```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns

# Load the dataset
titanic = pd.read_csv('https://raw.githubusercontent.com/datasciencedojo/datasets/master/titanic.csv')
```

```
print(titanic.head())
```

```
   PassengerId  Survived  Pclass  \
0            1         0       3
1            2         1       1
2            3         1       3
3            4         1       1
4            5         0       3

                                                Name     Sex   Age  SibSp  \
0                            Braund, Mr. Owen Harris    male  22.0      1
1  Cumings, Mrs. John Bradley (Florence Briggs Th...  female  38.0      1
2                             Heikkinen, Miss. Laina  female  26.0      0
3       Futrelle, Mrs. Jacques Heath (Lily May Peel)  female  35.0      1
4                           Allen, Mr. William Henry    male  35.0      0

   Parch            Ticket     Fare Cabin Embarked
0      0         A/5 21171   7.2500   NaN        S
1      0          PC 17599  71.2833   C85        C
2      0  STON/O2. 3101282   7.9250   NaN        S
3      0            113803  53.1000  C123        S
4      0            373450   8.0500   NaN        S
```

```
# summary of the dataset
print(titanic.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
None
```

```
# Check for missing values
print(titanic.isnull().sum())
```

```
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
```

```
# Handling missing values
# For 'Age', Filling missing values with the median
titanic['Age'].fillna(titanic['Age'].median(), inplace=True)
```

```
# For 'Embarked',  filling missing values with the mode
titanic['Embarked'].fillna(titanic['Embarked'].mode()[0], inplace=True)
```

```
# For 'Cabin', creating a new feature 'HasCabin' which indicates if a passenger had a cabin
titanic['HasCabin'] = titanic['Cabin'].notnull().astype(int)
titanic.drop('Cabin', axis=1, inplace=True)
```

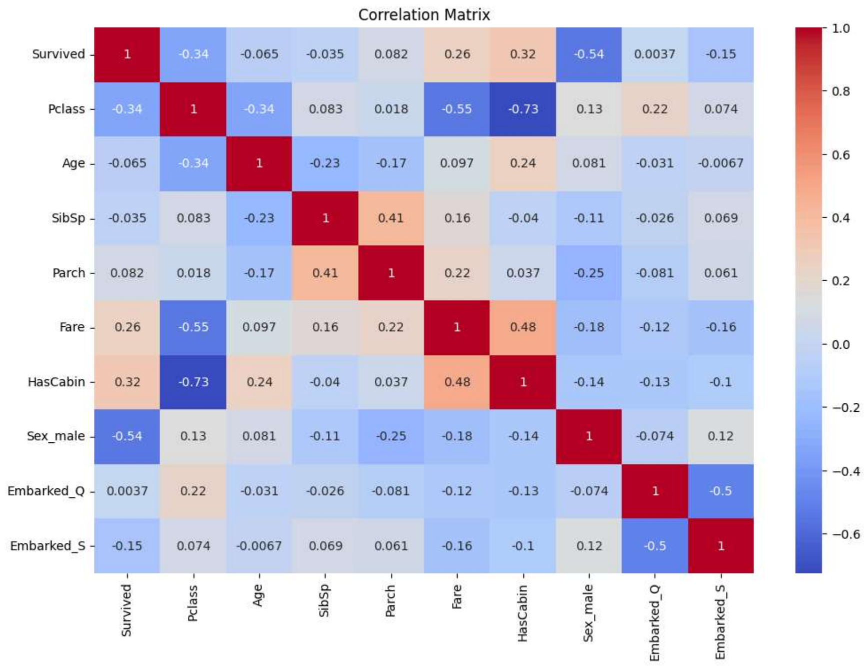
```
# Converting categorical variables into numerical ones
titanic = pd.get_dummies(titanic, columns=['Sex', 'Embarked'], drop_first=True)


# Droping unnecessary columns
titanic.drop(['Name', 'Ticket', 'PassengerId'], axis=1, inplace=True)
```

```
titanic.head()
```

