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

sns.set_style("whitegrid")
```

In [2]:
```
df = pd.read_csv("titanic.csv")
df.head()
```

Out[2]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	892	0	3	Kelly, Mr. James	male	34.5	0	0	330911	7.8292	NaN	Q
1	893	1	3	Wilkes, Mrs. James (Ellen Needs)	female	47.0	1	0	363272	7.0000	NaN	S
2	894	0	2	Myles, Mr. Thomas Francis	male	62.0	0	0	240276	9.6875	NaN	Q
3	895	0	3	Wirz, Mr. Albert	male	27.0	0	0	315154	8.6625	NaN	S
4	896	1	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	22.0	1	1	3101298	12.2875	NaN	S

In [3]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 418 entries, 0 to 417
Data columns (total 12 columns):
 #   Column       Non-Null Count  Dtype
---  ------       --------------  -----
 0   PassengerId  418 non-null    int64
 1   Survived     418 non-null    int64
 2   Pclass       418 non-null    int64
 3   Name         418 non-null    object
 4   Sex          418 non-null    object
 5   Age          332 non-null    float64
 6   SibSp        418 non-null    int64
 7   Parch        418 non-null    int64
 8   Ticket       418 non-null    object
 9   Fare         417 non-null    float64
 10  Cabin        91 non-null     object
 11  Embarked     418 non-null    object
dtypes: float64(2), int64(5), object(5)
memory usage: 39.3+ KB
```

In [4]:
```
df.describe()
```

Out[4]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	418.000000	418.000000	418.000000	332.000000	418.000000	418.000000	417.000000
mean	1100.500000	0.363636	2.265550	30.272590	0.447368	0.392344	35.627188
std	120.810458	0.481622	0.841838	14.181209	0.896760	0.981429	55.907576
min	892.000000	0.000000	1.000000	0.170000	0.000000	0.000000	0.000000
25%	996.250000	0.000000	1.000000	21.000000	0.000000	0.000000	7.895800
50%	1100.500000	0.000000	3.000000	27.000000	0.000000	0.000000	14.454200
75%	1204.750000	1.000000	3.000000	39.000000	1.000000	0.000000	31.500000
max	1309.000000	1.000000	3.000000	76.000000	8.000000	9.000000	512.329200

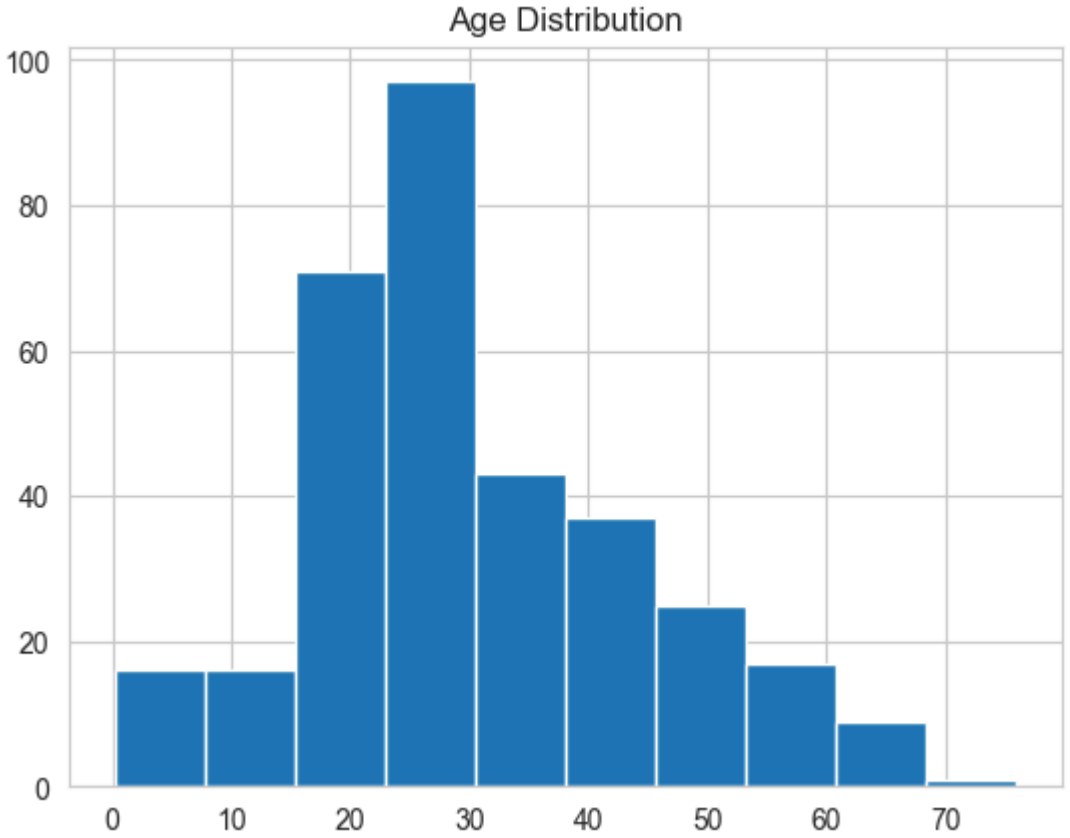
In [5]:
```
df["Survived"].value_counts()
```

