

TITANIC SURVIVAL PREDICTION

INTRODUCTION:

The titanic survival prediction involves factors that could have influenced a passenger's likelihood of survival during the tragic sinking of the RMS Titanic in 1912. Some factors known to play a role include passenger class, age, gender, and whether the individual was accompanied by family.

Passenger class had a significant impact, with higher survival rates among first-class passengers compared to those in second and third class. Women and children were more likely to survive than men, as the "Women and children first" protocol was followed during the evacuation. Age also played a role, with younger individuals having higher survival rates.

LOADING DATA:

Step 1:

Import random (module)

Loads the random module ,which contains a number of random number generation related functions.

PROGRAM

```
import random
```

```
# Generating mock data for passengers
```

```
passenger_data = []
```

```
for i in range(1000):
```

```
    passenger = {
```

```
        "PassengerId": i + 1,
```

```
        "Name": f"Passenger_{i + 1}",
```

```
"Age": random.randint(1, 70),
"Sex": random.choice(["male", "female"]),
"Survived": random.choice([0, 1]),
"Pclass": random.choice([1, 2, 3]),
"Fare": round(random.uniform(100, 3000), 2)
}
passenger_data.append(passenger)
```

```
# Filtering survived passengers
```

```
survived_passengers = [passenger for passenger in
passenger_data if passenger["Survived"] == 1]
```

```
# Sorting passengers by age
```

```
passenger_data.sort(key=lambda x: x["Age"])
```

```
# Analyzing the count of passengers in each class
```

```
class_counts = {}
```

```
for passenger in passenger_data:
```

```
    if passenger["Pclass"] not in class_counts:
```

```
        class_counts[passenger["Pclass"]] = 0
```

```
    class_counts[passenger["Pclass"]] += 1
```

Displaying sample results

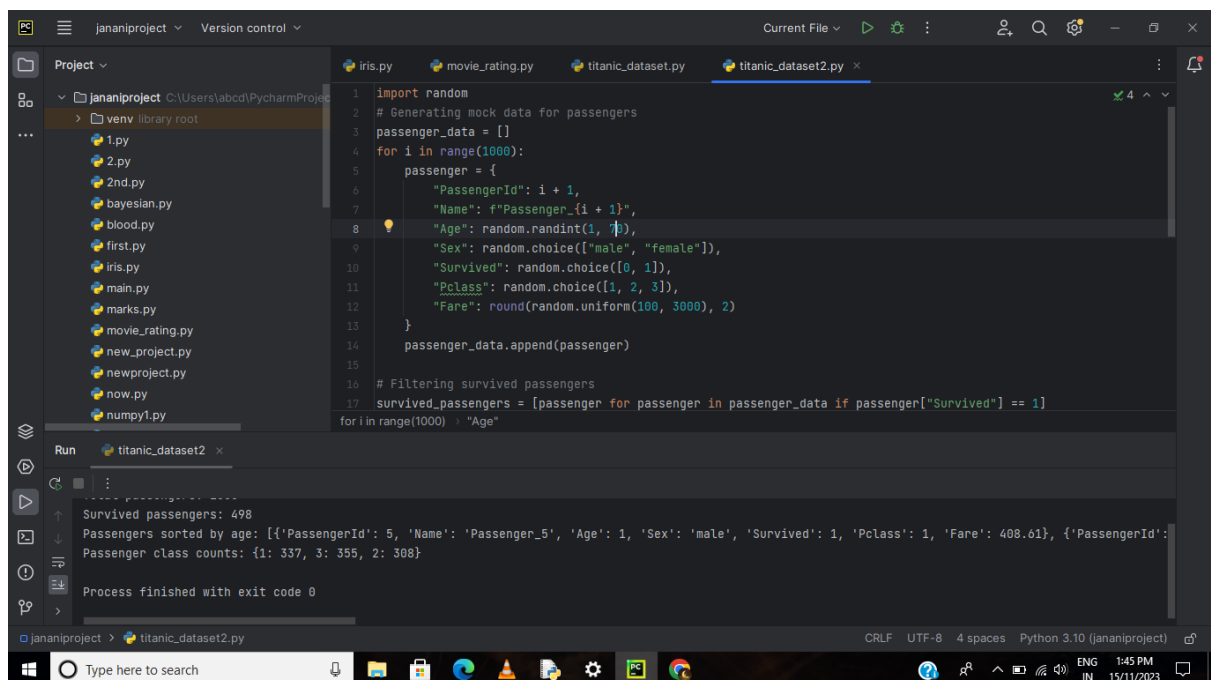
```
print("Total passengers:", len(passenger_data))
```

```
print("Survived passengers:", len(survived_passengers))
```

```
print("Passengers sorted by age:", passenger_data[:5])
```

```
print("Passenger class counts:", class_counts)
```

