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

# Load the dataset (adjust path if needed)
df = pd.read_csv('Titanic-Dataset.csv')

# Display first few rows
df.head()
```

Out[1]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	S
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN	S

In [2]:
```
# Dimensions of dataset
print("Shape:", df.shape)

# Basic info
df.info()

# Summary statistics
df.describe()

# Count of missing values
df.isnull().sum()

# Unique values in categorical columns
print(df['Survived'].value_counts())
print(df['Sex'].value_counts())
print(df['Pclass'].value_counts())
```

```
Shape: (891, 12)
<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
Survived
0    549
1    342
Name: count, dtype: int64
Sex
male      577
female    314
Name: count, dtype: int64
Pclass
3    491
1    216
2    184
Name: count, dtype: int64
```

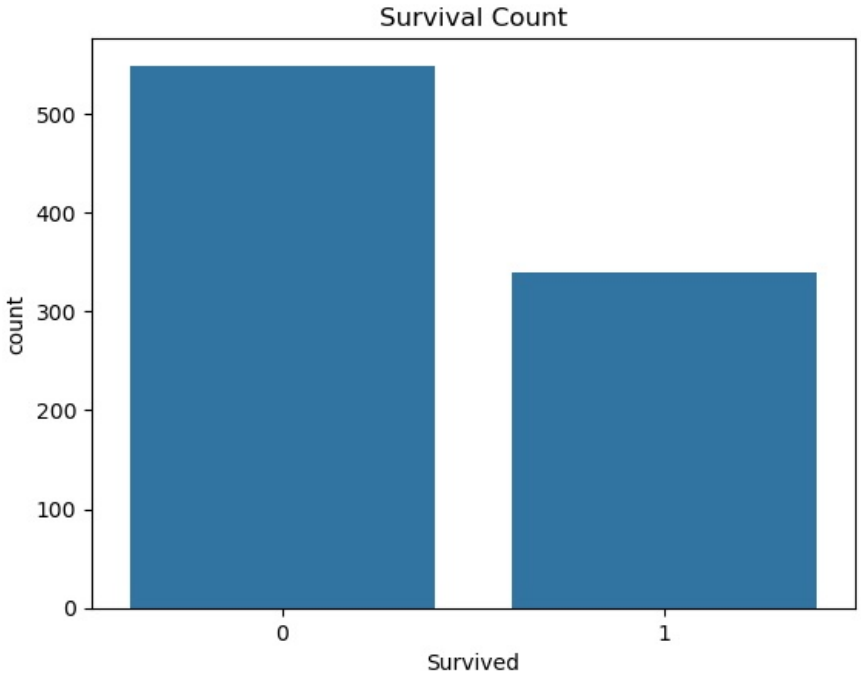
In [4]:
```
# Fill missing Age with mean
df['Age'] = df['Age'].fillna(df['Age'].mean())


# Drop Cabin column (too many missing values)
if 'Cabin' in df.columns:
```

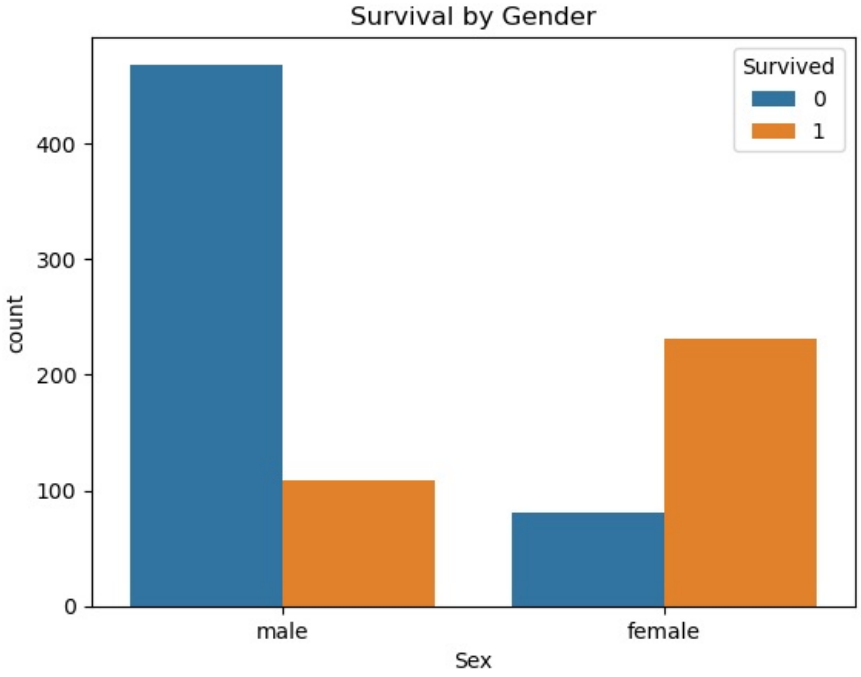
```
    df.drop(columns='Cabin', inplace=True)

# Drop missing Embarked values
df.dropna(subset=['Embarked'], inplace=True)
```

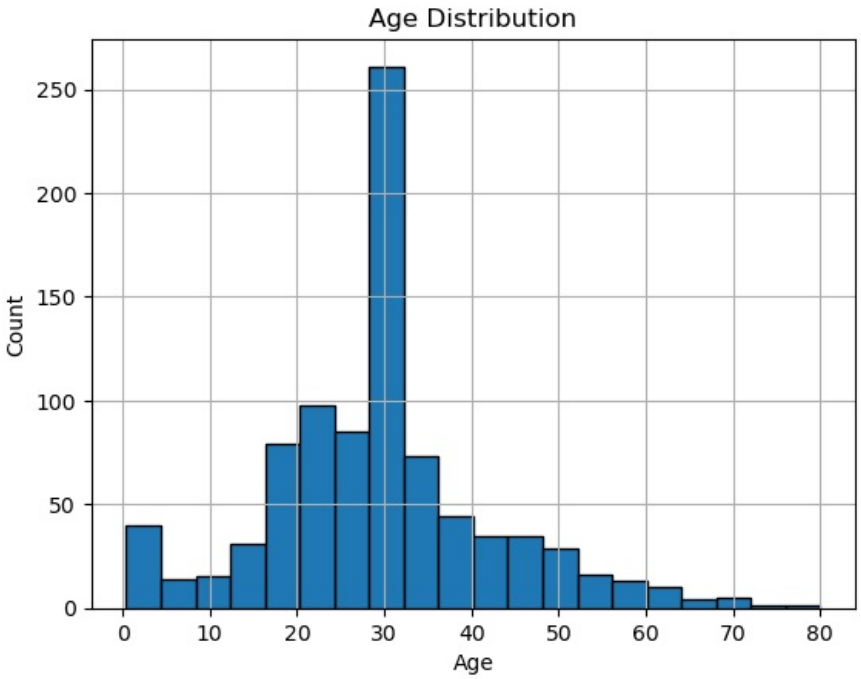
In [5]:
```
sns.countplot(x='Survived', data=df)
plt.title('Survival Count')
plt.show()
```



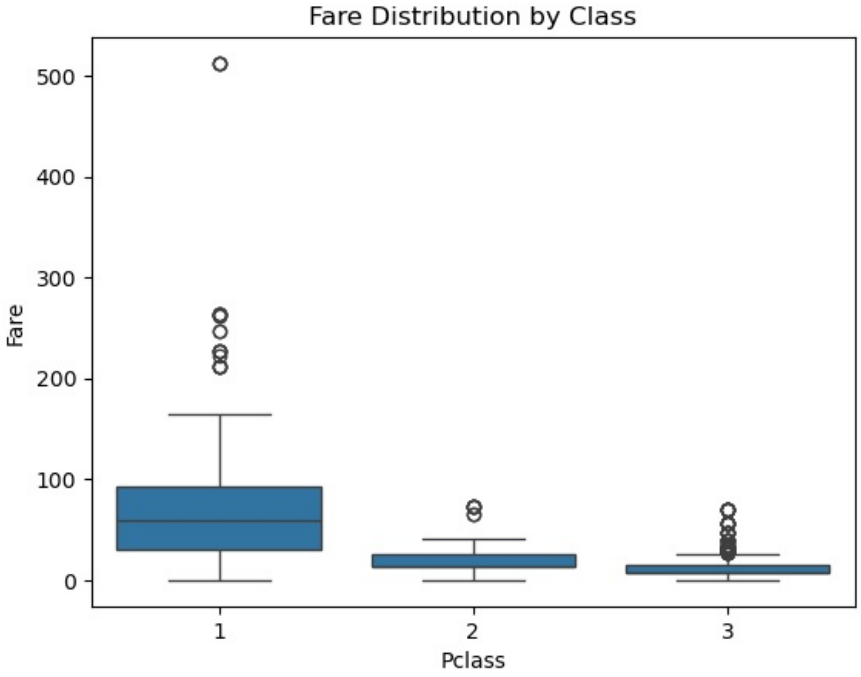
In [6]:
```
sns.countplot(x='Sex', hue='Survived', data=df)
plt.title('Survival by Gender')
plt.show()
```



In [7]:
```
df['Age'].hist(bins=20, edgecolor='black')
plt.title('Age Distribution')
plt.xlabel('Age')