Out[5]:
```
Survived
0    266
1    152
Name: count, dtype: int64
```

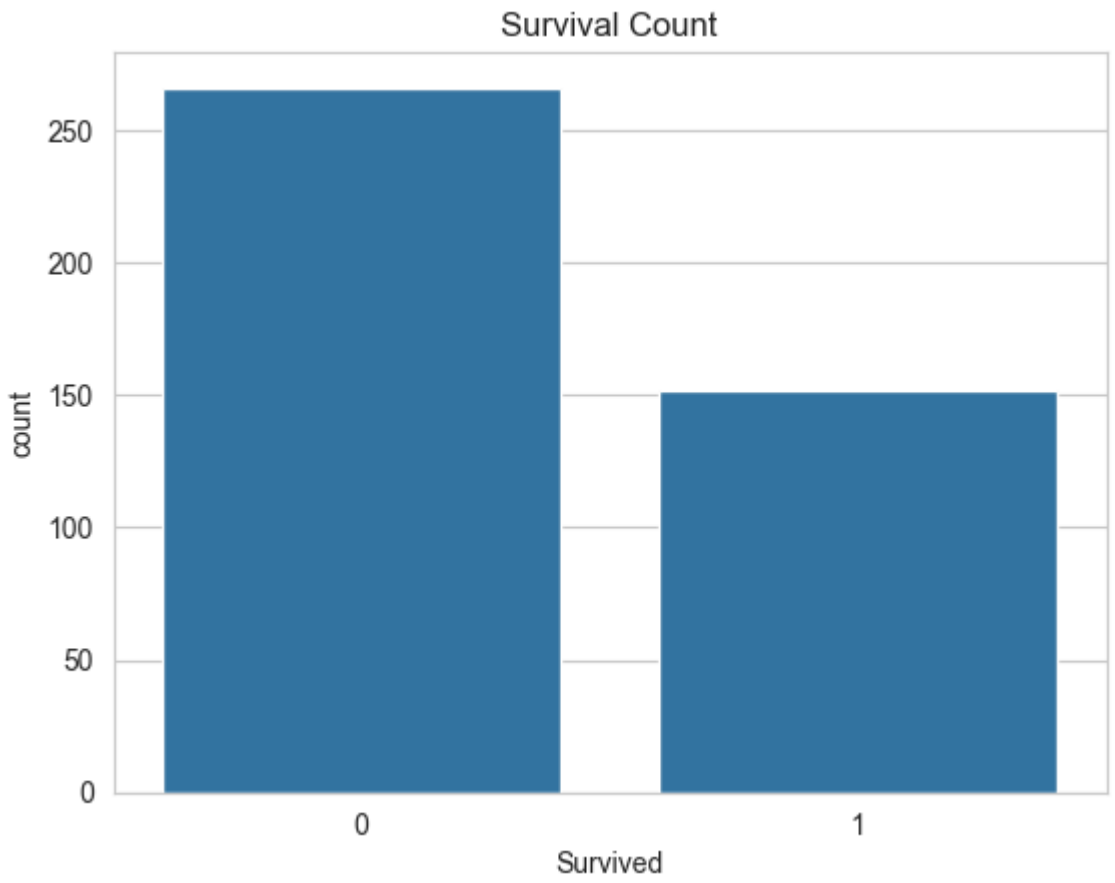
In [6]:
```
df.isnull().sum()
```

Out[6]:
```
PassengerId      0
Survived         0
Pclass           0
Name             0
Sex              0
Age             86
