In [15]:
```
import pandas as pd
```

In [16]:
```
import numpy as np
```

In [17]:
```
import seaborn as sns
```

In [18]:
```
df=pd.read_csv("titanic.csv")
df
```

Out[18]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN
...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.0000	NaN
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.0000	B42
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W./C. 6607	23.4500	NaN

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C148
890	891	0	3	Dooley, Mr.	male	32.0	0	0	370376	7.7500	NaN

In [19]:
```
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 [20]:
```
df.head()
```

Out[20]:

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

PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	E

In [21]:
```
df.isnull().sum()
```

Out[21]:
```
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 [22]:
```
df.drop("Cabin",axis=1,inplace=True)
```

In [23]:
```
df
```

Out[23]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Embar
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	
...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.0000	

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Embai
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.0000	
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W./C. 6607	23.4500	
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	

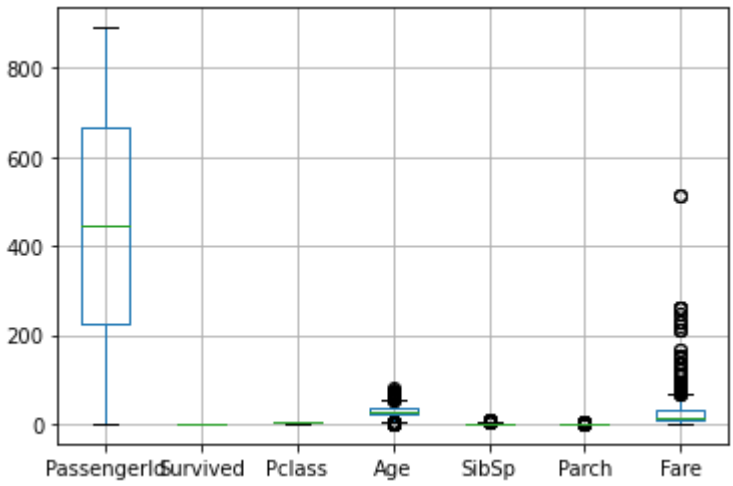
In [24]:
```
df['Age']=df['Age'].fillna(df['Age'].median())
```

In [32]:
```
df.isnull().sum()
```

Out[32]:
```
PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked       0
dtype: int64
```

In [33]:
```
df.boxplot()
```

Out[33]:
```
<AxesSubplot:>
```



In [27]:
```
df['Embarked']=df['Embarked'].fillna(df['Embarked'].mode()[0])
```

In [28]:
```
df.isnull().sum()
```

Out[28]:
```
PassengerId    0
Survived       0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked       0
dtype: int64
```

In [34]:
```
df["Embarked"].value_counts()
```

Out[34]:
```
S    646
C    168
Q     77
Name: Embarked, dtype: int64
```

In [35]:
```
df["Pclass"].value_counts()
```

Out[35]:
```
3    491
1    216
2    184
Name: Pclass, dtype: int64
```

In [36]:
```
df["Survived"].value_counts()
```

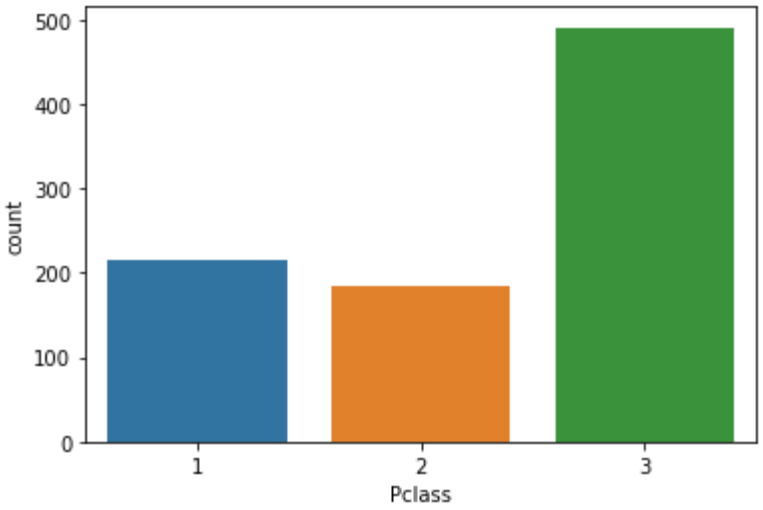
Out[36]:
```
0    549
1    342
Name: Survived, dtype: int64
```

In [37]:
```
sns.countplot(x="Survived",data=df)
```

Out[37]:
```
<AxesSubplot:xlabel='Survived', ylabel='count'>
```

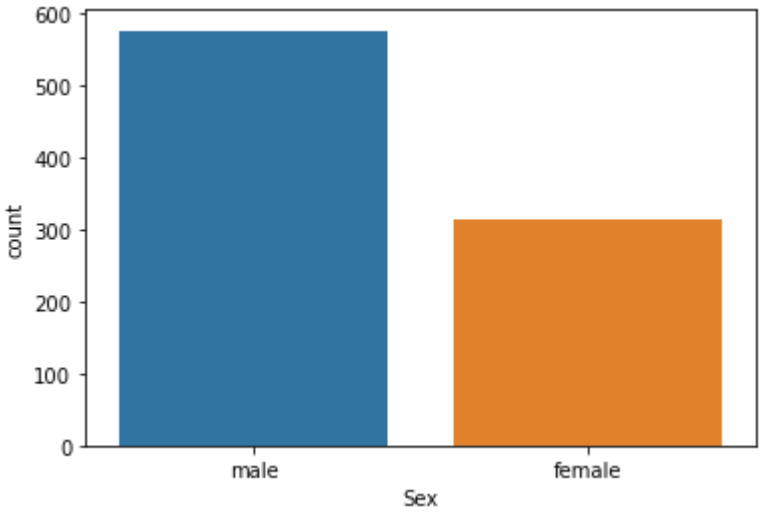
In [38]:
```
sns.countplot(x="Pclass",data=df)
```

Out[38]:
```
<AxesSubplot:xlabel='Pclass', ylabel='count'>
```



In [39]:
```
sns.countplot(x="Sex",data=df)
```

Out[39]:
```
<AxesSubplot:xlabel='Sex', ylabel='count'>
```



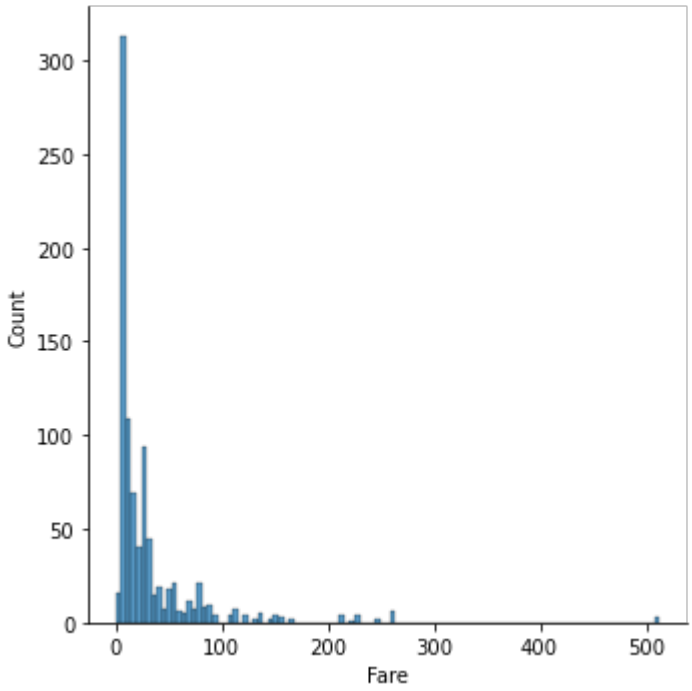
In [40]:
```
df.info()
```

```
<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    object
 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    object
dtypes: float64(2), int64(5), object(4)
memory usage: 76.7+ KB
```

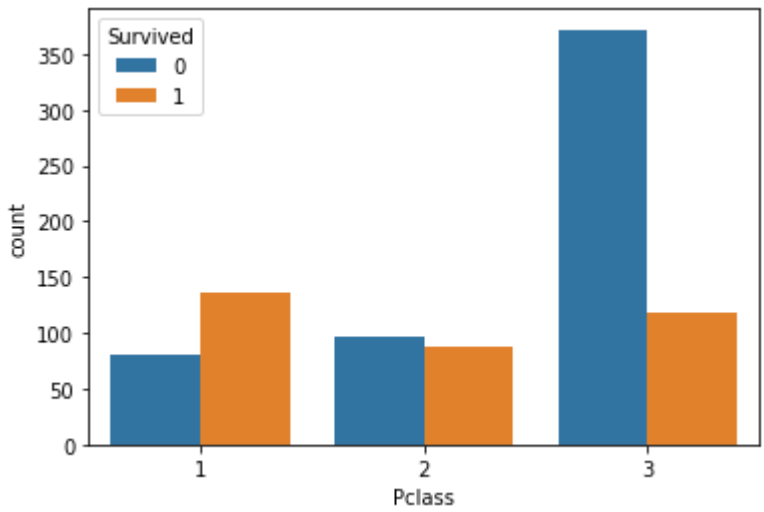
In [41]:
```
sns.displot(df["Fare"])
```

Out[41]:
```
<seaborn.axisgrid.FacetGrid at 0x275fcebb5e0>
```



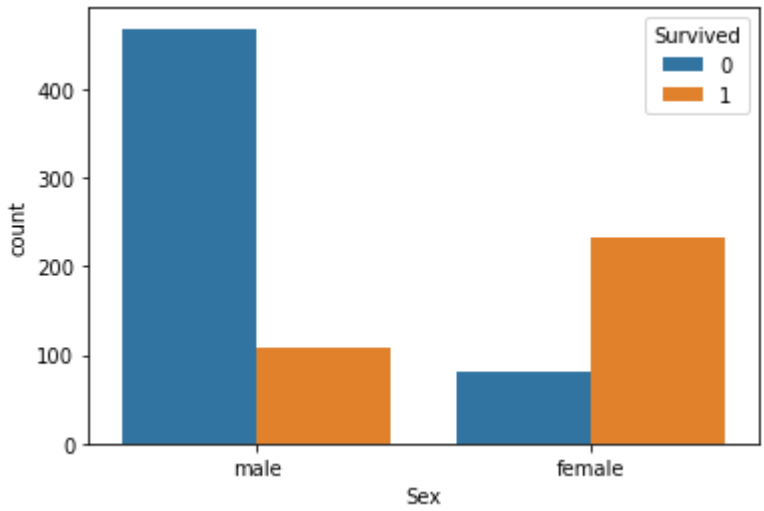
In [42]:
```
sns.countplot(x="Pclass",hue="Survived",data=df)
```

Out[42]:
```
<AxesSubplot:xlabel='Pclass', ylabel='count'>
```



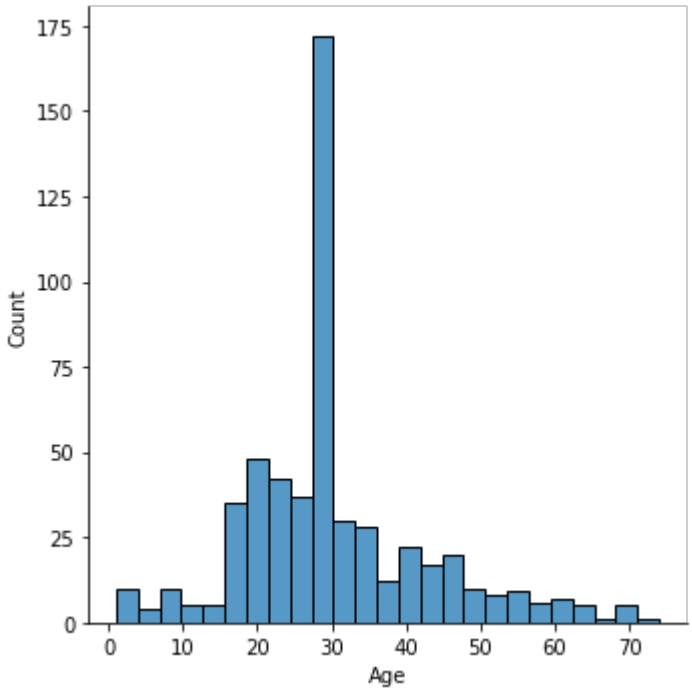
In [43]:
```
sns.countplot(x="Sex",hue="Survived",data=df)
```

Out[43]:
```
<AxesSubplot:xlabel='Sex', ylabel='count'>
```



In [44]:
```
sns.displot(df[df["Survived"]==0]["Age"])
```

Out[44]:
```
<seaborn.axisgrid.FacetGrid at 0x275fd290640>
```



In [45]:
```
pd.crosstab(df["Pclass"],df["Survived"])
```

Out[45]:

Survived	0	1
Pclass		
1	80	136

Survived	0	1
Pclass		

In [46]:
```
pd.crosstab(df["Sex"],df["Survived"])
```

Out[46]:

Survived	0	1
Sex		
female	81	233
male	468	109

In [47]:
```
df.corr()
```

Out[47]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
PassengerId	1.000000	-0.005007	-0.035144	0.034212	-0.057527	-0.001652	0.012658
Survived	-0.005007	1.000000	-0.338481	-0.064910	-0.035322	0.081629	0.257307
Pclass	-0.035144	-0.338481	1.000000	-0.339898	0.083081	0.018443	-0.549500
Age	0.034212	-0.064910	-0.339898	1.000000	-0.233296	-0.172482	0.096688
SibSp	-0.057527	-0.035322	0.083081	-0.233296	1.000000	0.414838	0.159651
Parch	-0.001652	0.081629	0.018443	-0.172482	0.414838	1.000000	0.216225
Fare	0.012658	0.257307	-0.549500	0.096688	0.159651	0.216225	1.000000

In [48]:
```
sns.heatmap(df.corr(),annot=True)
```

Out[48]: <AxesSubplot:>