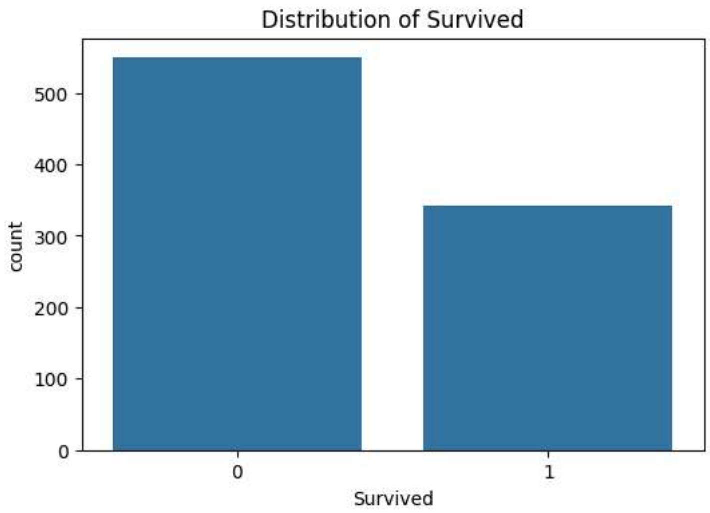
	Survived	Pclass	Age	SibSp	Parch	Fare	HasCabin	Sex_male	Embarked_Q	Emba
0	0	3	22.0	1	0	7.2500	0	True	False	
1	1	1	38.0	1	0	71.2833	1	False	False	
2	1	3	26.0	0	0	7.9250	0	False	False	
3	1	1	35.0	1	0	53.1000	1	False	False	
4	0	3	35.0	0	0	8.0500	0	True	False	

Next steps: Generate code with titanic | View recommended plots | New interactive sheet

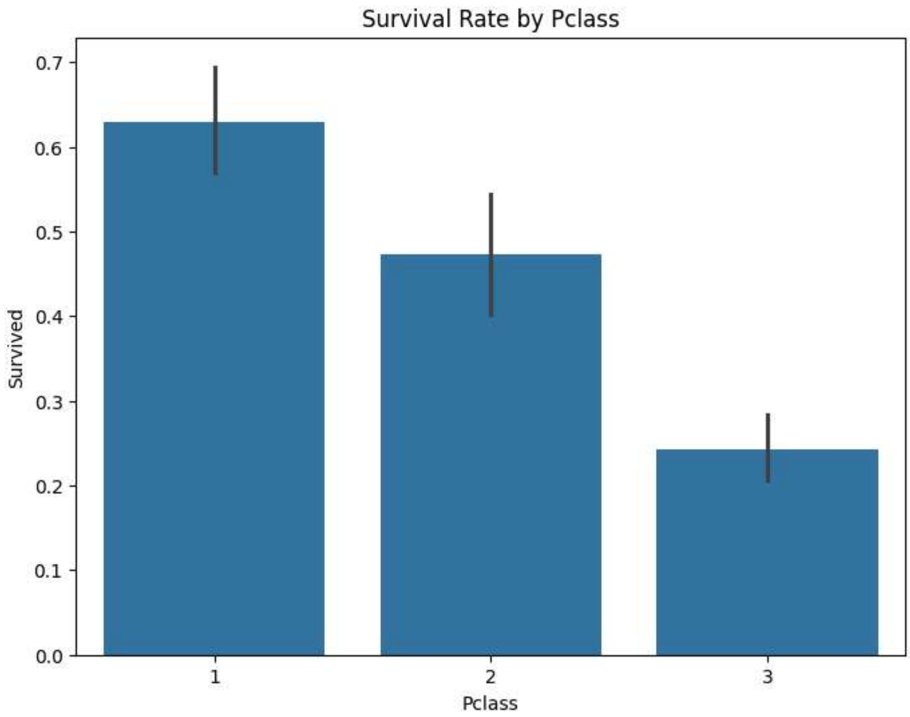
```
# Performing EDA
# Correlation matrix
plt.figure(figsize=(12, 8))
sns.heatmap(titanic.corr(), annot=True, cmap='coolwarm')
plt.title('Correlation Matrix')
plt.show()
```



```
# Distribution of 'Survived'
plt.figure(figsize=(6, 4))
sns.countplot(x='Survived', data=titanic)
plt.title('Distribution of Survived')
plt.show()
```

