prodigy-task-02

December 29, 2023

[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
```

[2]:
```
from google.colab import files
data=files.upload()
```

```
<IPython.core.display.HTML object>
```

```
Saving titanic.csv to titanic.csv
```

[3]:
```
df=pd.read_csv('titanic.csv')
df
```

[3]:

	PassengerId	Survived	Pclass	\
0	1	0	3	
1	2	1	1	
2	3	1	3	
3	4	1	1	
4	5	0	3	
..	…	…	…	
886	887	0	2	
887	888	1	1	
888	889	0	3	
889	890	1	1	
890	891	0	3	

	Name	Sex	Age	SibSp	\
0	Braund, Mr. Owen Harris	male	22.0	1	
1	Cumings, Mrs. John Bradley (Florence Briggs Th…	female	38.0	1	
2	Heikkinen, Miss. Laina	female	26.0	0	
3	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	
4	Allen, Mr. William Henry	male	35.0	0	
..	…	…	…	…	
886	Montvila, Rev. Juozas	male	27.0	0	
887	Graham, Miss. Margaret Edith	female	19.0	0	
888	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	

```
889                              Behr, Mr. Karl Howell    male  26.0      0
890                                Dooley, Mr. Patrick    male  32.0      0

     Parch            Ticket     Fare Cabin Embarked
0        0         A/5 21171   7.2500   NaN        S
1        0          PC 17599  71.2833   C85        C
2        0  STON/O2. 3101282   7.9250   NaN        S
3        0            113803  53.1000  C123        S
4        0            373450   8.0500   NaN        S
..     …               …       …   …      …
886      0            211536  13.0000   NaN        S
887      0            112053  30.0000   B42        S
888      2        W./C. 6607  23.4500   NaN        S
889      0            111369  30.0000  C148        C
890      0            370376   7.7500   NaN        Q

[891 rows x 12 columns]
```

[4]:
```
df.shape
```

[4]:
```
(891, 12)
```

[5]:
```
df.head()
```

[5]:
```
   PassengerId  Survived  Pclass  \
0            1         0       3
1            2         1       1
2            3         1       3
3            4         1       1
4            5         0       3

                                                Name     Sex   Age  SibSp  \
0                            Braund, Mr. Owen Harris    male  22.0      1
1  Cumings, Mrs. John Bradley (Florence Briggs Th…  female  38.0      1
2                             Heikkinen, Miss. Laina  female  26.0      0
3       Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                           Allen, Mr. William Henry    male  35.0      0

   Parch            Ticket     Fare Cabin Embarked
0      0         A/5 21171   7.2500   NaN        S
1      0          PC 17599  71.2833   C85        C
2      0  STON/O2. 3101282   7.9250   NaN        S
3      0            113803  53.1000  C123        S
4      0            373450   8.0500   NaN        S
```

[6]:
```
df.tail()
```

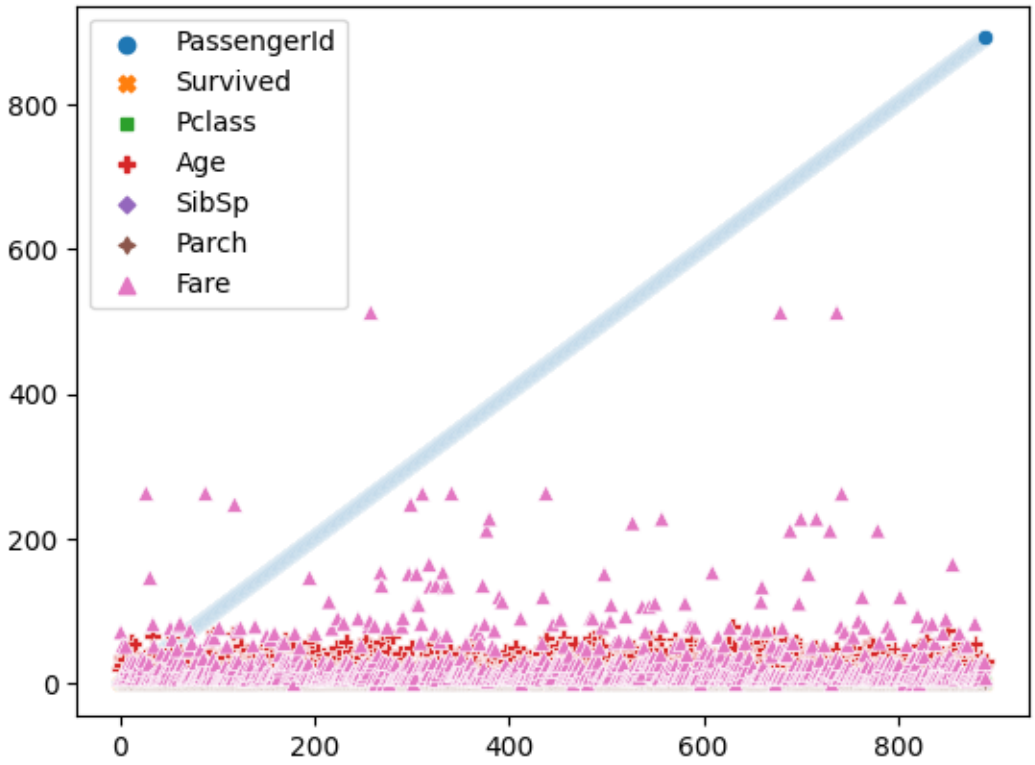
[6]:
```
     PassengerId  Survived  Pclass                                      Name  \
886          887         0       2                     Montvila, Rev. Juozas
887          888         1       1              Graham, Miss. Margaret Edith
888          889         0       3  Johnston, Miss. Catherine Helen "Carrie"
889          890         1       1                     Behr, Mr. Karl Howell
890          891         0       3                       Dooley, Mr. Patrick

        Sex   Age  SibSp  Parch      Ticket   Fare Cabin Embarked
886    male  27.0      0      0      211536  13.00   NaN        S
887  female  19.0      0      0      112053  30.00   B42        S
888  female   NaN      1      2  W./C. 6607  23.45   NaN        S
