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Titanic Survival Prediction

Task 1

By

Praveenkumar S

B.tech Artificial Intelligence and Data Science

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Problem :

Predicting Titanic Passenger Survival.

Problem definition :

Given a dataset containing information about individual passengers such as age, gender, ticket class, fare, cabin, and survival status, the task is to create a predictive model capable of determining the likelihood of survival. This binary classification problem involves assigning a binary outcome (survived or not survived) to each passenger based on their characteristics.

Introduction

This project focuses on predicting the survival status of passengers aboard the Titanic using machine learning techniques. The dataset used for this project is loaded from a CSV file named **Titanic.csv**. The primary objective is to analyze the relationship between passenger class, gender, and survival outcomes.

Libraries Used

- NumPy
- Pandas
- Matplotlib
- Seaborn
- Scikit-learn

Dataset

The dataset contains various features, including "Pclass" (Passenger Class) and "Sex," with the target variable being "Survived," indicating whether a passenger survived (1) or not (0).

Data Preprocessing

The "Sex" column is encoded using LabelEncoder for better compatibility with machine learning algorithms. Data visualizations are created using Seaborn to explore the relationships between survival, passenger class, and gender.

Splitting Data

The dataset is divided into training and testing sets using the `train_test_split` function from Scikit-learn.

Model Training

A Random Forest Classifier is employed to train the model using the training dataset.

Model Testing

The trained model is tested on the testing dataset, and key metrics such as accuracy and classification report are printed for evaluation.