plt.ylabel('Count')
plt.show()
```

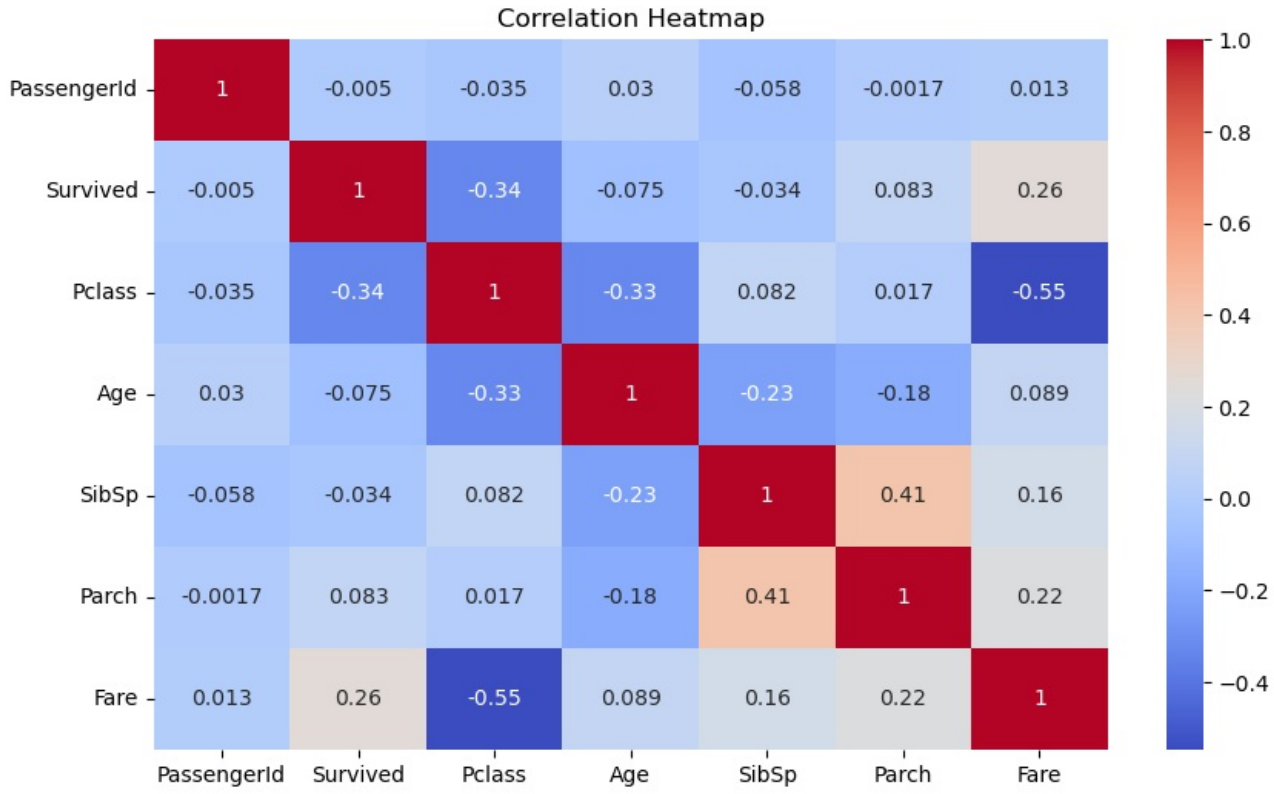


In [8]:
```
sns.boxplot(x='Pclass', y='Fare', data=df)
plt.title('Fare Distribution by Class')
plt.show()
```



In [11]:
```
# Select only numeric columns
numeric_df = df.select_dtypes(include=['float64', 'int64'])

# Plot correlation heatmap
plt.figure(figsize=(10, 6))
sns.heatmap(numeric_df.corr(), annot=True, cmap='coolwarm')
plt.title('Correlation Heatmap')
plt.show()
```



In [ ]: