In [19]:
```
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns

# Set visual style
sns.set(style="whitegrid")
```

In [20]:
```
df = pd.read_csv("test.csv")  # or use train.csv if that's your dataset

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

Out[20]:

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

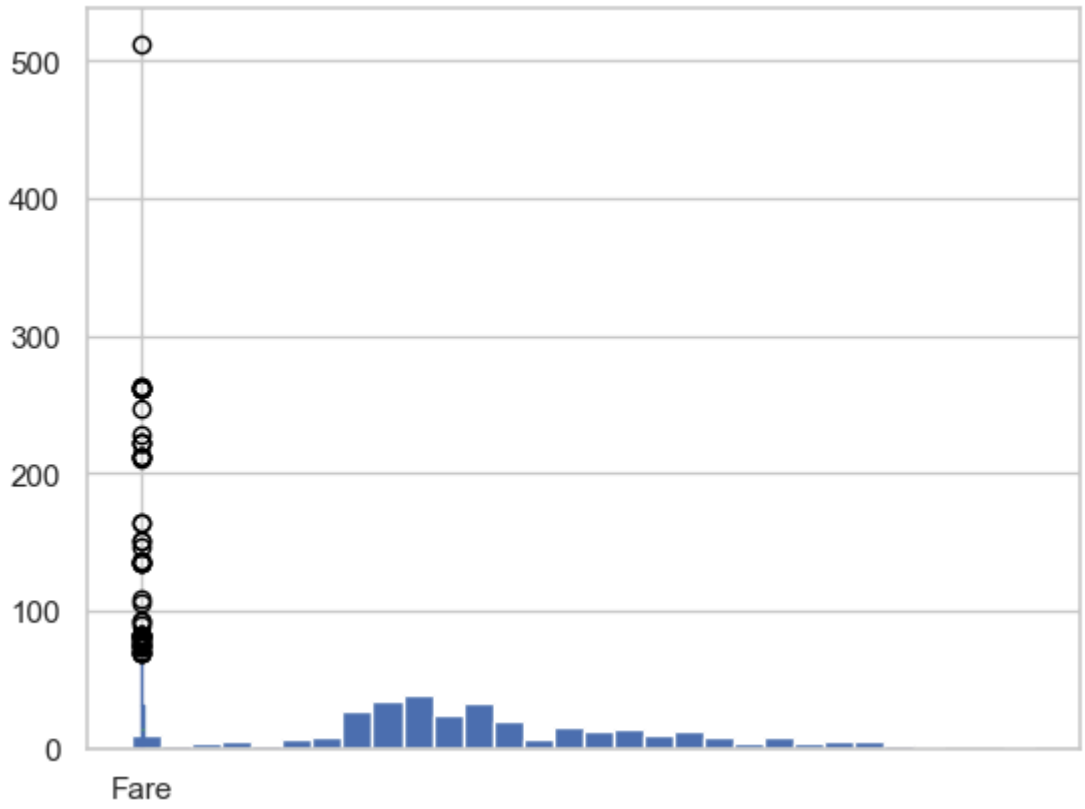
In [21]:
```
df.info()
df.describe()
df.isnull().sum()
df['Sex'].value_counts()
df['Pclass'].value_counts()