Custom Testing

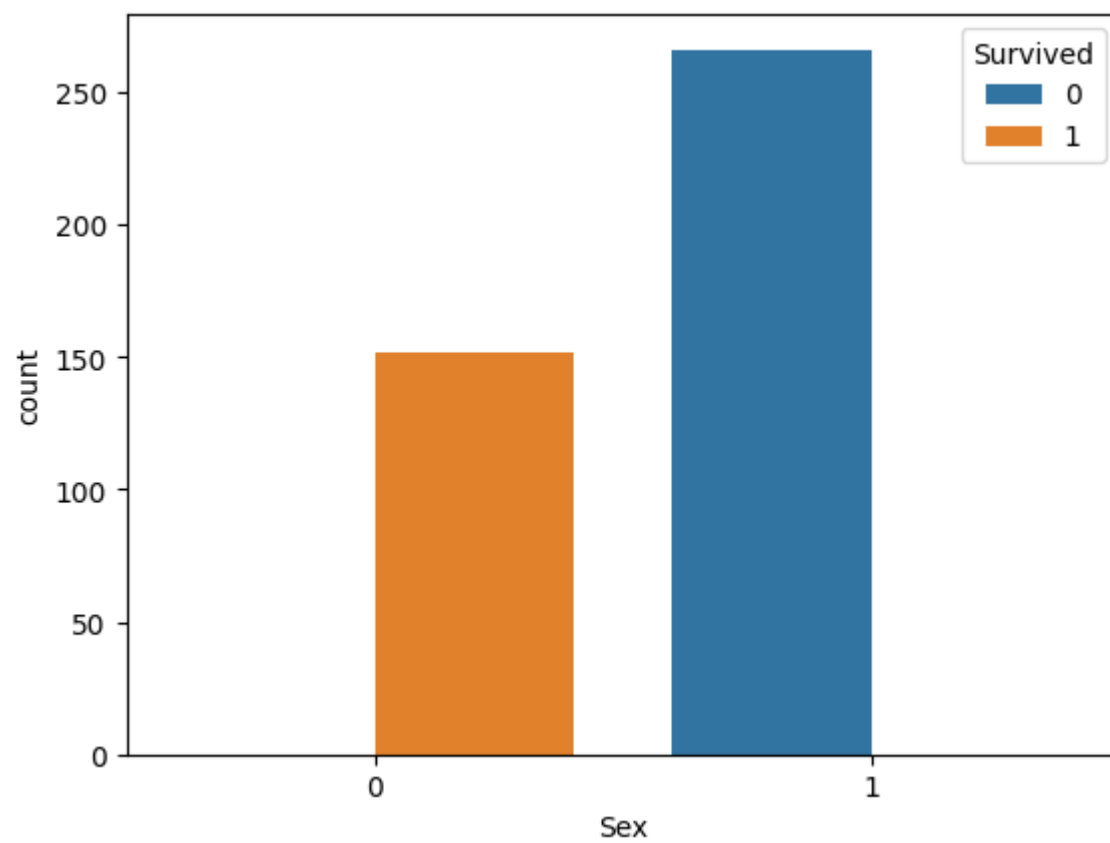
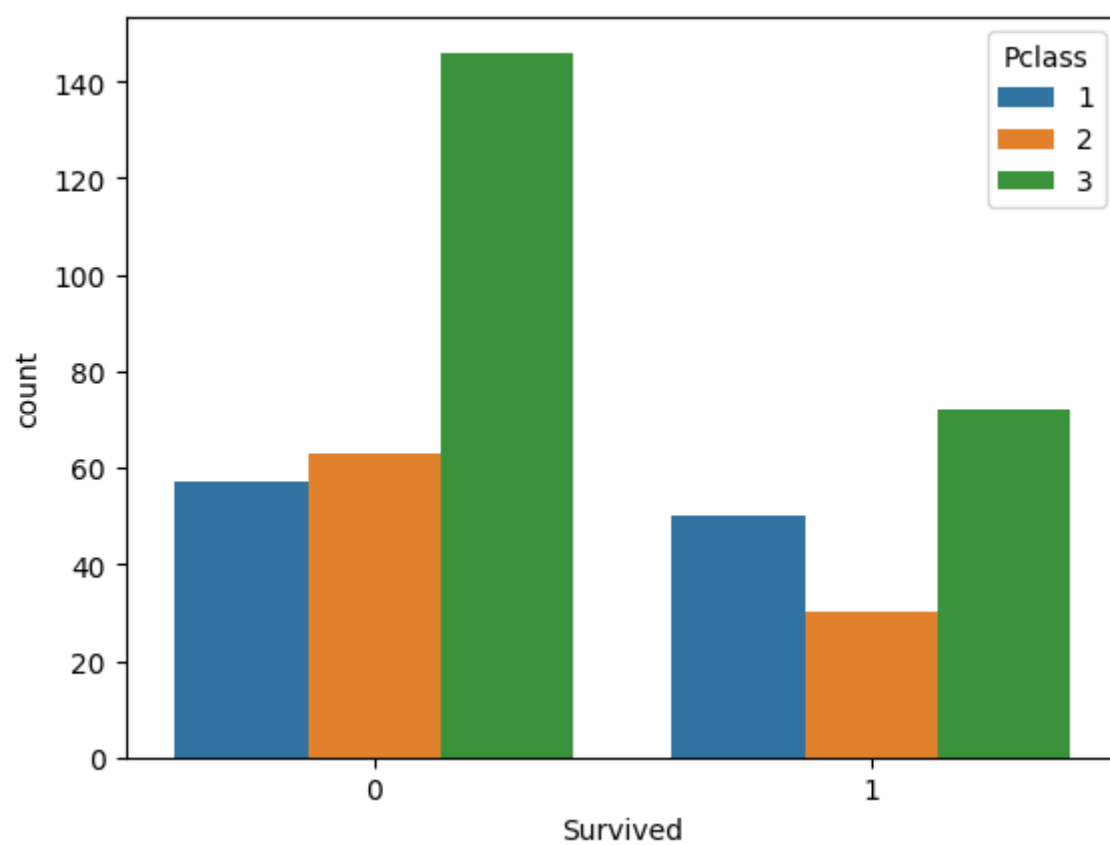
A function `data(sex, pclass)` is available for users to perform custom testing. Users can input a passenger's gender and class, and the model will predict whether the passenger survived or not.

Python Code

```
pClass = int(input("Passenger Class : "))
gender = int(input("Gender : "))
res = data(gender, pClass)

if res == 0:
    print("Prediction: Not Survived")
else:
    print("Prediction: Survived")
```

Plots



Output Sample

Python Code

```
>> Passenger Class : 1  
>> Gender : 0  
  
>> Prediction : Survived
```

References

- [Google](#)
- [Youtube](#)

Conclusion

This Titanic Survival Prediction project leverages machine learning to make predictions based on passenger information. The Random Forest Classifier demonstrates its ability to predict survival status, and users can interactively test the model with custom inputs.