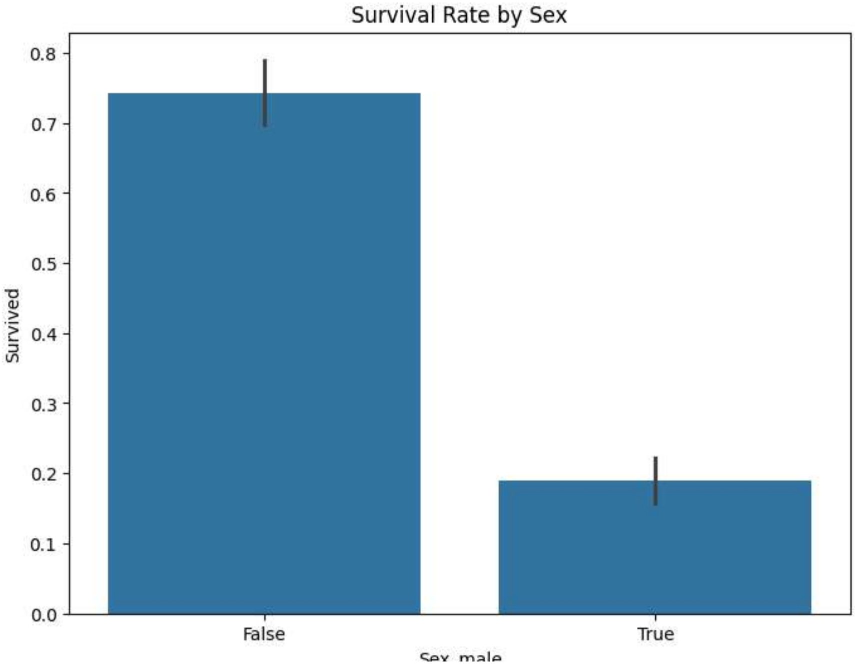


```
# Survival rate by 'Pclass'
plt.figure(figsize=(8, 6))
sns.barplot(x='Pclass', y='Survived', data=titanic)
plt.title('Survival Rate by Pclass')
plt.show()
```

