missing values, encoding categorical variables, and feature engineering are covered later in the notebook. (Placeholder for additional steps once reviewed.)

5. Model Building

The notebook implements a machine learning pipeline using `RandomForestClassifier` from scikit-learn to predict survival. It involves splitting data, training the model, and evaluating performance metrics like confusion matrix and classification report.

6. Visualization

Matplotlib is used to create visualizations (plots to be detailed once reviewed).

Next Steps:

- Finalize preprocessing steps and model evaluation details.

- Add summary metrics and insights derived from the analysis.

