EDA ON TITANIC DATASET

```
# Importing the libraries

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

```
df = pd.read_csv('/content/drive/MyDrive/datasets/titanic_test.csv')
df.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	S
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN	S

Next steps: Generate code with df | View recommended plots | New interactive sheet

```
df.shape
```

```
(891, 12)
```

Data Preprocessing

```
#removing the columns
df = df.drop(columns=['PassengerId','Name','Cabin','Ticket'], axis= 1)
```

```
df.describe()
```

	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
std	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
min	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
25%	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
50%	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
75%	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
max	1.000000	3.000000	80.000000	8.000000	6.000000	512.329200

```
#checking data types
df.dtypes
```

```
                  0
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
```

```
#checking for unique value count
df.nunique()
```

```
                0
PassengerId   891
   Survived     2
     Pclass     3
       Name   891
        Sex     2
        Age    88
      SibSp     7
      Parch     7
     Ticket   681
       Fare   248
      Cabin   147
   Embarked     3

dtype: int64
```

```
#checking for missing value count
df.isnull().sum()
```

```
                0
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
```

Refining the data

```
# replacing the missing values
median_age = df['Age'].median()
df['Age'].fillna(median_age, inplace=True)
df['Embarked'] = df['Embarked'].replace(np.nan, 'S')
```

```
<ipython-input-43-9ee90c9fefc9>:3: FutureWarning: A value is trying to be set on a copy of a DataFrame or Series through chained ass
The behavior will change in pandas 3.0. This inplace method will never work because the intermediate object on which we are setting

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.method({col: value}, inplace=True)' or df[col] = df[col


  df['Age'].fillna(median_age, inplace=True)
```

```
#type casting Age to integer
df['Age'] = df['Age'].astype(int)
```

```
#replacing with 1 and female with 0
df['Sex'] = df['Sex'].apply(lambda x : 1 if x == 'male' else 0)
```

Categorising in groups i.e. Infant(0-5), Teen (6-20), 20s(21-30), 30s(31-40), 40s(41-50), 50s(51-60), Elder(61-100)

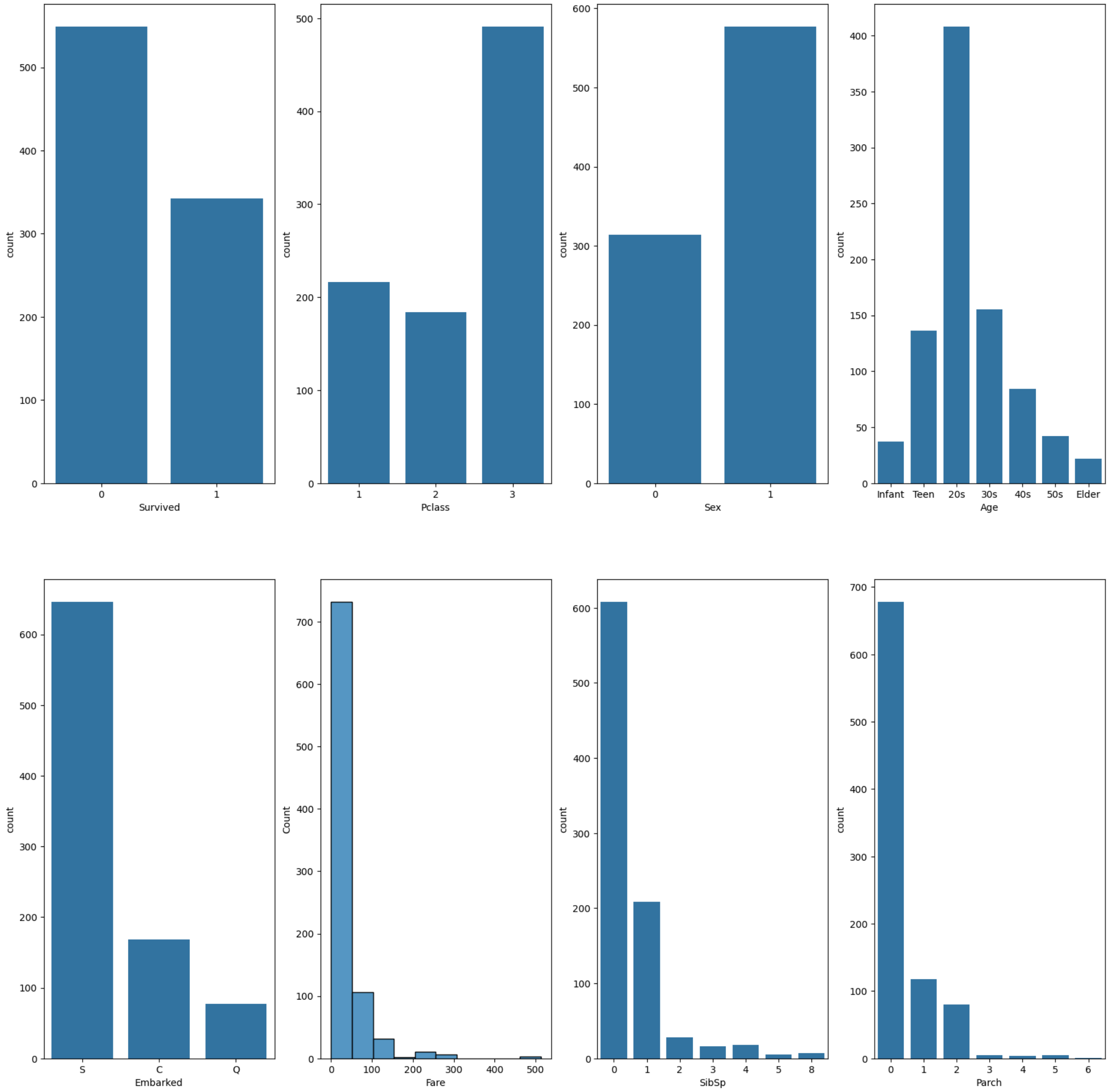
```
# creating age groups - young (0-18), adult(18-30), middle aged(30-50), old (50-100)
df['Age'] = pd.cut(x=df['Age'], bins=[0, 5, 20, 30, 40, 50, 60, 100], labels = ['Infant', 'Teen', '20s', '30s', '40s', '50s', 'Elder'])
```