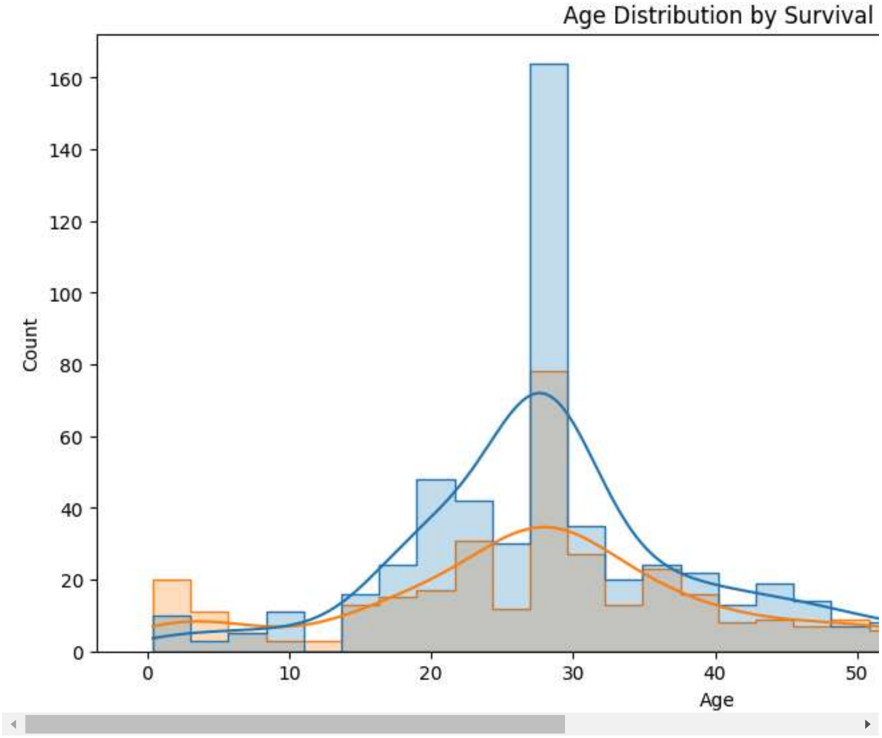


Generate 10 random numbers using numpy Close

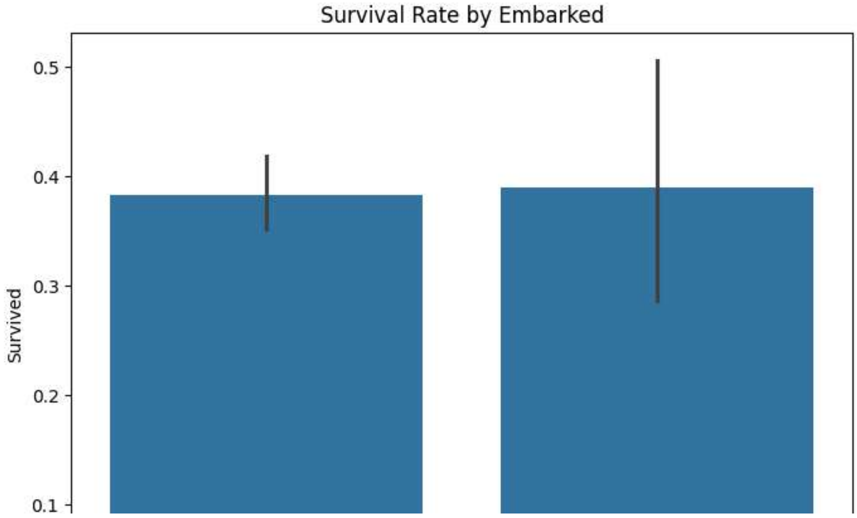
```
# Survival rate by 'Sex'
plt.figure(figsize=(8, 6))
sns.barplot(x='Sex_male', y='Survived', data=titanic)
plt.title('Survival Rate by Sex')
plt.show()
```



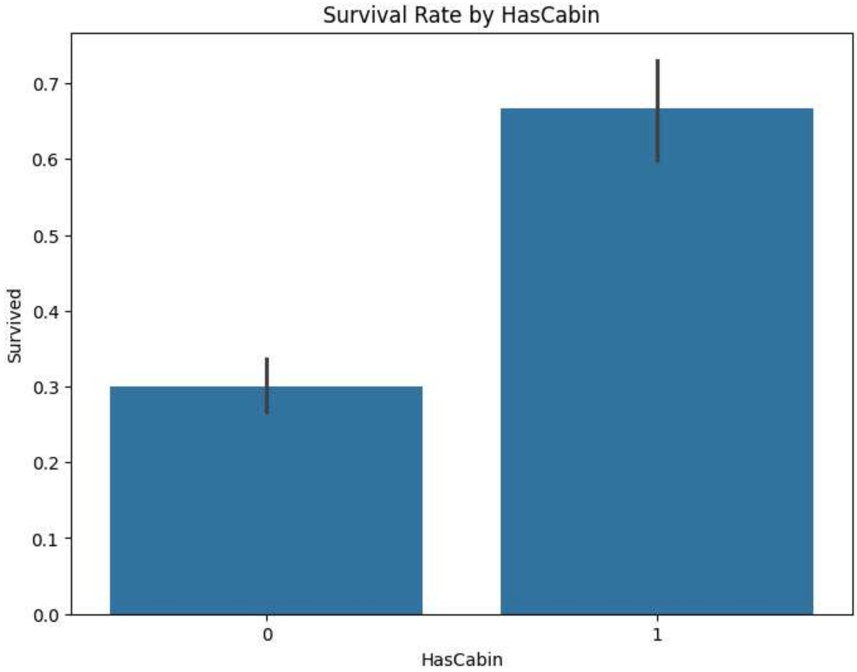
```
# Age distribution by survival
plt.figure(figsize=(12, 6))
sns.histplot(data=titanic, x='Age', hue='Survived', kde=True, element='step')
plt.title('Age Distribution by Survival')
plt.show()
```



```
# Survival rate by 'Embarked'
plt.figure(figsize=(8, 6))
sns.barplot(x='Embarked_Q', y='Survived', data=titanic)
plt.title('Survival Rate by Embarked')
plt.show()
```



```
# Survival rate by 'HasCabin'
plt.figure(figsize=(8, 6))
sns.barplot(x='HasCabin', y='Survived', data=titanic)
plt.title('Survival Rate by HasCabin')
plt.show()
```


Survival Rate by HasCabin
Survived
HasCabin