In [ ]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import warnings
warnings.filterwarnings("ignore")
%matplotlib inline
```

Load data and basic stats

In [ ]:
```
df = pd.read_csv("titanic.csv")
```

In [ ]:
```
df.shape
```

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

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

Out[ ]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Tic
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	21
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/ 3101
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373

In [ ]:
```
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
```

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

Out[ ]:

	PassengerId	Survived	Pclass	Age	SibSp	Parc
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.00000
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.38159
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.80605
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.00000
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.00000
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.00000
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.00000
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.00000

In [ ]:
```
df.isna().sum()
```

Out[ ]:
```
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
```

In [ ]:
```
df["Age"] = df["Age"].fillna(df["Age"].mean())
```

In [ ]:
```
df.isna().sum()
```

Out[ ]:
```
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
```

Visualization

In [ ]:
```
df["Name"]
```

Out[ ]:
```
0                                Braund, Mr. Owen Harris
1      Cumings, Mrs. John Bradley (Florence Briggs Th...
2                                 Heikkinen, Miss. Laina
3           Futrelle, Mrs. Jacques Heath (Lily May Peel)
4                               Allen, Mr. William Henry
                             ...
886                                Montvila, Rev. Juozas
887                         Graham, Miss. Margaret Edith
888             Johnston, Miss. Catherine Helen "Carrie"
889                                Behr, Mr. Karl Howell
890                                  Dooley, Mr. Patrick
Name: Name, Length: 891, dtype: object
```

In [ ]:
```
df["Sex"].value_counts()
```

Out[ ]:
```
male      577
female    314
Name: Sex, dtype: int64
```

In [ ]:
```
df["Ticket"].value_counts()
```

Out[ ]:
```
347082      7
CA. 2343    7
1601        7
3101295     6
CA 2144     6
           ..
9234        1
19988       1
2693        1
PC 17612    1
370376      1
Name: Ticket, Length: 681, dtype: int64
```

In [ ]:
```
df["Cabin"].value_counts()
```

Out[ ]:
```
B96 B98        4
G6             4
C23 C25 C27    4
C22 C26        3
F33            3
               ..
E34            1
C7             1
C54            1
E36            1
C148           1
Name: Cabin, Length: 147, dtype: int64
```

In [ ]:
```
df["Embarked"].value_counts()
```

Out[ ]:
```
S    644
C    168
Q     77
Name: Embarked, dtype: int64
```

In [ ]:
```
def fun1(value):
    if (value == "male"):
        return 1
    else:
        return 0
```

In [ ]:
```
def fun2(value):
    if (value == 'S'):
        return 0
    elif (value == 'C'):
        return 1
    elif (value == 'Q'):
        return 2
    else:
        return 0
```

In [ ]:
```
df["Sex"] = df["Sex"].apply(fun1)
```

In [ ]:
```
df["Embarked"] = df["Embarked"].apply(fun2)
```

In [ ]:
```
df.isna().sum()
```

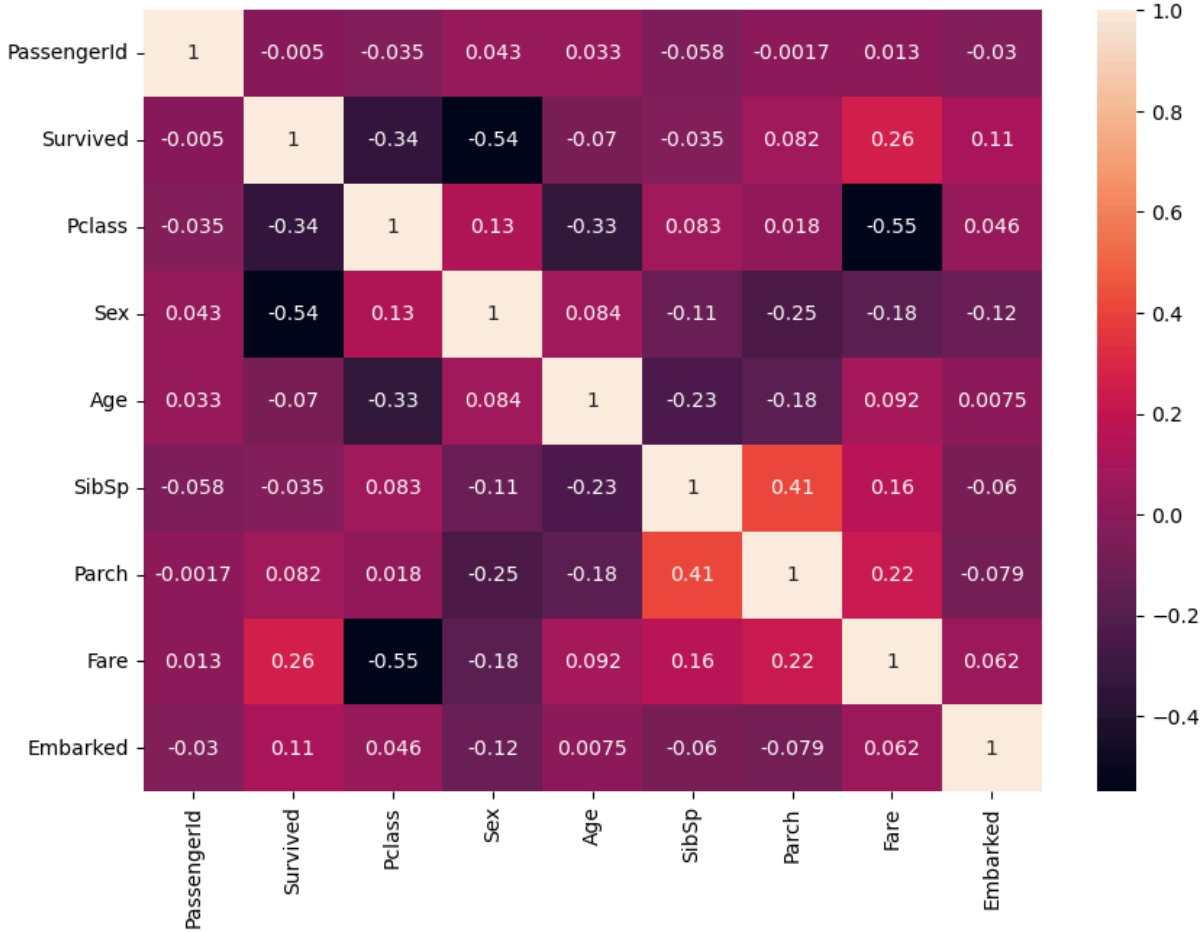
Out[ ]:
```
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age              0
SibSp            0
Parch            0
Ticket           0
Fare             0
Cabin          687
Embarked         0
dtype: int64
```

In [ ]:
```
df = df.drop("Cabin", axis=1)
```

In [ ]:
```
df.shape
```

Out[ ]:
```
(891, 11)
```

In [ ]:
```
plt.figure(figsize=(10,7))
sns.heatmap(df.corr(), annot=True)
plt.show()
```

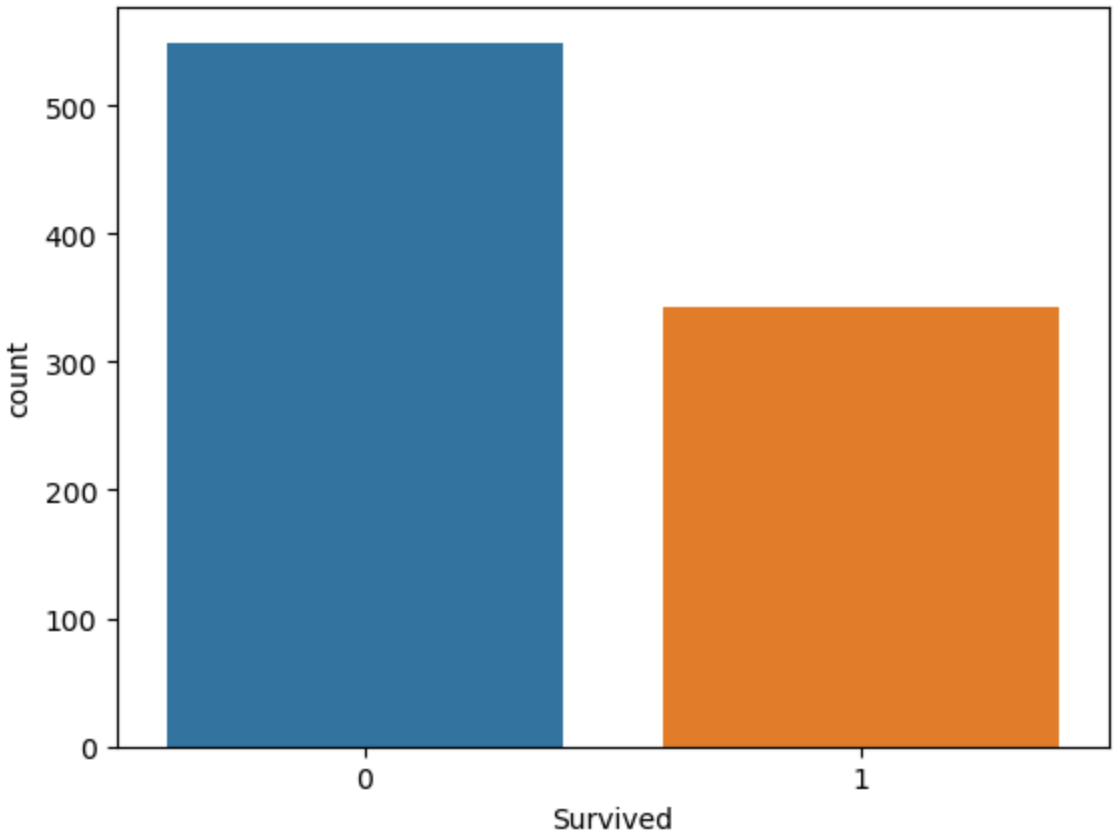


In [ ]:
```
df.info()
```

