

PRACTICAL 5

ALL PRACTICALS:

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5.2.11. Scatter Plot for Age vs. Fare by Survived

00:43

Write a Python code to plot a scatter plot showing the relationship between the 'Age' and 'Fare' columns in the Titanic dataset, with points color-coded by survival status. The scatter plot should display the following specifications:

1. Use the **Age** column for the x-axis and the **Fare** column for the y-axis.
2. Color the points based on the **Survived** column: **Red** for passengers who did not survive (**Survived = 0**). **Blue** for passengers who survived (**Survived = 1**).
3. Set the title of the plot to **"Age vs. Fare by Survival"**.
4. Label the x-axis as **'Age'** and the y-axis as **'Fare'**.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked

Sample Data:

Sample Test Cases

AgeFareS...

14 data = pd.get_dummies(data, columns=['Embarked'], drop_first=True)

15

16 ## Write your code here for Scatter Plot for Age vs. Fare by Survived

17 colors = data['Survived'].map({0: 'red', 1: 'blue'})

18

19 plt.scatter(data['Age'], data['Fare'], c=colors)

20 plt.title('Age vs. Fare by Survival')

21 plt.xlabel('Age')

22 plt.ylabel('Fare')

23 plt.show()

24

Average time 0.393 s 393.00 ms

Maximum time 0.393 s 393.00 ms

1 out of 1 shown test case(s) passed

Test case 1 0.393 ms

Expected output

Actual output

Terminal

Test cases

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5.2.10. Scatter Plot for Age vs. Fare

00:45

Write a Python code to plot a scatter plot showing the relationship between the 'Age' and 'Fare' columns in the Titanic dataset. The scatter plot should display the following specifications:

1. Use the **Age** column for the x-axis and the **Fare** column for the y-axis.
2. Set the title of the plot to **"Age vs. Fare"**.
3. Label the x-axis as **'Age'** and the y-axis as **'Fare'**.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked

Sample Data:

PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked
1,0,3,"Braund, Mr. Owen Harris", male, 22, 1, 0, A/5 21171, 7.25,, S
2,1,1,"Cumings, Mrs. John Bradley (Florence Briggs Thayer)", female, 38, 1, 0, PC 17599, 71.2833, C85, C
3,1,3,"Meikinen, Miss. Laina", female, 26, 0, 0, STON/O2. 3101282, 7.925,, S

Sample Test Cases

AgeFareS...

13 data['Sex'] = data['Sex'].map({'male': 0, 'female': 1})

14 data = pd.get_dummies(data, columns=['Embarked'], drop_first=True)

15

16 ## Write your code here for Box Plot for Fare by Pclass

17 plt.figure()

18 plt.scatter(data['Age'], data['Fare'])

19 plt.title('Age vs. Fare')

20 plt.xlabel('Age')

21 plt.ylabel('Fare')

22 plt.show()

23

Average time 0.371 s 371.00 ms

Maximum time 0.371 s 371.00 ms

1 out of 1 shown test case(s) passed

Test case 1 0.371 ms

Expected output

Actual output

Terminal

Test cases

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5.2.9. Box Plot for Fare by Pclass

Write a Python code to plot a boxplot that shows the distribution of the 'Fare' column from the Titanic dataset based on the passenger class (Pclass). The boxplot should display the following specifications:

- Use the **Pclass** column to group the data for the boxplot.
- Set the title of the plot to **"Fare by Pclass"**.
- Remove the default subtitle with **plt.suptitle("")**.
- Label the x-axis as **'Pclass'** and the y-axis as **'Fare'**.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked

Sample Data:

```
PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked
1, 0, 3, "Braund, Mr. Owen Harris", male, 22, 1, 0, A/5 21171, 7.25, S
2, 1, 1, "Cummings, Mrs. John Bradley (Florence Briggs Thayer)", female, 38, 1, 0, PC 17599, 71.2833, C85, C
```

Sample Test Cases

BoxPlotF...