SibSp            0
Parch            0
Ticket           0
Fare             1
Cabin          327
Embarked         0
dtype: int64
```

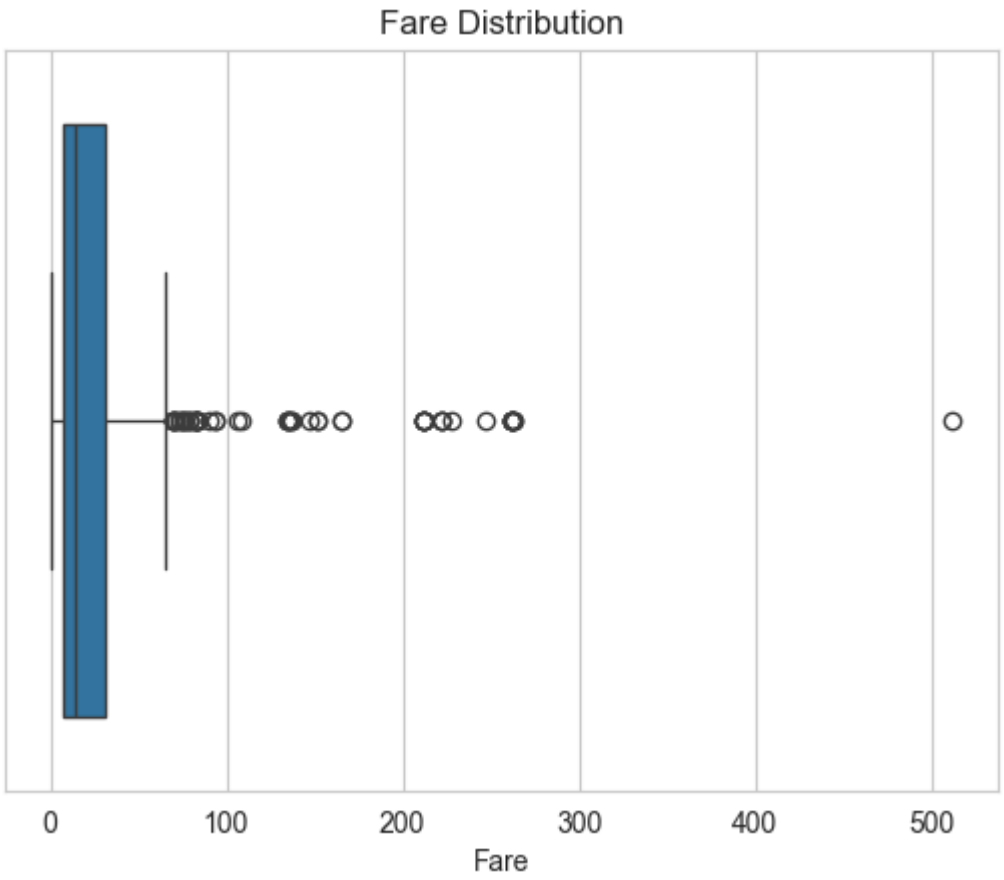
In [7]:
```
plt.figure()
plt.hist(df["Age"].dropna())
plt.title("Age Distribution")
plt.show()
```



