

Artificial Intelligence and Machine Learning

LAB 2

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2. For a data set,

```
import seaborn as sns
import pandas as pd
import matplotlib.pyplot as plt
|
titanic = sns.load_dataset('titanic')
print(titanic.head())
```

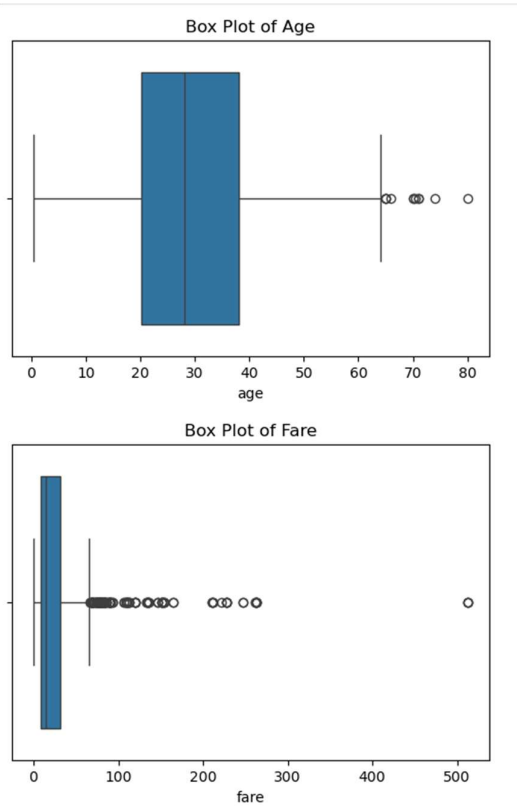
	survived	pclass	sex	age	sibsp	parch	fare	embarked	class	\
0	0	3	male	22.0	1	0	7.2500	S	Third	
1	1	1	female	38.0	1	0	71.2833	C	First	
2	1	3	female	26.0	0	0	7.9250	S	Third	
3	1	1	female	35.0	1	0	53.1000	S	First	
4	0	3	male	35.0	0	0	8.0500	S	Third	

	who	adult_male	deck	embark_town	alive	alone
0	man	True	NaN	Southampton	no	False
1	woman	False	C	Cherbourg	yes	False
2	woman	False	NaN	Southampton	yes	True
3	woman	False	C	Southampton	yes	False
4	man	True	NaN	Southampton	no	True

i. Show the distribution of continuous variables using BoxPlot.

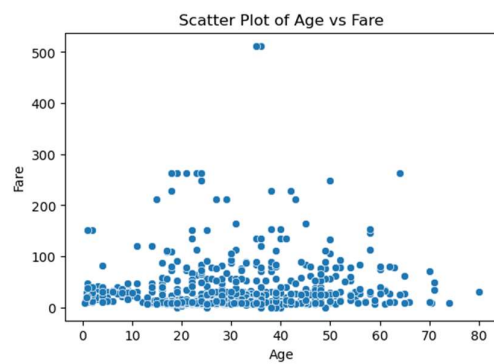
```
# Box plot for Age
plt.figure(figsize=(6, 4))
sns.boxplot(x=titanic['age'])
plt.title('Box Plot of Age')
plt.show()

# Box plot for Fare
plt.figure(figsize=(6, 4))
sns.boxplot(x=titanic['fare'])
plt.title('Box Plot of Fare')
plt.show()
```



ii. Identify the relationship between two continuous variables using scatter plot.

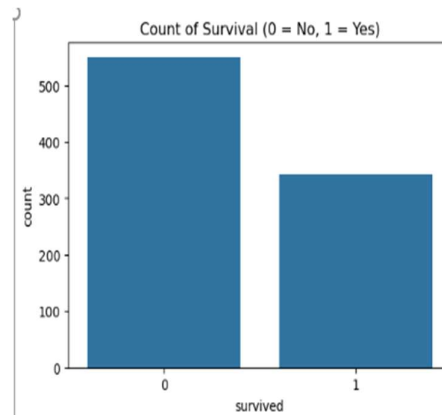
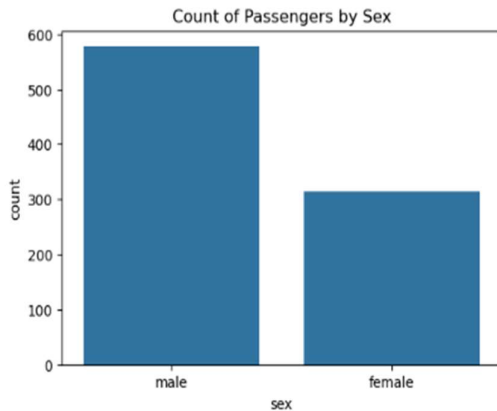
```
# Scatter plot between Age and Fare
plt.figure(figsize=(6, 4))
sns.scatterplot(x='age', y='fare', data=titanic)
plt.title('Scatter Plot of Age vs Fare')
plt.xlabel('Age')
plt.ylabel('Fare')
plt.show()
```



iii. Find and display the frequency of the categorical values using count plot.

```
# Count of passengers by sex
plt.figure(figsize=(6, 4))
sns.countplot(x='sex', data=titanic)
plt.title('Count of Passengers by Sex')
plt.show()

# Count of passengers who survived
plt.figure(figsize=(6, 4))
sns.countplot(x='survived', data=titanic)
plt.title('Count of Survival (0 = No, 1 = Yes)')
plt.show()
```



iv. Apply point plots to display one continuous and one categorical variable.

```
# Point plot: average fare by class
plt.figure(figsize=(6, 4))
sns.pointplot(x='class', y='fare', data=titanic)
plt.title('Average Fare by Passenger Class')
plt.show()
```