14 data = pd.get_dummies(data, columns=['Embarked'], drop_first=True)
15
16 ## Write your code here for Box Plot for Fare by Pclass
17 plt.figure(figsize=(8,6))
18 data.boxplot(column='Fare', by='Pclass')
19 plt.title("Fare by Pclass")
20 plt.suptitle("")
21 plt.xlabel('Pclass')
22 plt.ylabel('Fare')
23 plt.show()
24

Average time: 0.427 s427.00 msMaximum time: 0.427 s427.00 ms1 out of 1 shown test case(s) passed

Test case 1427 ms

Expected output

Fare by Pclass

Actual output

Fare by Pclass

TerminalTest cases

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5.2.8. Box Plot for Age by Survived

Write a Python code to plot a boxplot that shows the distribution of the 'Age' column from the Titanic dataset based on whether passengers survived or not. The boxplot should display the following specifications:

- Use the **Survived** column to group the data for the boxplot (0 = Did not survive, 1 = Survived).
- Set the title of the plot to **"Age by Survival"**.
- Remove the default subtitle with **plt.suptitle("")**.
- Label the x-axis as **'Survived'** and the y-axis as **'Age'**.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked

Sample Data:

```
PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked
1, 0, 3, "Braund, Mr. Owen Harris", male, 22, 1, 0, A/5 21171, 7.25, S
```

Sample Test Cases

BoxPlotF...

15
16 ## Write your code here for Box Plot for Age by Survived
17 plt.figure(figsize=(8,6))
18 data.boxplot(column='Age', by='Survived')
19 plt.title("Age by Survival")
20 plt.suptitle("")
21 plt.xlabel('Survived')
22 plt.ylabel('Age')
23 plt.show()
24
25

Average time: 0.503 s503.00 msMaximum time: 0.503 s503.00 ms1 out of 1 shown test case(s) passed

Test case 1503 ms

Expected output

Age by Survival

Actual output

Age by Survival

TerminalTest cases

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5.2.7. Box plot for Age Distribution00:54

Write a Python code to plot a boxplot that shows the distribution of the 'Age' column from the Titanic dataset across different passenger classes. The boxplot should display the following specifications:
1. Use the **Pclass** column to group the data for the boxplot.
2. Set the title of the plot to **"Age by Pclass"**.
3. Remove the default subtitle with **plt.suptitle("")**.
4. Label the x-axis as **'Pclass'** and the y-axis as **'Age'**.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171	7.25	S	
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599	71.2833	C85	C

Sample Data:

```
PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked  
1, 0, 3, "Braund, Mr. Owen Harris", male, 22, 1, 0, A/5 21171, 7.25, S  
2, 1, 1, "Cumings, Mrs. John Bradley (Florence Briggs Thayer)", female, 38, 1, 0, PC 17599, 71.2833, C85, C
```


Sample Test Cases

BoxPlotF...

13 data['Sex'] = data['Sex'].map({'male': 0, 'female': 1})
14 data = pd.get_dummies(data, columns=['Embarked'], drop_first=True)
15
16 # Write your code here for Box Plot for Age by Pclass
17 data.boxplot(column = 'Age', by='Pclass')
18 plt.title("Age by Pclass")
19 plt.suptitle("")
20 plt.xlabel('Pclass')
21 plt.ylabel('Age')
22 plt.show()
23

Average time0.534 sMaximum time0.534 s1 out of 1 shown test case(s) passed

Test case 10:54 ms
Expected output
Actual output
TerminalTest cases

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5.2.6. Bar Plot for Survival by Embarked00:42

Write a Python code to plot a stacked bar chart showing the survival count for passengers based on their embarkation location in the Titanic dataset. The chart should display the following specifications:
1. Use the **Embarked** column to determine the embarkation location. After converting this column into dummy variables (using **pd.get_dummies()**), plot the survival count based on the **Embarked_Q** column (representing passengers who embarked from Queenstown) in relation to survival.
2. Set the chart type to 'bar' and make it stacked.
3. Add the title **"Survival by Embarked"** to the chart.
4. Label the x-axis as **'Embarked'** and the y-axis as **'Count'**.
5. Include a legend to distinguish between survivors and non-survivors (label the legend as **'Survived'** and **'Not Survived'**).

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171	7.25	S	
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599	71.2833	C85	C

Sample Test Cases

BarPlotOf...

16 ## Write your code here for Bar Plot for Survival by Embarked
17 survival_counts = data.groupby('Embarked_Q')
18 ['Survived'].value_counts().unstack().fillna(0)
19
20 survival_counts.plot(kind = 'bar', stacked = True)
21 plt.title("Survival by Embarked")
22 plt.xlabel('Embarked')
23 plt.ylabel('Count')
24 plt.legend(['Not Survived', 'Survived'])
25 plt.show()
26

Average time0.538 sMaximum time0.538 s1 out of 1 shown test case(s) passed

Test case 10:50 ms
Expected output
Actual output
TerminalTest cases

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5.2.5. Bar Plot for Survival by Pclass

00:40

Write a Python code to plot a stacked bar chart that shows the count of passengers who survived and did not survive, grouped by passenger class (Pclass), in the Titanic dataset. The chart should display the following specifications:
1. Group the data by the Pclass column and count the number of survivors (0 = Did not survive, 1 = Survived) for each class using value_counts().
2. Use a stacked bar chart to display the survival counts.
3. Add the title "Survival by Pclass" to the chart.
4. Label the x-axis as "Pclass" and the y-axis as "Count".
5. The legend should indicate "Not Survived" and "Survived".

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	ParCh	Ticket	Fare	Cabin	Embarked

Sample Data:

Sample Test Cases

BarPlotOf...

16 ##Write your code here for Bar Plot for Survival by Pclass
17 survival_counts = data.groupby('Pclass')
18 ['Survived'].value_counts().unstack().fillna(0)
19
20 survival_counts.plot(kind='bar',stacked=True)
21
22 plt.title('Survival by Pclass')
23 plt.xlabel('Pclass')
24 plt.ylabel('Count')
25
26 plt.legend(['Not Survived','Survived'])

Average time0.497 s497.00 msMaximum time0.497 s497.00 ms1 out of 1 shown test case(s) passed

Test case 10.07 ms

Expected output

Actual output

Survival by Pclass

Survival by Pclass

TerminalTest cases

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5.2.4. Bar Plot for Survival by Gender

00:41

Write a Python code to plot a stacked bar chart that shows the count of passengers who survived and did not survive, grouped by gender, in the Titanic dataset. The chart should display the following specifications:
1. Group the data by the 'Sex' column, then use the value_counts() function to count the occurrences of survivors (0 = Did not survive, 1 = Survived) for each gender.
2. Use a stacked bar chart to display the survival counts.
3. Add the title "Survival by Gender" to the chart.
4. Label the x-axis as "Gender" and the y-axis as "Count".
5. The legend should indicate "Not Survived" and "Survived".

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	ParCh	Ticket	Fare	Cabin	Embarked

Sample Data:

Sample Test Cases

BarPlotOf...

16 ##Write your code here for Bar Plot for Survival by Gender
17 survival_counts = data.groupby('Sex')
18 ['Survived'].value_counts().unstack()
19
20 survival_counts.plot(kind='bar',stacked=True)
21
22 plt.title('Survival by Gender')
23 plt.xlabel('Gender')
24 plt.ylabel('Count')
25
26 plt.legend(['Not Survived','Survived'])
27
28 plt.show()

Average time0.508 s508.00 msMaximum time0.508 s508.00 ms1 out of 1 shown test case(s) passed

Test case 10.508 ms

Expected output

Actual output

Survival by Gender

Survival by Gender

TerminalTest cases

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5.2.3. Bar plot of survival rate of passengers00:31

Write a Python code to plot a bar chart that shows the count of passengers who survived and did not survive in the Titanic dataset. The chart should display the following specifications:
1. Use the 'Survived' column to show the count of survivors (0 = Did not survive, 1 = Survived).
2. Set the chart type to 'bar'.
3. Add the title 'Survival Count' to the chart.
4. Label the x-axis as 'Survived' and the y-axis as 'Count'.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171,7.25,,S			
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599,71.2833,C85,C			

Sample Data:
PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked
1,0,3,"Braund, Mr. Owen Harris",male,22,1,0,A/5 21171,7.25,,S
2,1,1,"Cumings, Mrs. John Bradley (Florence Briggs Thayer)",female,38,1,0,PC 17599,71.2833,C85,C

Sample Test Cases

BarPlotOf...

16 ## Write your code here for Bar Plot for Survival Rate
17
18 # Write your code here for Bar Plot for Survival
19
20 survival_counts = data['Survived'].value_counts()
21 survival_counts.plot(kind='bar')
22
23 plt.title('Survival Count')
24
25 plt.xlabel('Survived')
26

Average time: 0.473 s473.00 msMaximum time: 0.473 s473.00 ms1 out of 1 shown test case(s) passed

Test case 1473 ms

Expected output: Survival Count

Actual output: Survival Count

TerminalTest cases

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5.2.2. Histogram of passenger information of Titanic00:54

Write a Python code to plot a histogram for the distribution of the 'Age' column from the Titanic dataset. The histogram should display the frequency of different age ranges with the following specifications:
1. Use 30 bins for the histogram.
2. Set the edge color of the bars to black (k).
3. Label the x-axis as 'Age' and the y-axis as 'Frequency'.
4. Add the title 'Age Distribution' to the histogram.

The Titanic dataset contains columns as shown below,

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
1	0	3	Braund, Mr. Owen Harris	male	22	1	0	A/5 21171,7.25,,S			
2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Thayer)	female	38	1	0	PC 17599,71.2833,C85,C			

Sample Data:
PassengerId, Survived, Pclass, Name, Sex, Age, SibSp, Parch, Ticket, Fare, Cabin, Embarked
1,0,3,"Braund, Mr. Owen Harris",male,22,1,0,A/5 21171,7.25,,S
2,1,1,"Cumings, Mrs. John Bradley (Florence Briggs Thayer)",female,38,1,0,PC 17599,71.2833,C85,C

Sample Test Cases

Histogram...

13 data['Sex'] = data['Sex'].map({'male': 0, 'female': 1})
14 data = pd.get_dummies(data, columns=['Embarked'], drop_first=True)
15
16 ## Write your code here for Histogram
17 # Write your code here for Histogram
18
19 plt.hist(data['Age'], bins=30, edgecolor='k')
20 plt.title('Age Distribution')
21 plt.xlabel('Age')
22 plt.ylabel('Frequency')
23 plt.show()

Average time: 0.398 s398.00 msMaximum time: 0.398 s398.00 ms1 out of 1 shown test case(s) passed

Test case 1400 ms

Expected output: Age Distribution

Actual output: Age Distribution

TerminalTest cases

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5.2.1. Titanic Dataset

01:12

Write a Python program to analyze and visualize data from the Titanic dataset based on the following instructions:

Dataset Information:

The dataset is stored in a CSV file named `titanic.csv` and has been loaded using the `pandas` library. It contains the following columns:

- `Pclass`: Passenger class (1 = First, 2 = Second, 3 = Third).
- `Gender`: Gender of the passenger (male/female).
- `Age`: Age of the passenger.
- `Survived`: Survival status (0 = Did not survive, 1 = Survived).
- `Fare`: Ticket fare paid by the passenger.

Visualization:

To represent these trends, you will create 5 visualizations using Matplotlib. The visualizations should be arranged in a 3x2 grid (3 rows and 2 columns).

Visualization Details:

Write the code to create a series of visualizations as follows:

Sample Test Cases

Explorer

titanicDat...

Submit

Debugger

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