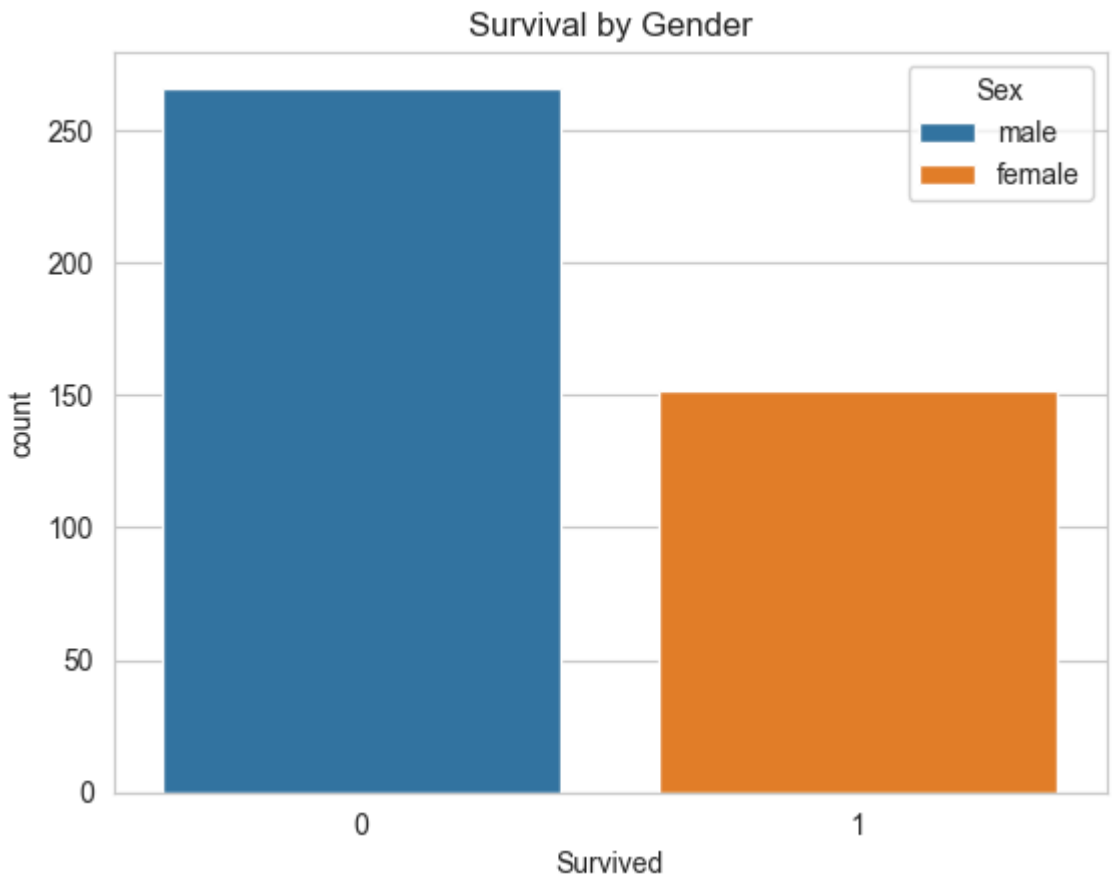
In [8]:
```
sns.countplot(x="Survived", data=df)
plt.title("Survival Count")
plt.show()
```



