[2]:
```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

[3]:
```
df = sns.load_dataset("titanic")
```

[5]:
```
print(df.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
```

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

```
     survived  pclass     sex   age  sibsp  parch   fare embarked   class  \
886         0       2    male  27.0      0      0  13.00        S  Second
887         1       1  female  19.0      0      0  30.00        S   First
888         0       3  female   NaN      1      2  23.45        S   Third
889         1       1    male  26.0      0      0  30.00        C   First
890         0       3    male  32.0      0      0   7.75        Q   Third

       who  adult_male deck  embark_town alive  alone
886    man        True  NaN  Southampton    no   True
887  woman       False    B  Southampton   yes   True
888  woman       False  NaN  Southampton    no  False
889    man        True    C    Cherbourg   yes   True
890    man        True  NaN   Queenstown    no   True
```

[7]:
```
print("\nDataset Info:")
print(df.info())
```

```
Dataset Info:
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 15 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   survived     891 non-null    int64
 1   pclass       891 non-null    int64
 2   sex          891 non-null    object
 3   age          714 non-null    float64
 4   sibsp        891 non-null    int64
 5   parch        891 non-null    int64
 6   fare         891 non-null    float64
 7   embarked     889 non-null    object
 8   class        891 non-null    category
 9   who          891 non-null    object
 10  adult_male   891 non-null    bool
 11  deck         203 non-null    category
 12  embark_town  889 non-null    object
 13  alive        891 non-null    object
 14  alone        891 non-null    bool
dtypes: bool(2), category(2), float64(2), int64(4), object(5)
memory usage: 80.7+ KB
None
```

[9]:
```
df['age'] = df['age'].fillna(df['age'].median())
```

[11]:
```
df['embarked'] = df['embarked'].fillna(df['embarked'].mode()[0])
```

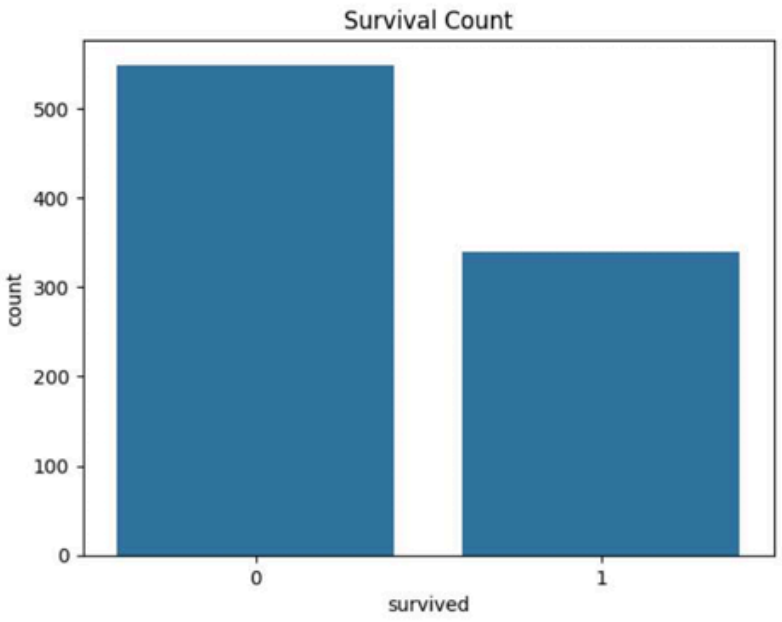
[12]:
```
df = df.drop(columns=['deck'])
```

[14]:
```
df = df.dropna()
```

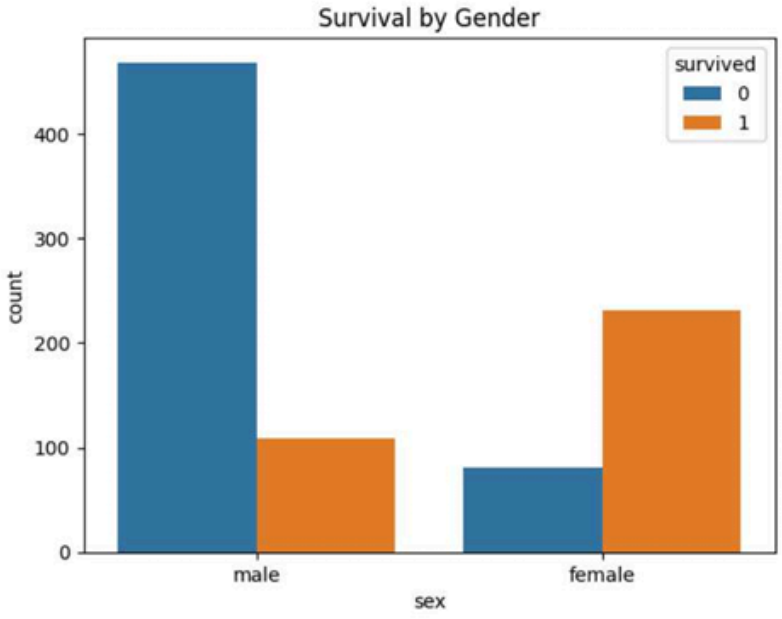
[16]:
```
print("\nMissing values after cleaning:")
print(df.isnull().sum())
```