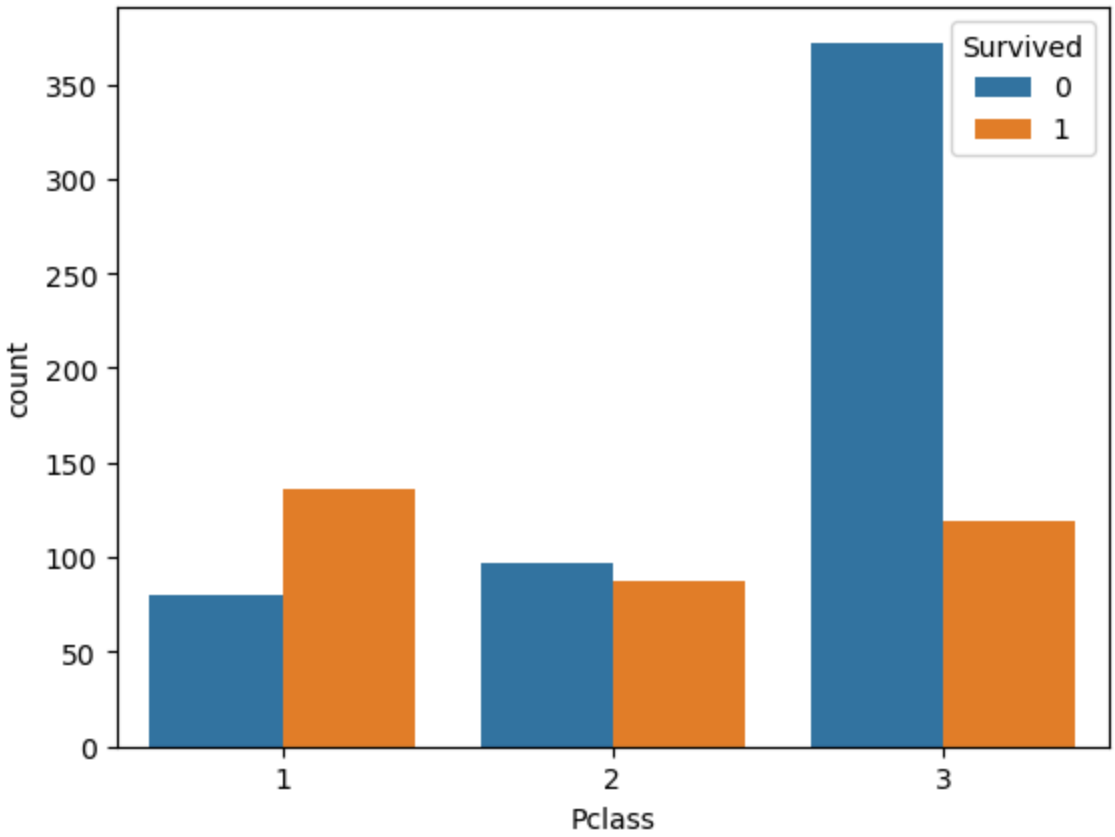
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 11 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   PassengerId  891 non-null    int64
 1   Survived     891 non-null    int64
 2   Pclass       891 non-null    int64
 3   Name         891 non-null    object
 4   Sex          891 non-null    int64
 5   Age          891 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  Embarked     891 non-null    int64
dtypes: float64(2), int64(7), object(2)
memory usage: 76.7+ KB
```

"Survived" is the label

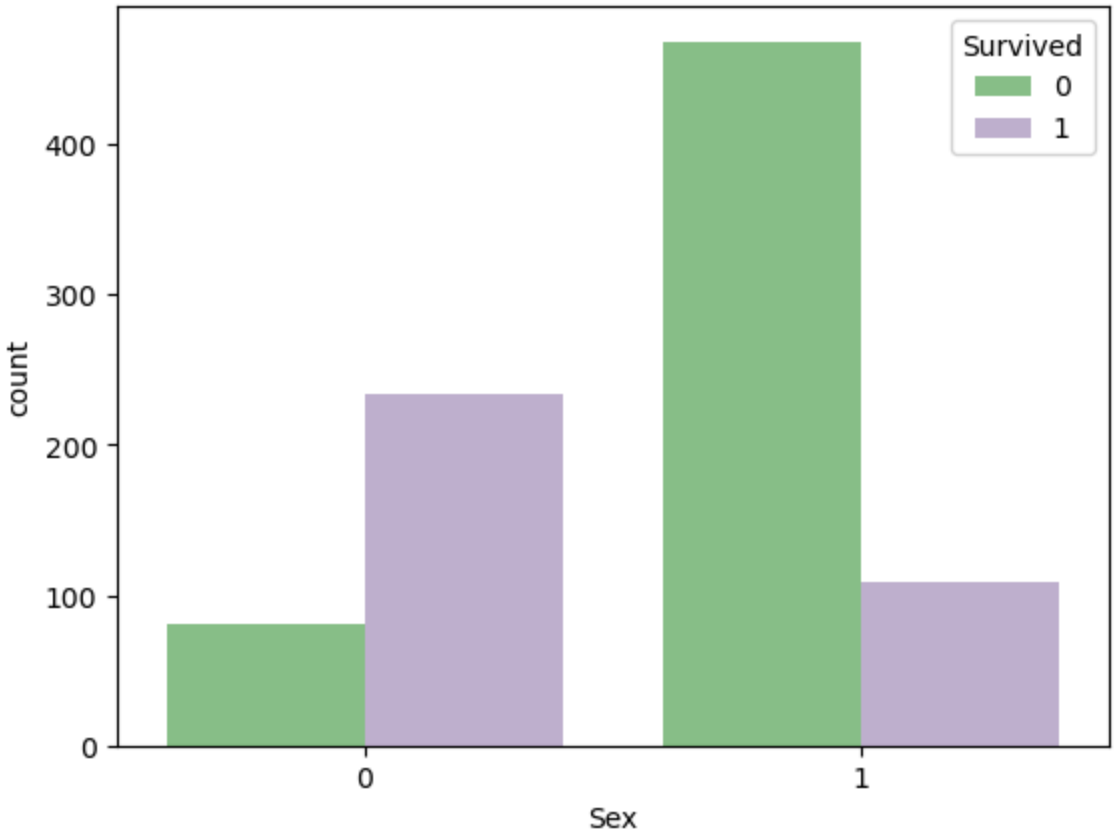
In [ ]:
```
sns.countplot(df["Survived"])
plt.show()
```



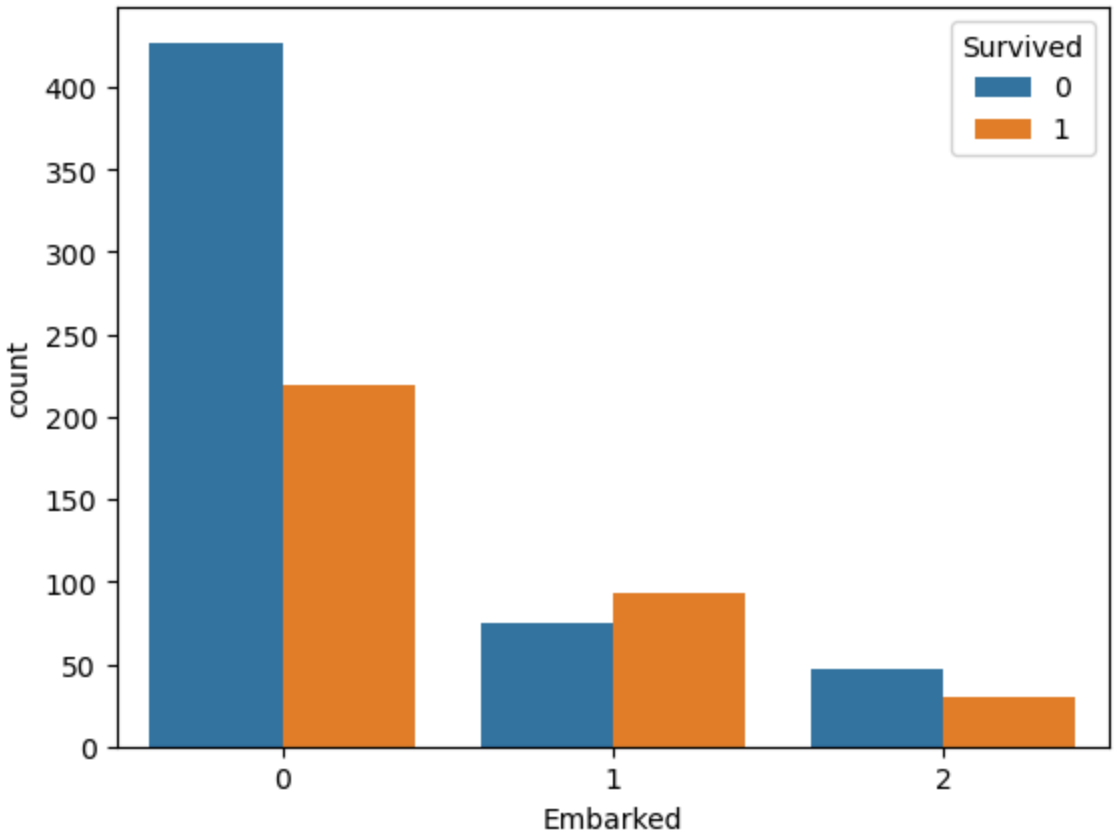
In [ ]:
```
sns.countplot(df["Pclass"], hue=df["Survived"])
plt.show()
```



In [ ]:
```
sns.countplot(df["Sex"], hue=df["Survived"], palette="Accent")
plt.show()
```



In [ ]:
```
sns.countplot(df["Embarked"], hue=df["Survived"])
plt.show()
```



In [ ]:
```
sns.histplot(df["Fare"])
plt.show()
```