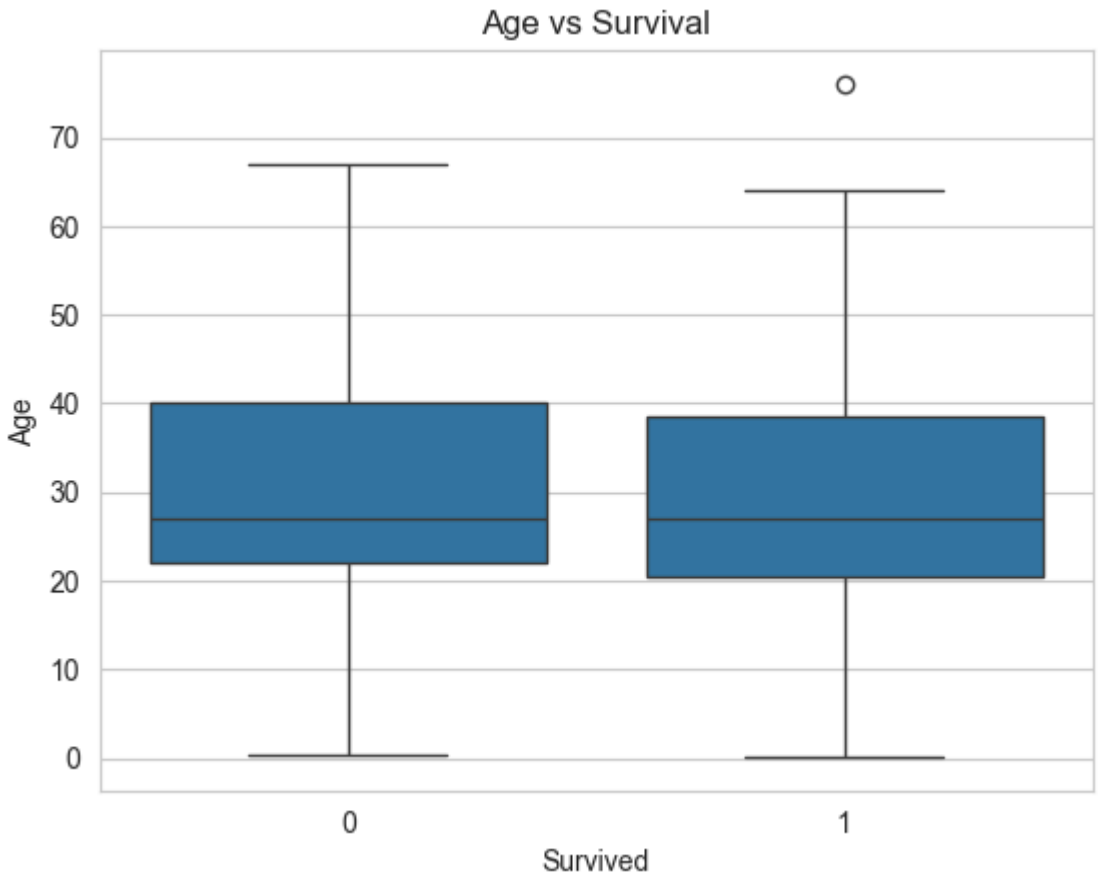
In [9]:
```
plt.figure()
sns.boxplot(x=df["Fare"])
plt.title("Fare Distribution")
plt.show()
```



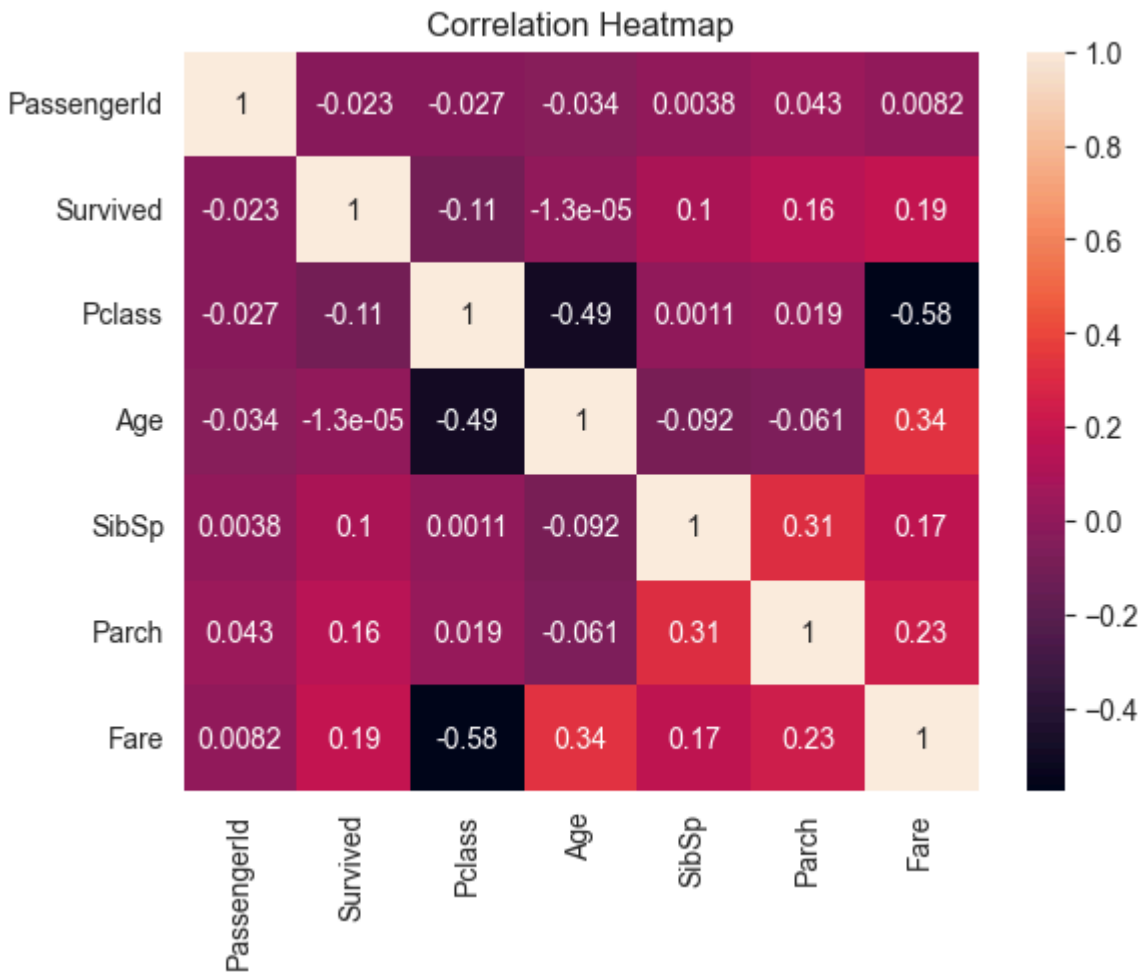
In [10]:
```
sns.countplot(x="Survived", hue="Sex", data=df)
plt.title("Survival by Gender")
plt.show()
```