PROGRAM:



The screenshot shows the PyCharm IDE interface. The left sidebar displays a project structure for 'jananiproject' with a 'venv' directory and various Python files. The main editor window shows the file 'titanic_dataset2.py' with the following code:

```
1 import random
2 # Generating mock data for passengers
3 passenger_data = []
4 for i in range(1000):
5     passenger = {
6         "PassengerId": i + 1,
7         "Name": f"Passenger_{i + 1}",
8         "Age": random.randint(1, 70),
9         "Sex": random.choice(["male", "female"]),
10        "Survived": random.choice([0, 1]),
11        "Pclass": random.choice([1, 2, 3]),
12        "Fare": round(random.uniform(100, 3000), 2)
13    }
14    passenger_data.append(passenger)
15
16 # Filtering survived passengers
17 survived_passengers = [passenger for passenger in passenger_data if passenger["Survived"] == 1]
18 for i in range(1000): "Age"
```

The bottom panel shows the output of the program:

```
Survived passengers: 498
Passengers sorted by age: [{'PassengerId': 5, 'Name': 'Passenger_5', 'Age': 1, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 408.61}, {'PassengerId': 1, 'Name': 'Passenger_1', 'Age': 2, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 15.49}, {'PassengerId': 2, 'Name': 'Passenger_2', 'Age': 3, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 51.67}, {'PassengerId': 3, 'Name': 'Passenger_3', 'Age': 4, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 15.5}, {'PassengerId': 4, 'Name': 'Passenger_4', 'Age': 5, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 53.1}]
Passenger class counts: {1: 337, 3: 355, 2: 308}
```

The status bar at the bottom indicates the file encoding is UTF-8, the line ending is CRLF, and the Python version is 3.10.

The screenshot shows the PyCharm IDE with the file `titanic_dataset2.py` open. The code generates a Titanic dataset with 1000 passengers, filters for survivors, sorts by age, and counts passengers by class. The output console shows the following results:

```
Survived passengers: 498
Passengers sorted by age: [{'PassengerId': 5, 'Name': 'Passenger_5', 'Age': 1, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 408.61}, {'PassengerId': 337, 'Name': 'Passenger_337', 'Age': 2, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 53.1}, {'PassengerId': 355, 'Name': 'Passenger_355', 'Age': 3, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 51.0}, {'PassengerId': 368, 'Name': 'Passenger_368', 'Age': 4, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 51.0}]
Passenger class counts: {1: 337, 3: 355, 2: 308}
```

OUTPUT:

The screenshot shows the PyCharm IDE with the file `titanic_dataset2.py` open. The output console shows the following results:

```
C:\Users\abcd\PycharmProjects\jananiproject\venv\Scripts\python.exe C:\Users\abcd\PycharmProjects\jananiproject\titanic_dataset2.py
Total passengers: 1000
Survived passengers: 498
Passengers sorted by age: [{'PassengerId': 5, 'Name': 'Passenger_5', 'Age': 1, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 408.61}, {'PassengerId': 337, 'Name': 'Passenger_337', 'Age': 2, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 53.1}, {'PassengerId': 355, 'Name': 'Passenger_355', 'Age': 3, 'Sex': 'male', 'Survived': 1, 'Pclass': 1, 'Fare': 51.0}, {'PassengerId': 368, 'Name': 'Passenger_368', 'Age': 4, 'Sex': 'female', 'Survived': 0, 'Pclass': 3, 'Fare': 51.0}]
Passenger class counts: {1: 337, 3: 355, 2: 308}
Process finished with exit code 0
```

CONCLUSION:

Here the titanic dataset program. And its output