df['Embarked'].value_counts()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 418 entries, 0 to 417
Data columns (total 11 columns):
 #   Column       Non-Null Count  Dtype  
---  ------       --------------  -----  
 0   PassengerId  418 non-null    int64  
 1   Pclass       418 non-null    int64  
 2   Name         418 non-null    object 
 3   Sex          418 non-null    object 
 4   Age          332 non-null    float64
 5   SibSp        418 non-null    int64  
 6   Parch        418 non-null    int64  
 7   Ticket       418 non-null    object 
 8   Fare         417 non-null    float64
 9   Cabin        91 non-null     object 
 10  Embarked     418 non-null    object 
dtypes: float64(2), int64(4), object(5)
memory usage: 36.1+ KB
```

Out[21]:
```
Embarked
S    270
C    102
Q     46
Name: count, dtype: int64
```

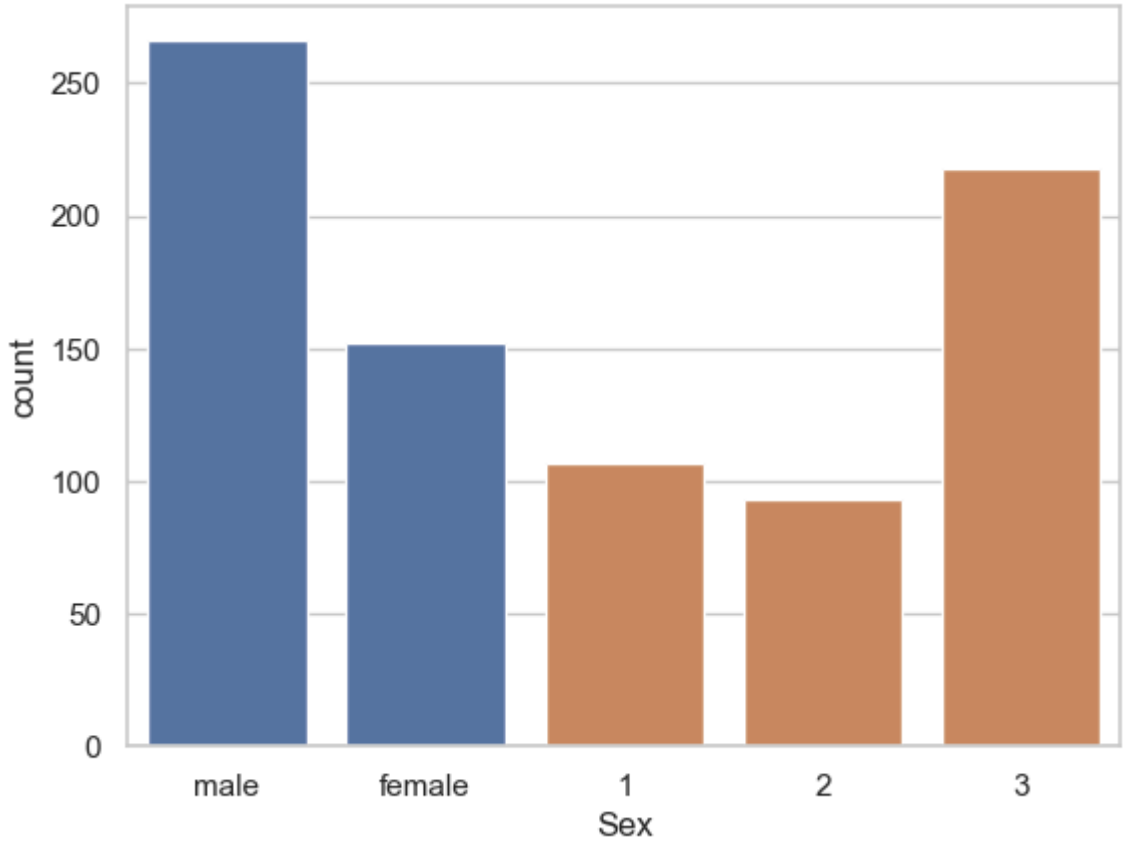
In [22]:
```
df['Age'].hist(bins=30)
df['Fare'].plot(kind='box')
```

Out[22]: <Axes: >



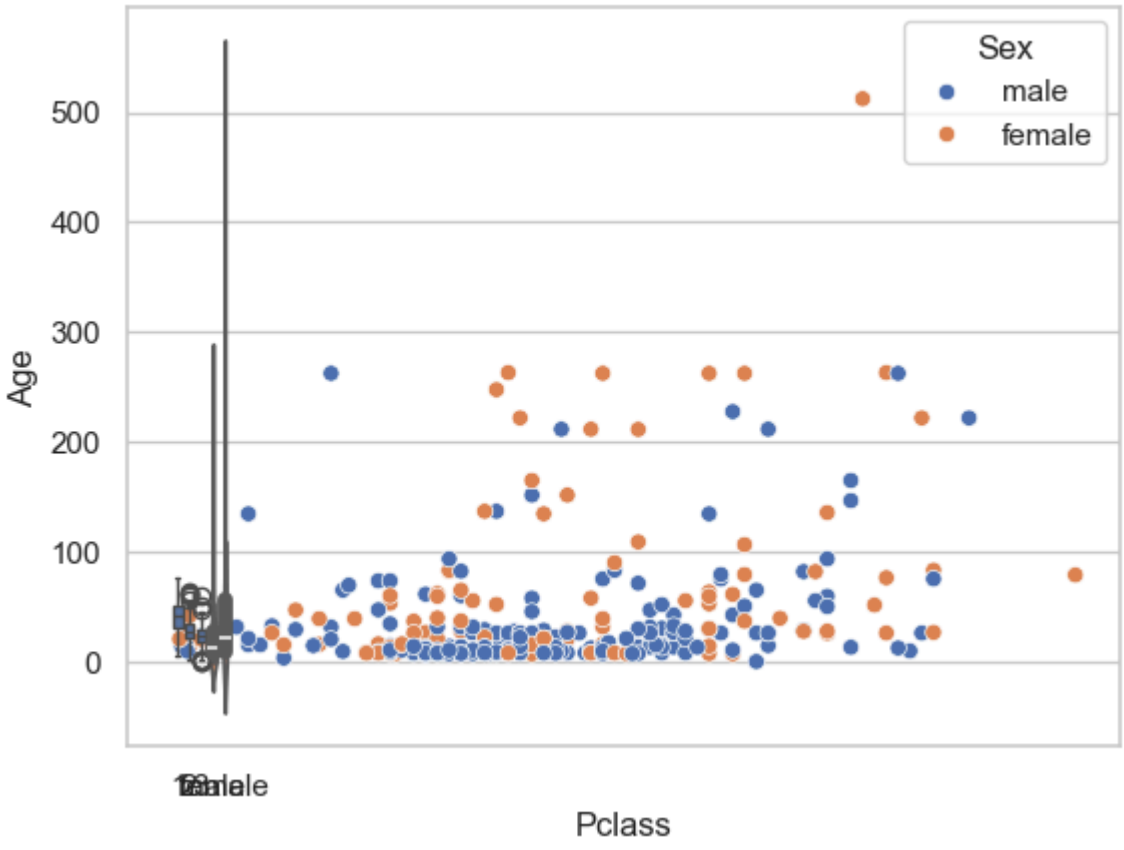
In [23]:
```
sns.countplot(x='Sex', data=df)
sns.countplot(x='Pclass', data=df)
```

Out[23]: <Axes: xlabel='Sex', ylabel='count'>



In [24]:
```
sns.boxplot(x='Pclass', y='Age', data=df)
sns.violinplot(x='Sex', y='Fare', data=df)
sns.scatterplot(x='Age', y='Fare', hue='Sex', data=df)
```

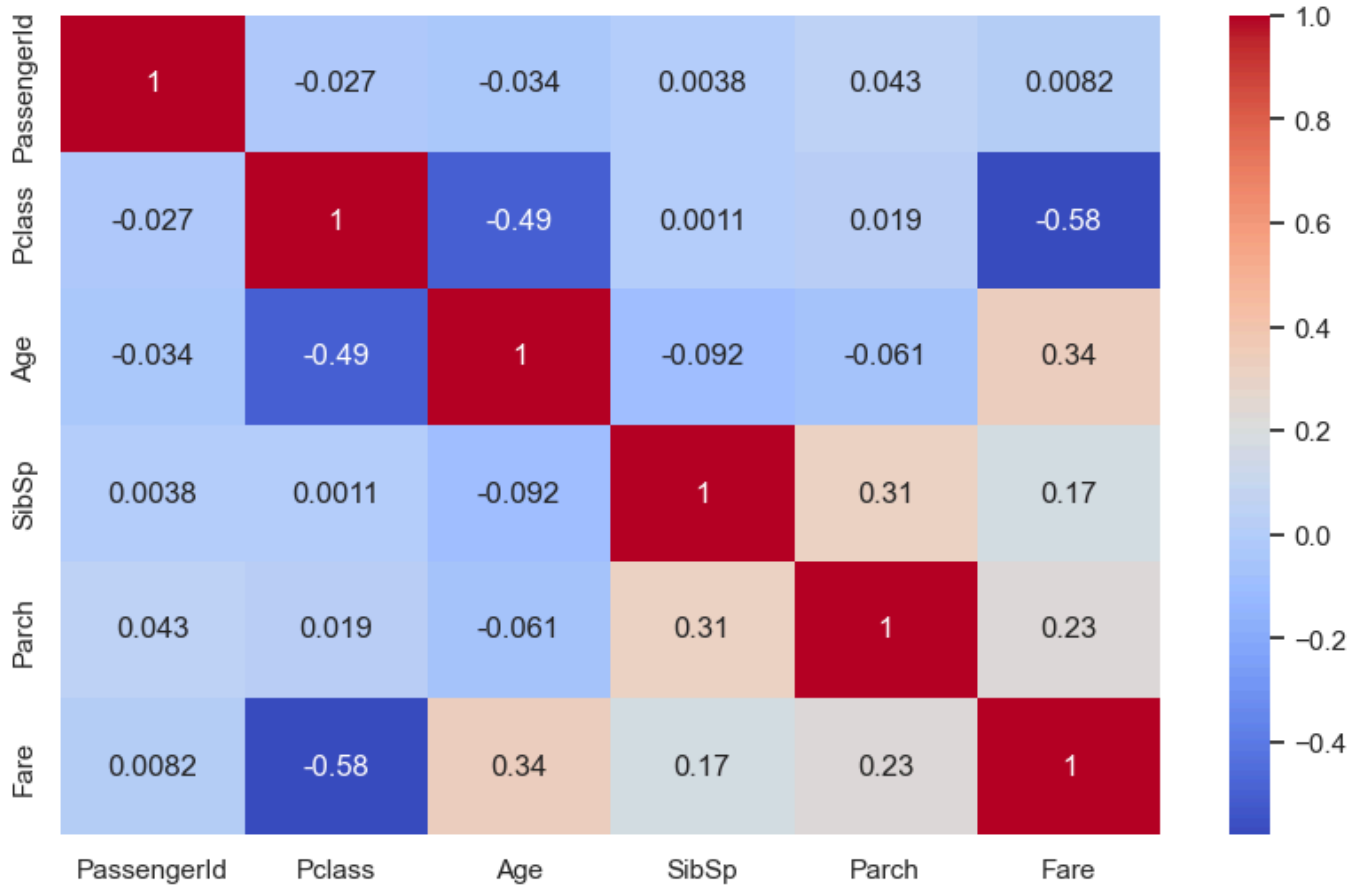
Out[24]: <Axes: xlabel='Pclass', ylabel='Age'>

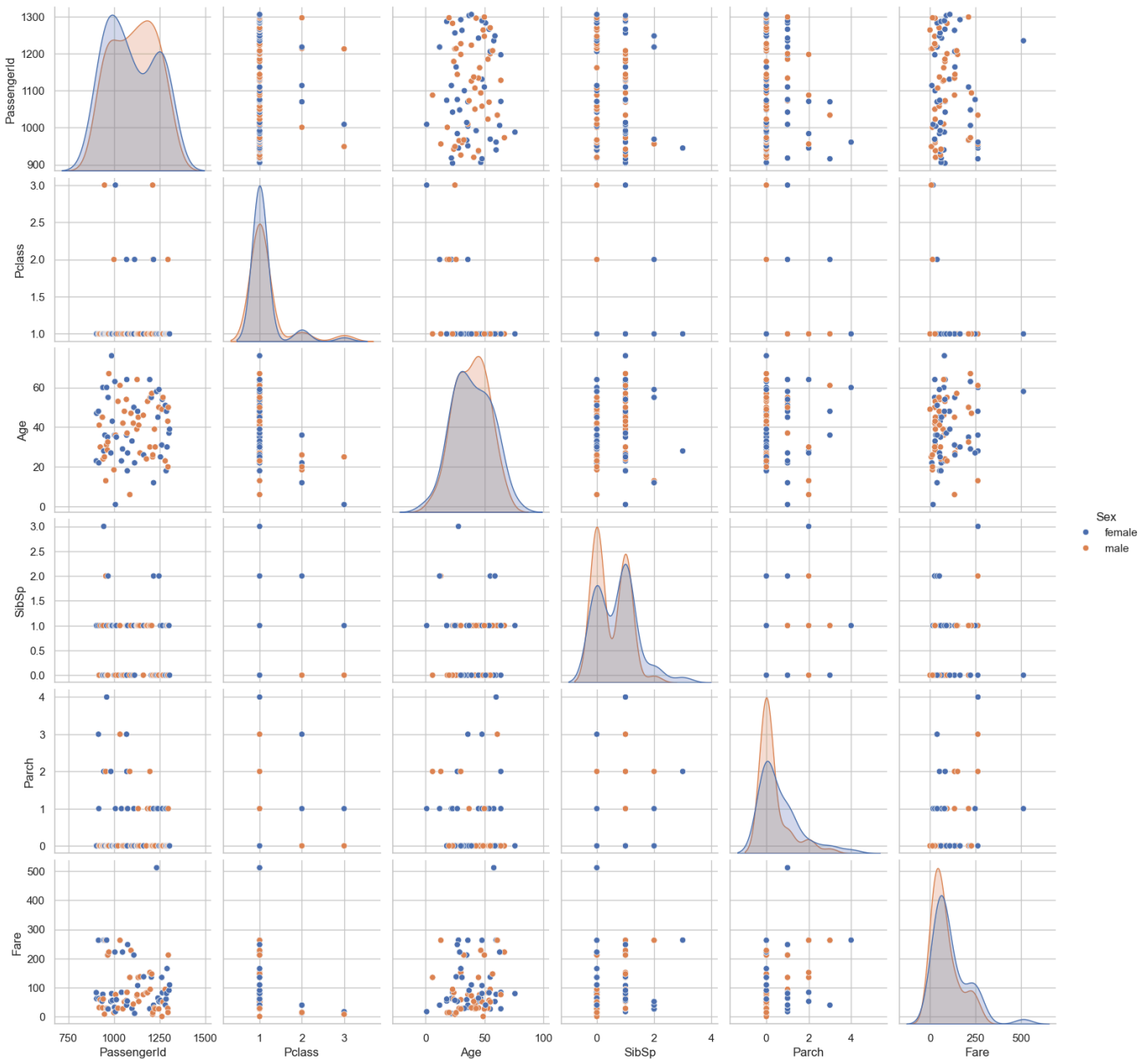


In [25]:
```
# Correlation heatmap
plt.figure(figsize=(10,6))
sns.heatmap(df.select_dtypes(include=['float64', 'int64']).corr(), annot=True, cmap="coolwarm

# Pairplot for trends
sns.pairplot(df.dropna(), hue="Sex")
```

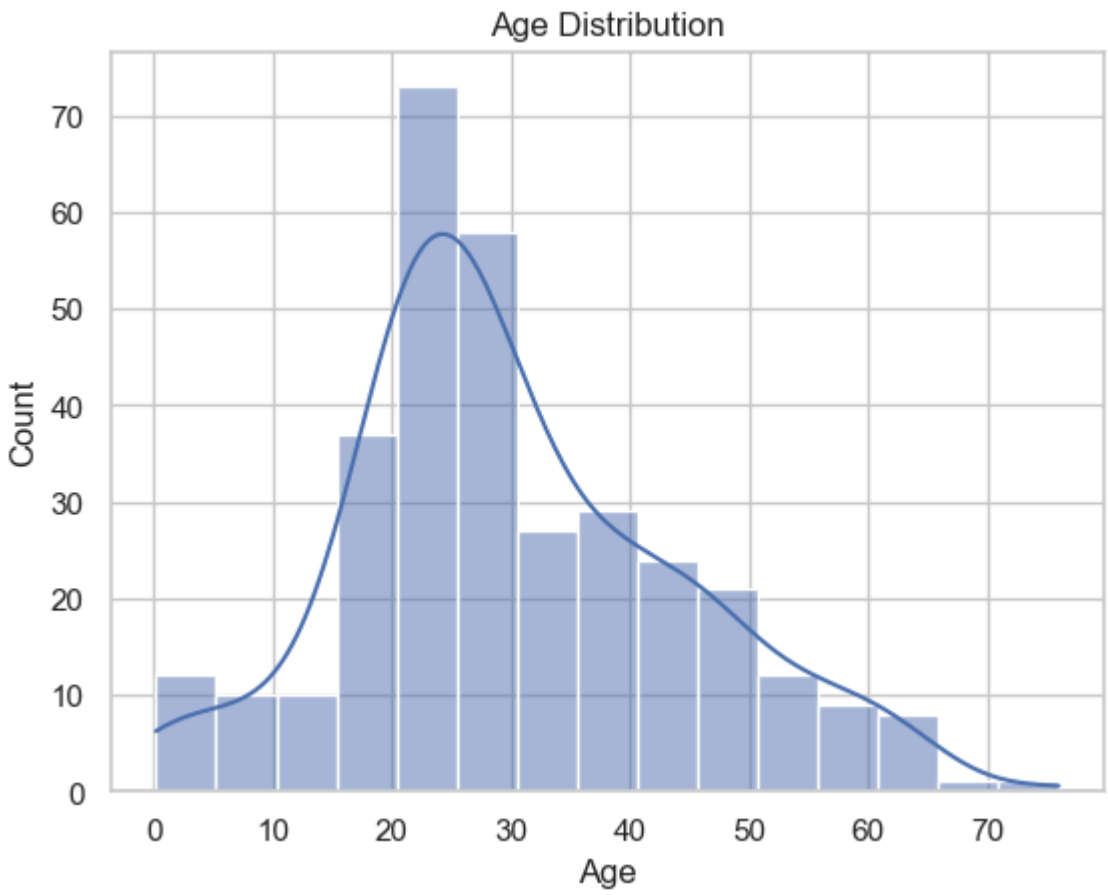
Out[25]: <seaborn.axisgrid.PairGrid at 0x2a0d9b1e850>





In [26]:

```
# Example: Distribution of Age
sns.histplot(df['Age'].dropna(), kde=True)
plt.title("Age Distribution")
plt.show()
```



In [27]:
```
# Count of passengers by Sex
sns.countplot(data=df, x='Sex')
plt.title("Count of Passengers by Sex")
plt.show()
```