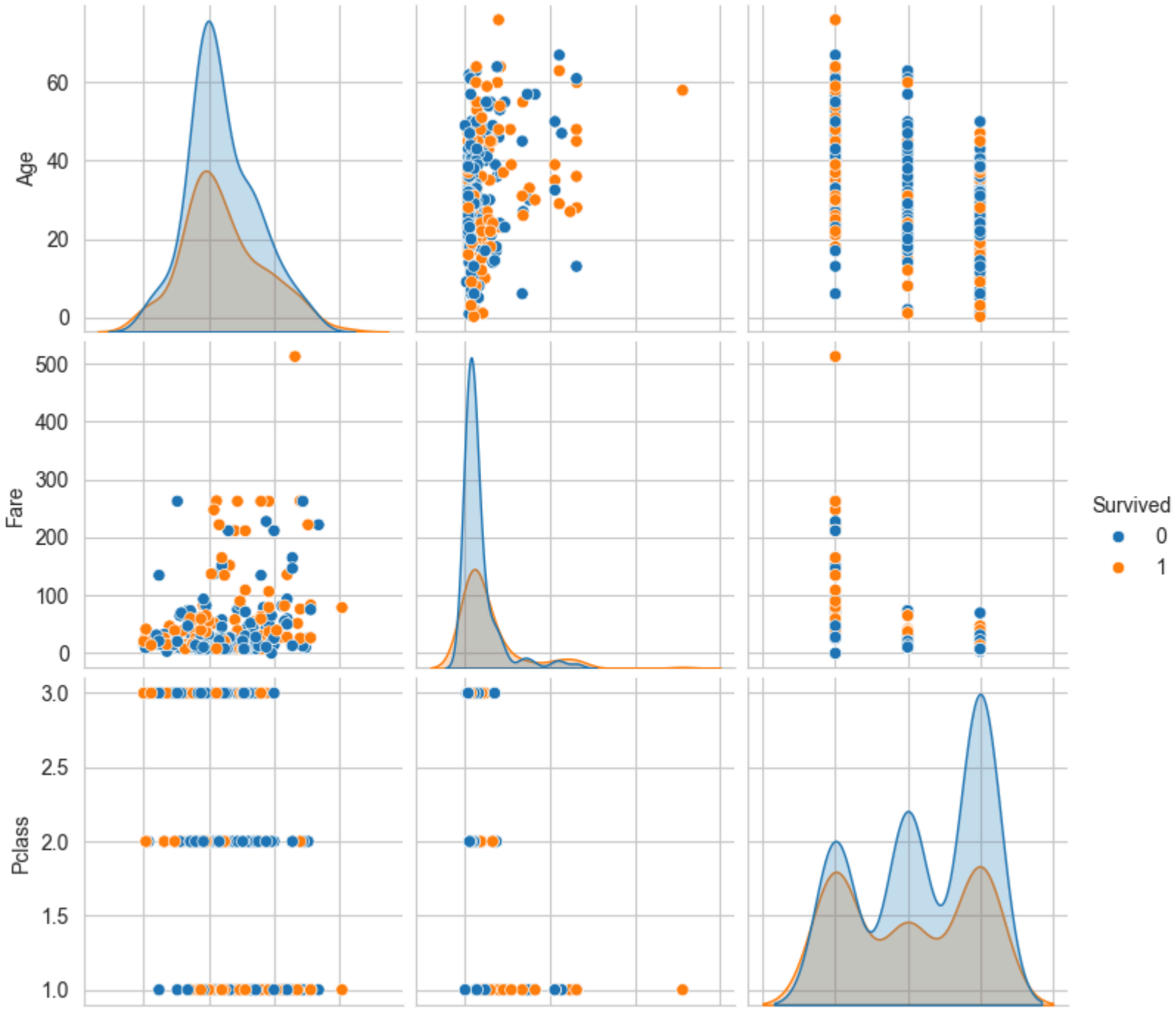
In [11]:
```
sns.boxplot(x="Survived", y="Age", data=df)
plt.title("Age vs Survival")
plt.show()
```

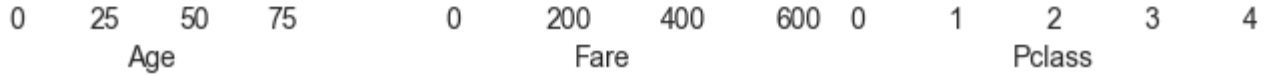


In [14]:
```
plt.figure()
sns.heatmap(df.select_dtypes(include=['number']).corr(), annot=True)
plt.title("Correlation Heatmap")
plt.show()
```



In [15]:
```
sns.pairplot(df[["Age","Fare","Pclass","Survived"]].dropna(), hue="Survived")
plt.show()
```


Age
Fare
Pclass
60
40
20
0
500
400
300
200
100
0
3.0
2.5
2.0
1.5
1.0
Survived
0
1



In [ ]: