```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

path='/content/drive/MyDrive/prodigy ds/ Titanic-Dataset.csv'
data=pd.read_csv(path)
```

```
data.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parc
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	
				Futrelle,				

Next steps: View recommended plots

```
data.describe()
```

	PassengerId	Survived	Pclass	Age	SibSp	
count	891.000000	891.000000	891.000000	714.000000	891.000000	89
mean	446.000000	0.383838	2.308642	29.699118	0.523008	
std	257.353842	0.486592	0.836071	14.526497	1.102743	
min	1.000000	0.000000	1.000000	0.420000	0.000000	
25%	223.500000	0.000000	2.000000	20.125000	0.000000	
50%	446.000000	0.000000	3.000000	28.000000	0.000000	
75%	668.500000	1.000000	3.000000	38.000000	1.000000	
max	891.000000	1.000000	3.000000	80.000000	8.000000	

```
data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   PassengerId  891 non-null    int64  
 1   Survived     891 non-null    int64  
 2   Pclass       891 non-null    int64  
 3   Name         891 non-null    object 
 4   Sex          891 non-null    object 
 5   Age          714 non-null    float64
 6   SibSp        891 non-null    int64  
 7   Parch        891 non-null    int64
 8   Ticket       891 non-null    object
 9   Fare         891 non-null    float64
 10  Cabin        204 non-null    object
 11  Embarked     889 non-null    object
dtypes: float64(2), int64(5), object(5)
memory usage: 83.7+ KB
```

```
data.isnull().sum()
```

```
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age            177
SibSp            0
Parch            0
Ticket           0
Fare             0
Cabin          687
Embarked         2
dtype: int64
```

```
data.dropna(subset=["Embarked"], inplace=True)
data["Cabin"].fillna("Unknown", inplace=True)
data["Age"].fillna(data["Age"].mean(), inplace=True)
```

```
data.isnull().sum()
```

```
PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Cabin          0
Embarked       0
dtype: int64
```

```
data.duplicated().sum()
```

```
0
```

```
print(data.dtypes)
```

```
PassengerId      int64
Survived         int64
Pclass           int64
Name            object
Sex             object
Age            float64
SibSp            int64
Parch            int64
Ticket          object
Fare           float64
Cabin           object
Embarked        object
dtype: object
```

```
missing_data = data.isnull().sum()
missing_data = data.isnull().sum()
missing_data
```

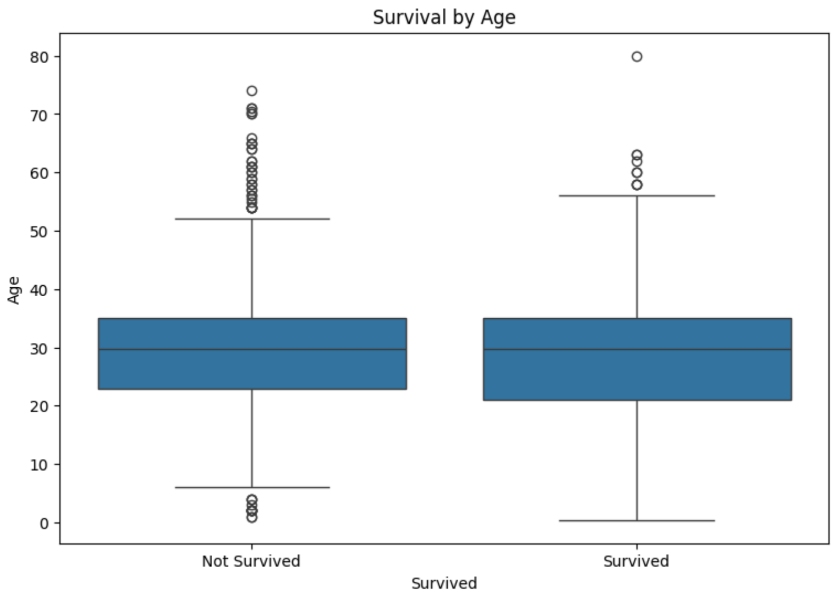
```
PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Cabin          0
Embarked       0
dtype: int64
```

```
data = data.drop_duplicates()
data.head(8)
```

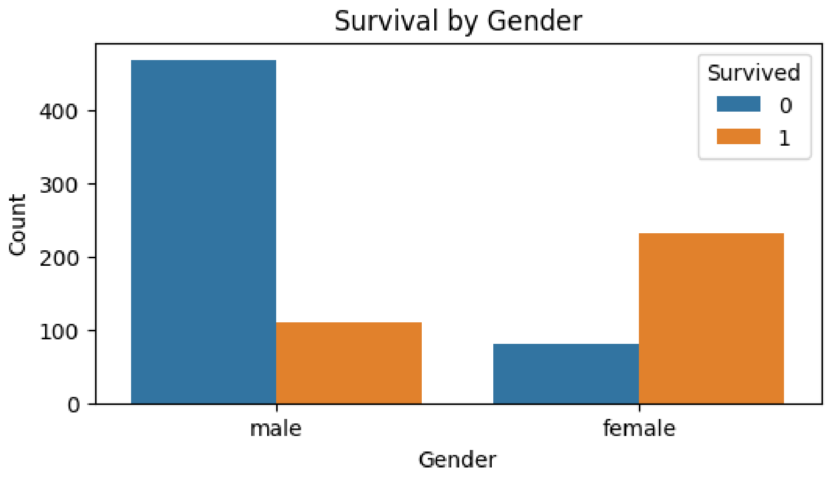
	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp
0	1	0	3	Braund, Mr. Owen Harris	male	22.000000	1
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.000000	1
2	3	1	3	Heikkinen, Miss. Laina	female	26.000000	0
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.000000	1
4	5	0	3	Allen, Mr. William Henry	male	35.000000	0
5	6	0	3	Moran, Mr. James	male	29.642093	0

Next steps: View recommended plots

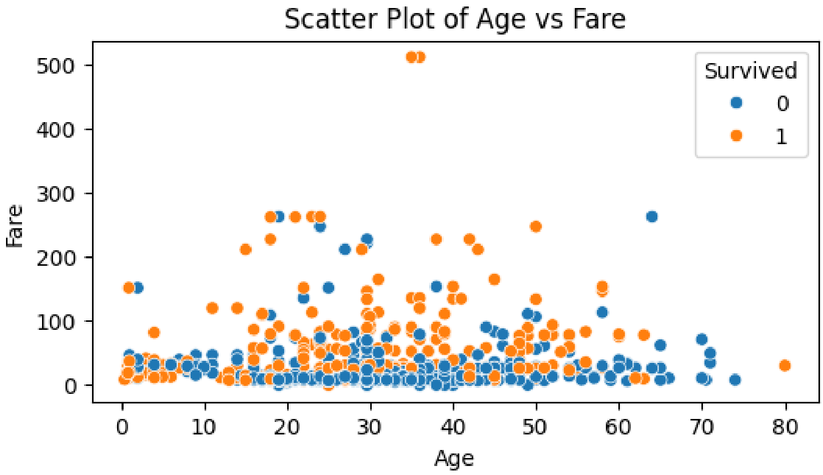
```
# Visualizing Survival by Age:
plt.figure(figsize=(9, 6))
sns.boxplot(x='Survived', y='Age', data=data)
plt.title('Survival by Age')
plt.xticks([0, 1], ['Not Survived', 'Survived'])
plt.show()
```



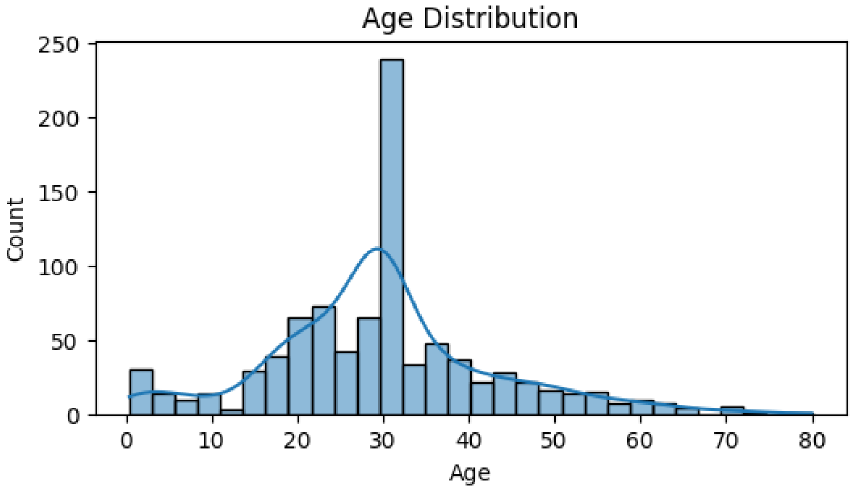
```
plt.figure(figsize=(6, 3))
sns.countplot(data=data, x="Sex", hue="Survived")
plt.title("Survival by Gender")
plt.xlabel("Gender")
plt.ylabel("Count")
plt.legend(title="Survived", loc="upper right")
plt.show()
```