889    male  26.0      0      0      111369  30.00  C148        C
890    male  32.0      0      0      370376   7.75   NaN        Q
```

[7]:
```
df.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
```

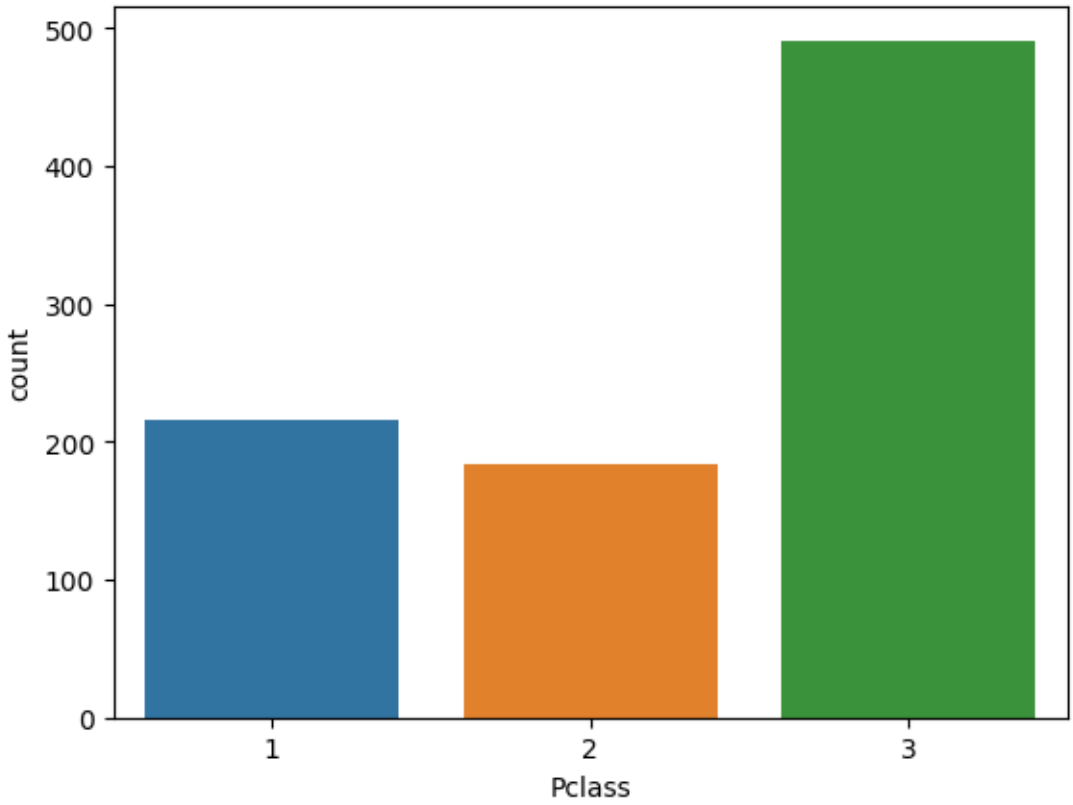
[9]:
```
sns.scatterplot(df)
```

[9]:
```
<Axes: >
```



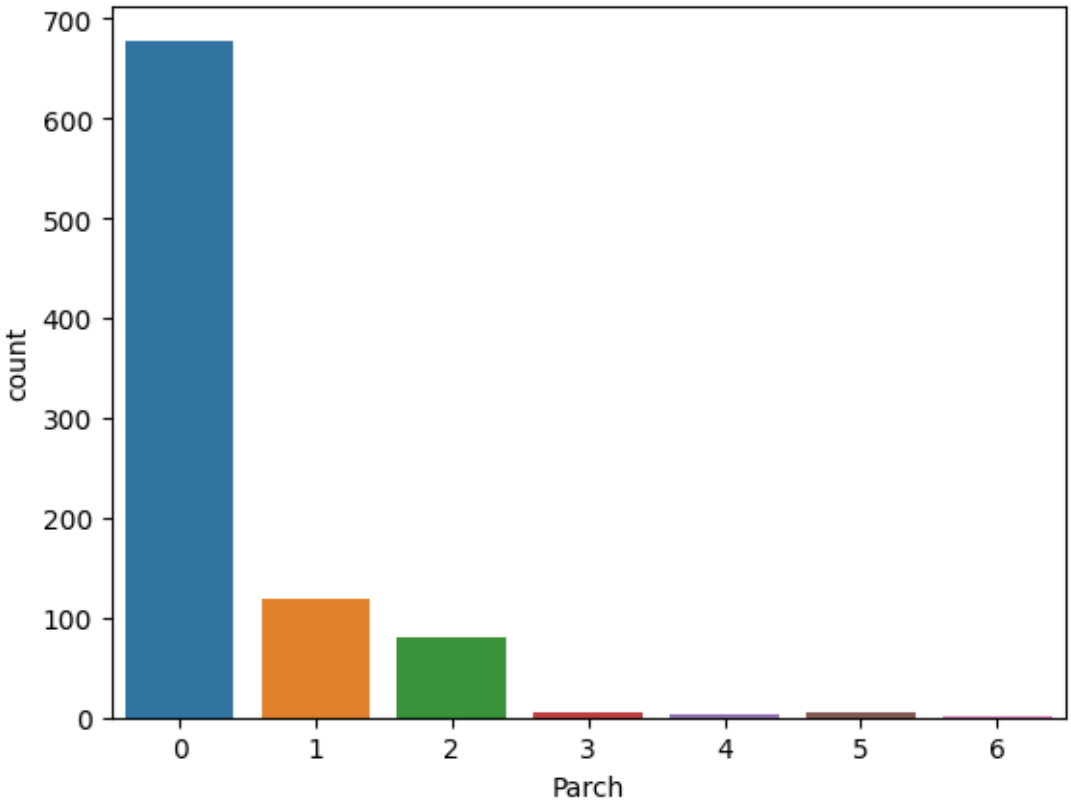
[10]:
```
sns.countplot(x='Pclass',data=df)
```

[10]: <Axes: xlabel='Pclass', ylabel='count'>

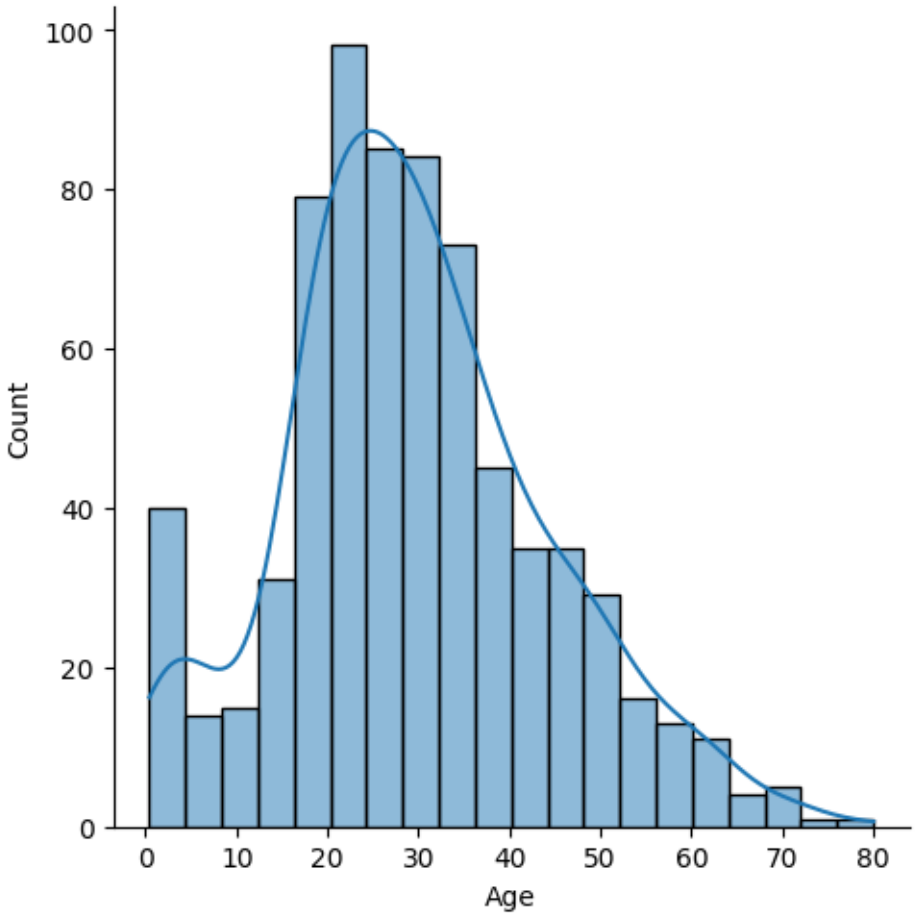


[16]:
```
sns.countplot(x='Parch',data=df)
```

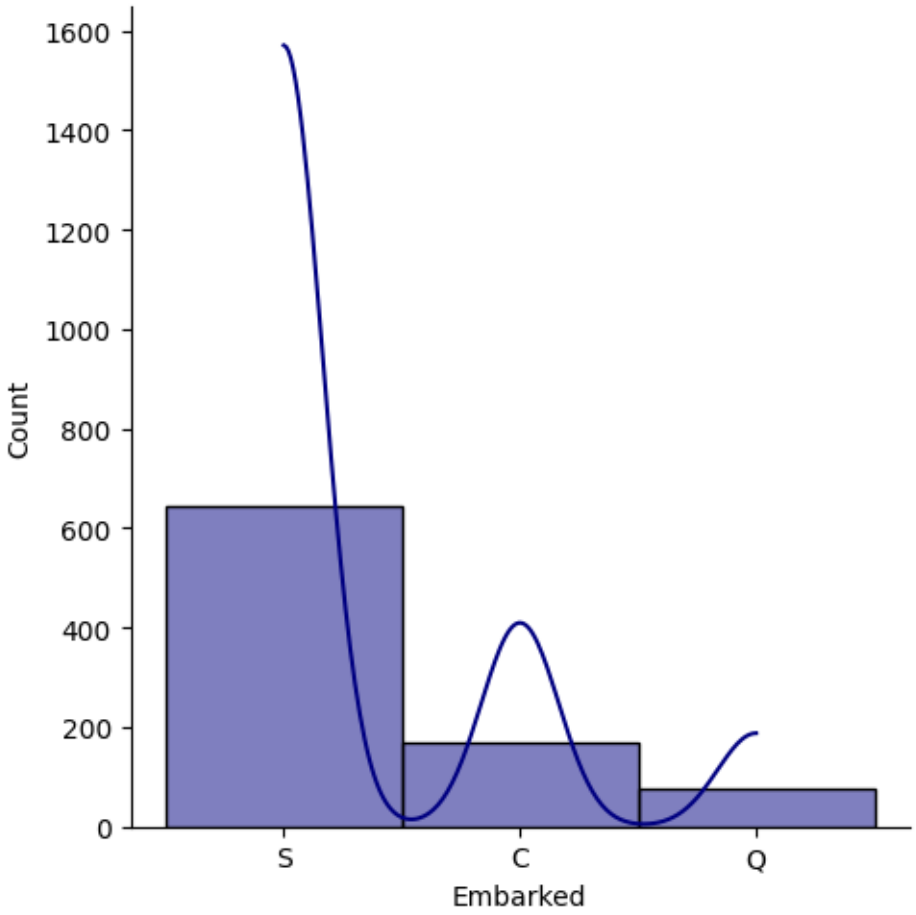
[16]: <Axes: xlabel='Parch', ylabel='count'>



[12]:
```
sns.displot(df['Age'],kde=True)
plt.show()
```

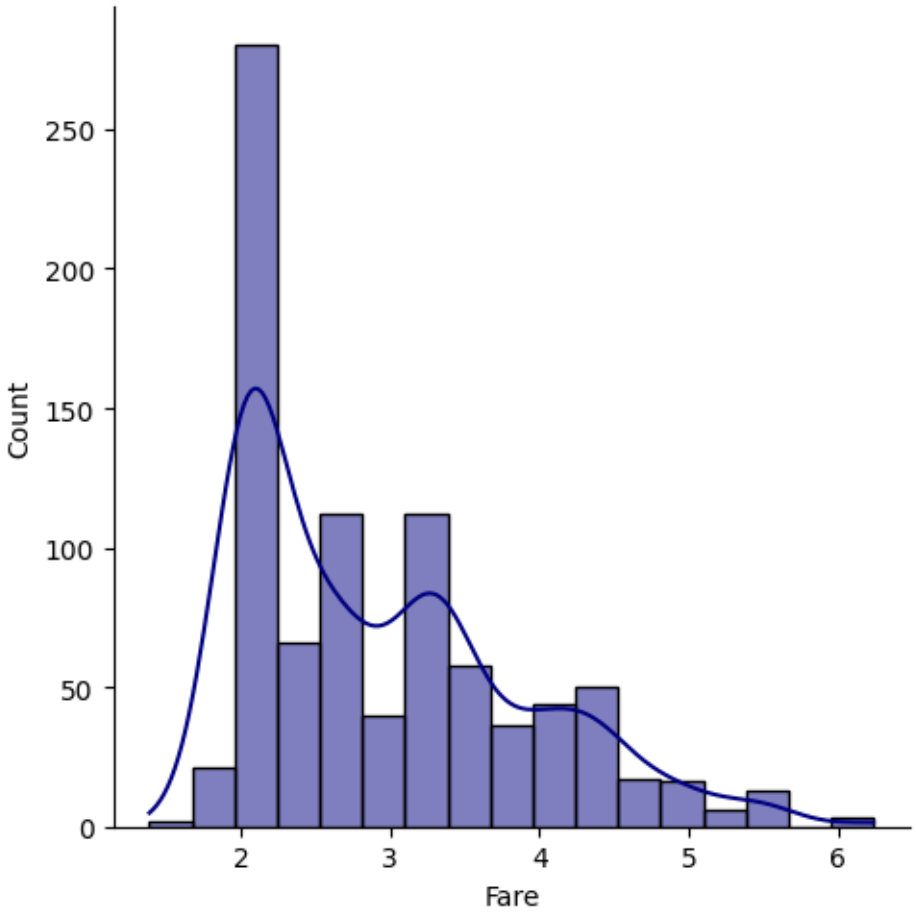


[15]:
```
sns.displot((df['Embarked']),kde=True,color='navy')
plt.show()
```

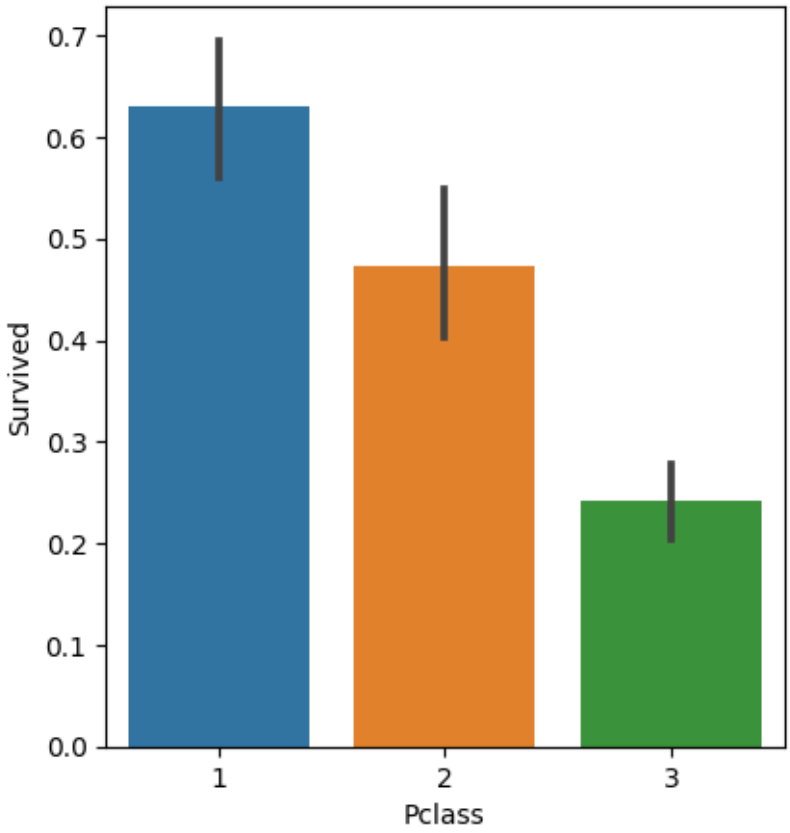


[13]:
```
sns.displot(np.log(df['Fare']),kde=True,color='navy')