Exploratory Data Analysis

Plotting the Countplot to visualize the number

```
# visulizing the count of the features
fig, ax = plt.subplots(2,4,figsize=(20,20))
sns.countplot(x = 'Survived', data = df, ax= ax[0,0])
sns.countplot(x = 'Pclass', data = df, ax=ax[0,1])
sns.countplot(x = 'Sex', data = df, ax=ax[0,2])
sns.countplot(x = 'Age', data = df, ax=ax[0,3])
sns.countplot(x = 'Embarked', data = df, ax=ax[1,0])
sns.histplot(x = 'Fare', data= df, bins=10, ax=ax[1,1])
sns.countplot(x = 'SibSp', data = df, ax=ax[1,2])
sns.countplot(x = 'Parch', data = df, ax=ax[1,3])
```

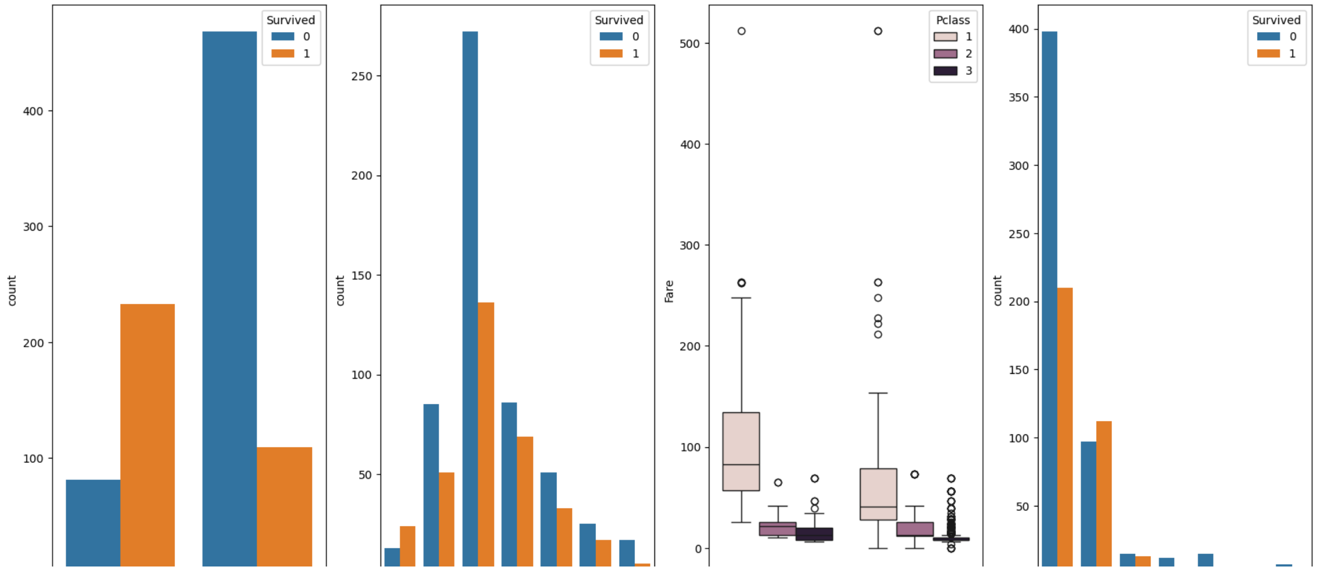
```
<Axes: xlabel='Parch', ylabel='count'>
```



Visualizing the replationship between the features

```
fig, ax = plt.subplots(2,4,figsize=(20,20))
sns.countplot(x = 'Sex', data = df, hue = 'Survived', ax= ax[0,0])
sns.countplot(x = 'Age', data = df, hue = 'Survived', ax=ax[0,1])
sns.boxplot(x = 'Sex',y='Fare', data = df, hue = 'Pclass', ax=ax[0,2])
sns.countplot(x = 'SibSp', data = df, hue = 'Survived', ax=ax[0,3])
sns.countplot(x = 'Parch', data = df, hue = 'Survived', ax=ax[1,0])
sns.scatterplot(x = 'SibSp', y = 'Parch', data = df,hue = 'Survived', ax=ax[1,1])
sns.boxplot(x = 'Embarked', y ='Fare', data = df, ax=ax[1,2])
sns.pointplot(x = 'Pclass', y = 'Survived', data = df, ax=ax[1,3])
```

```
<Axes: xlabel='Pclass', ylabel='Survived'>
```


Survived
0
1
400
300
200
100
count
Survived
0
1
250
200
150
100
50
count
Pclass
1
2
3
500
400
300
200
100
0
Fare
Survived
0
1
400
350
300
250
200
150
100
50
count