```
plt.figure(figsize=(6, 3))
sns.scatterplot(data=data, x="Age", y="Fare", hue="Survived")
plt.title("Scatter Plot of Age vs Fare")
plt.xlabel("Age")
plt.ylabel("Fare")
plt.legend(title="Survived")
plt.show()
```

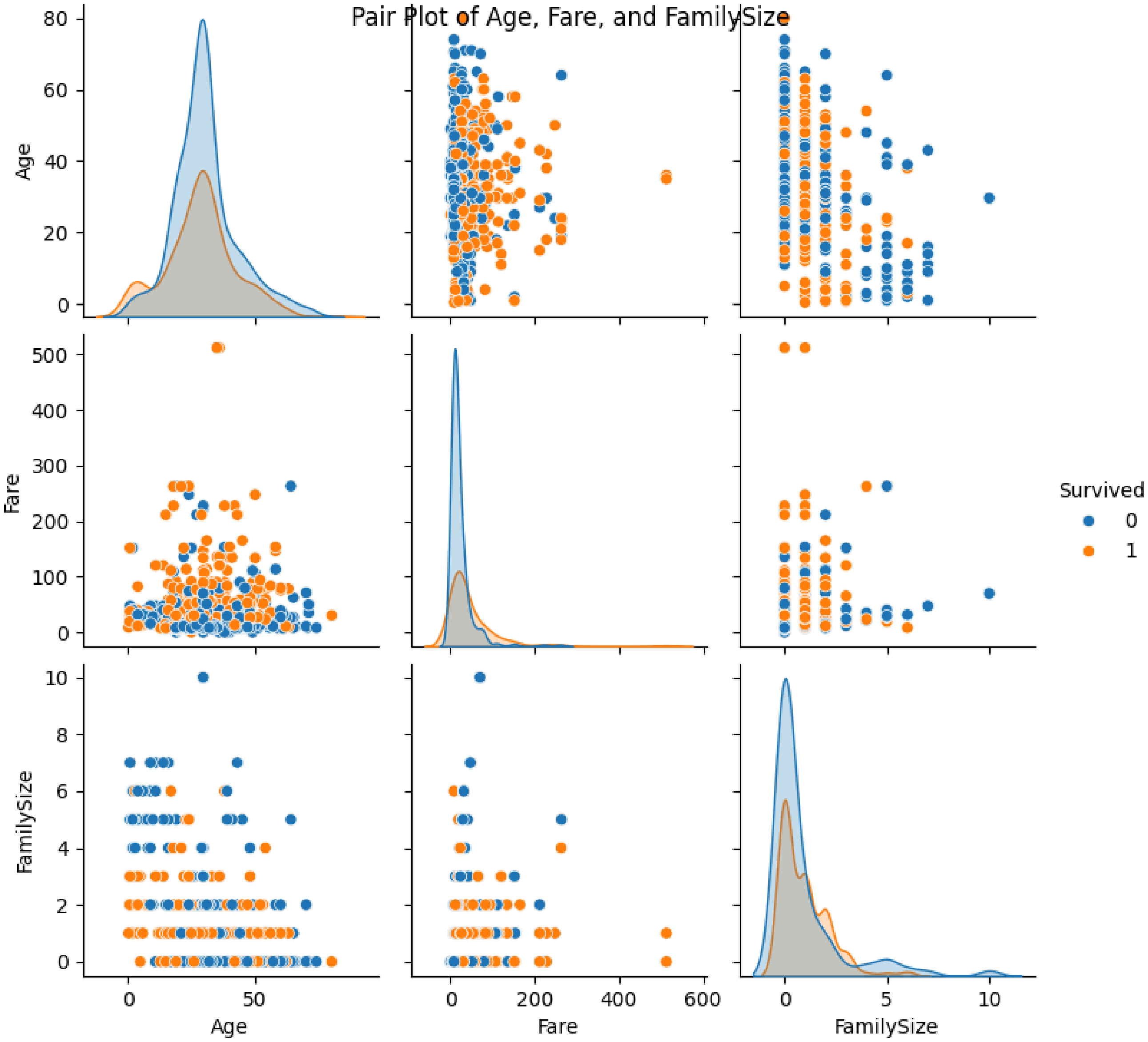


```
plt.figure(figsize=(6, 3))
sns.histplot(data["Age"], kde=True)
plt.title("Age Distribution")
plt.xlabel("Age")
plt.ylabel("Count")
plt.show()
```



```
data['FamilySize'] = data['SibSp'] + data['Parch']

sns.pairplot(data, vars=['Age', 'Fare', 'FamilySize'], hue='Survived')
plt.suptitle('Pair Plot of Age, Fare, and FamilySize')
plt.show()
```


Pair Plot of Age, Fare, and FamilySize
Age
Fare
FamilySize
0
20
40
60
80
100
200
300
400
500
2
4
6
8
10
50
5
600
Survived
● 0
● 1