plt.show()
```

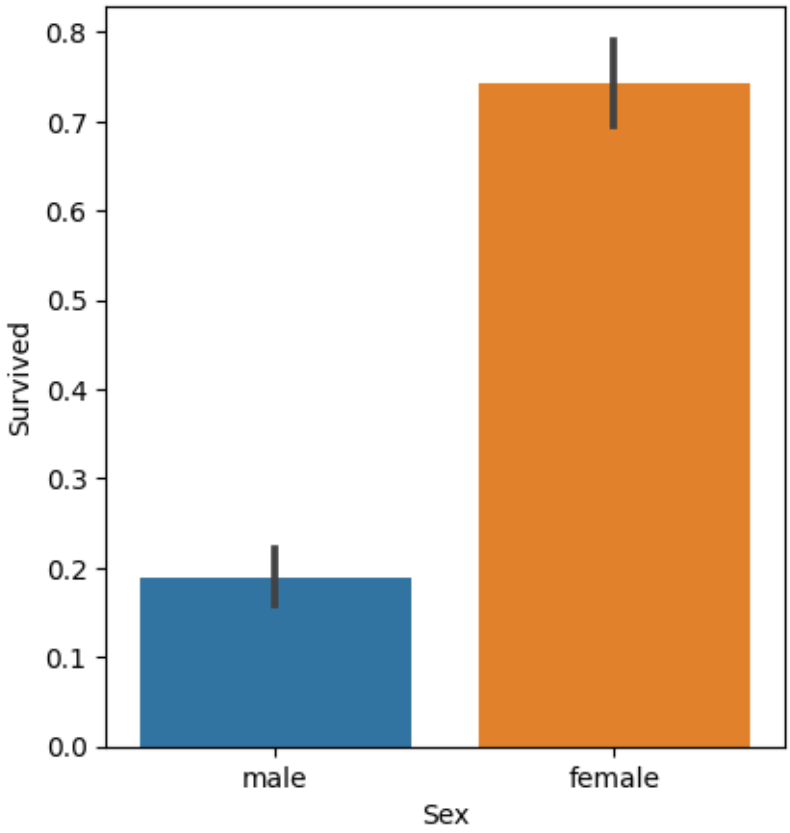
```
/usr/local/lib/python3.10/dist-packages/pandas/core/arraylike.py:402:
RuntimeWarning: divide by zero encountered in log
  result = getattr(ufunc, method)(*inputs, **kwargs)
```



[17]:
```
plt.figure(figsize=(10,5))
plt.subplot(1,2,2)
sns.barplot(x='Pclass',y='Survived',data=df)
plt.show()
```



[18]:
```
plt.figure(figsize=(10,5))
plt.subplot(1,2,2)
sns.barplot(x='Sex',y='Survived',data=df)
plt.show()
```



[8]:
```
df.describe()
```

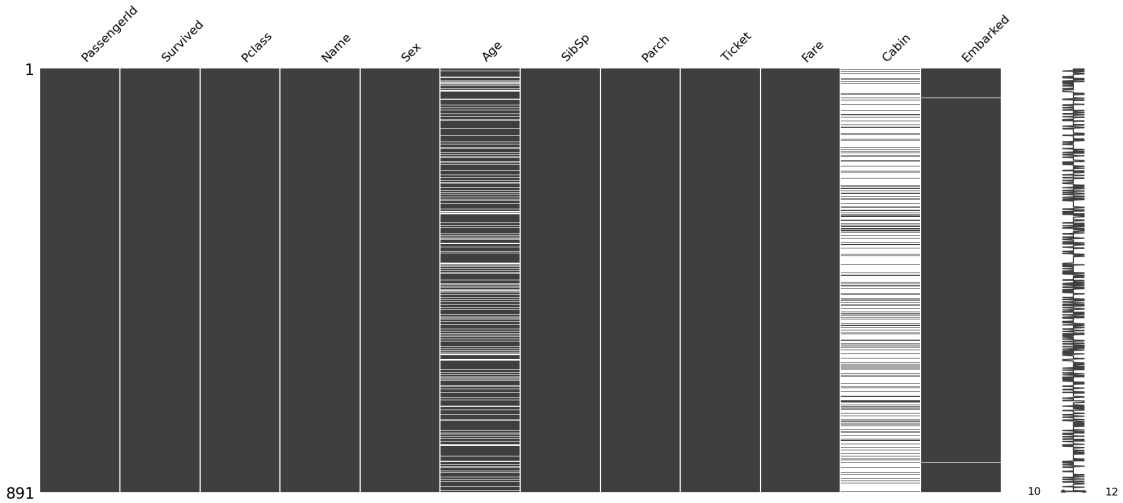
[8]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000		

```
max       6.000000   512.329200
```

[19]:
```
import missingno as msno
msno.matrix(df)
```

[19]:
```
<Axes: >
```



[ ]:
```
df.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
```

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

[ ]:
```
df.isnull().sum()
```

[ ]:
```
PassengerId      0
Survived         0
Pclass           0
```

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

[ ]:
```
df.fillna(df['Cabin'].mode()[0],inplace=True)
```

[ ]:
```
df.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
```

[ ]:
```
df['Cabin']
```

[ ]:
```
0      B96 B98
1          C85
2      B96 B98
3         C123
4      B96 B98
        …
886    B96 B98
887        B42
888    B96 B98
889       C148
890    B96 B98
Name: Cabin, Length: 891, dtype: object
```

[ ]:
```
from sklearn.preprocessing import LabelEncoder
lb=LabelEncoder()
```

[ ]:
```
df['Name']=lb.fit_transform(df['Name'])
df['Sex']=lb.fit_transform(df['Sex'])
df['Ticket']=lb.fit_transform(df['Ticket'])
df['Cabin']=lb.fit_transform(df['Cabin'])
df['Embarked']=lb.fit_transform(df['Embarked'])
```

[ ]:
```
sns.heatmap(df.corr())
```

[ ]:
```
<Axes: >
```