```
Missing values after cleaning:
survived       0
pclass         0
sex            0
age            0
sibsp          0
parch          0
fare           0
embarked       0
class          0
who            0
adult_male     0
embark_town    0
alive          0
alone          0
dtype: int64
```

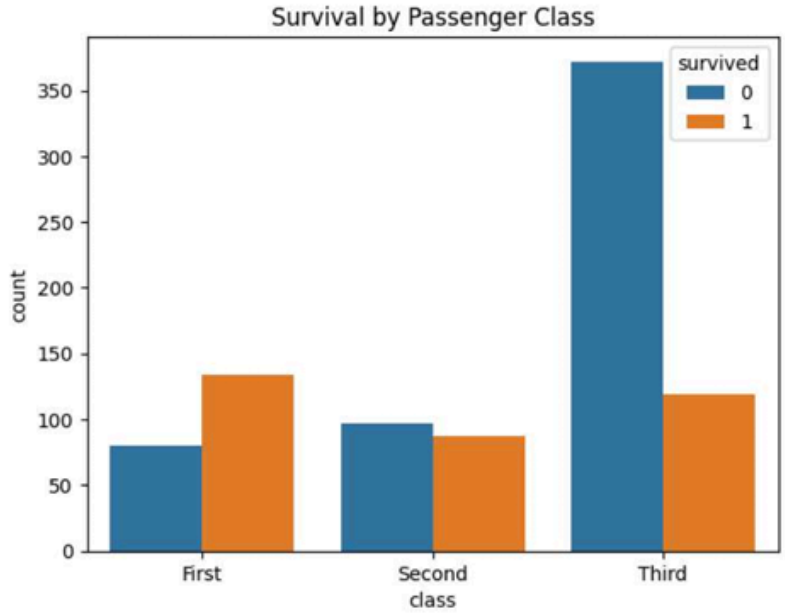
[17]:
```
sns.countplot(data=df, x='survived')
plt.title("Survival Count")
plt.show()
```



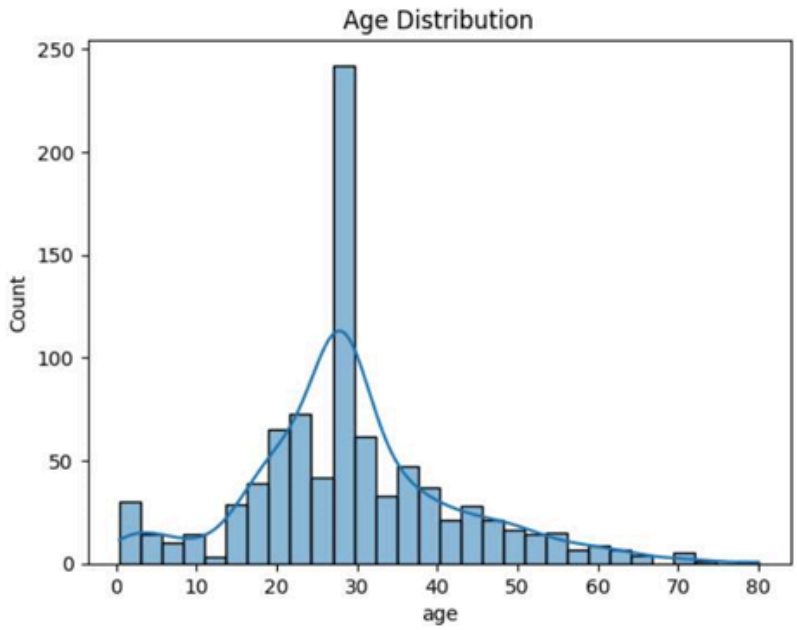
[18]:
```
sns.countplot(data=df, x='sex', hue='survived')
plt.title("Survival by Gender")
plt.show()
```



[21]:
```
sns.countplot(data=df, x='class', hue='survived')
plt.title("Survival by Passenger Class")
plt.show()
```



[22]:
```
sns.histplot(data=df, x='age', bins=30, kde=True)
plt.title("Age Distribution")
plt.show()
```



[24]:
```
sns.boxplot(data=df, x='survived', y='age')
plt.title("Age vs Survival")
plt.show()
```