Q1. Download the Titanic dataset and perform the Exploratory data analysis using pandas. Read the dataset (df= pd.read_csv(r'………………………….\Titanic.csv') Display the first and last 10 instances from the dataset Acquire the necessary information using the df.info() and df. Describe(). Retrieve the number of columns and rows. (using shape)

In [13]:
```python
import pandas as pd
df=pd.read_csv(r'Titanic.csv')
df.head(10)
```

Out[13]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cal
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	N
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	N
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C1
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	N
5	6	0	3	Moran, Mr. James	male	NaN	0	0	330877	8.4583	N
6	7	0	1	McCarthy, Mr. Timothy J	male	54.0	0	0	17463	51.8625	E
7	8	0	3	Palsson, Master. Gosta Leonard	male	2.0	3	1	349909	21.0750	N
8	9	1	3	Johnson, Mrs. Oscar W (Elisabeth Vilhelmina Berg)	female	27.0	0	2	347742	11.1333	N
9	10	1	2	Nasser, Mrs. Nicholas (Adele Achem)	female	14.0	1	0	237736	30.0708	N

In [14]: `df.tail(10)`

Out[14]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare
881	882	0	3	Markun, Mr. Johann	male	33.0	0	0	349257	7.8958
882	883	0	3	Dahlberg, Miss. Gerda Ulrika	female	22.0	0	0	7552	10.5167
883	884	0	2	Banfield, Mr. Frederick James	male	28.0	0	0	C.A./SOTON 34068	10.5000
884	885	0	3	Sutehall, Mr. Henry Jr	male	25.0	0	0	SOTON/OQ 392076	7.0500
885	886	0	3	Rice, Mrs. William (Margaret Norton)	female	39.0	0	5	382652	29.1250
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.0000
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 [15]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 12 columns):
PassengerId    891 non-null int64
Survived       891 non-null int64
Pclass         891 non-null int64
Name           891 non-null object
Sex            891 non-null object
Age            714 non-null float64
SibSp          891 non-null int64
Parch          891 non-null int64
Ticket         891 non-null object
Fare           891 non-null float64
Cabin          204 non-null object
Embarked       889 non-null object
dtypes: float64(2), int64(5), object(5)
memory usage: 83.6+ KB
```

In [16]: `df.describe()`

Out[16]:

|	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.000000
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.381594	32.204208
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.806057	49.693429
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.000000	0.000000
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.000000	7.910400
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.000000	14.454200
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.000000	31.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.000000	512.329200

In [18]: `df.shape`

Out[18]: `(891, 12)`

Q2. Create the data visualization using the matplotlib. Visualize the Gender of Passengers using the Bar graph. Visualize the Survival Count of Passengers using the Bar graph. Visualize the Age of Passengers using the Bar/Histogram graph. Visualize the comparison of Age and Fare of Passengers using the Scatterplot.

In [19]:
```python
import matplotlib.pyplot as plt

gender_counts = df['Sex'].value_counts()
plt.bar(gender_counts.index, gender_counts.values)
plt.title('Gender of Passengers')
plt.xlabel('Gender')
plt.ylabel('Count')
plt.show()
```
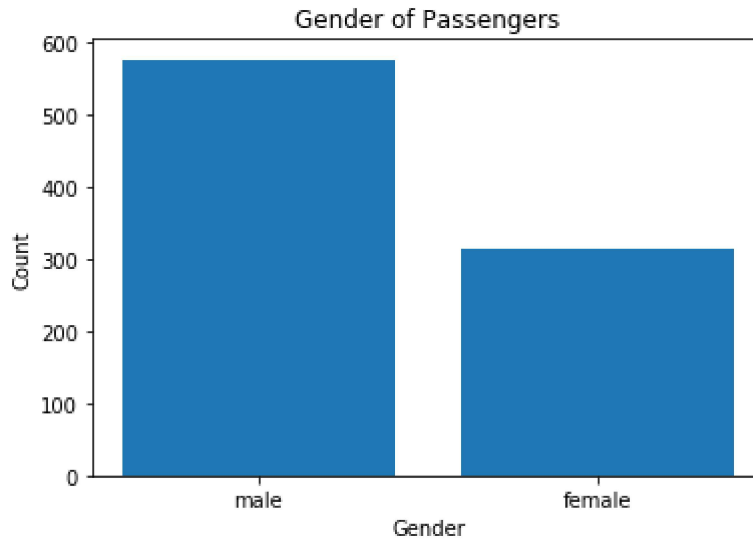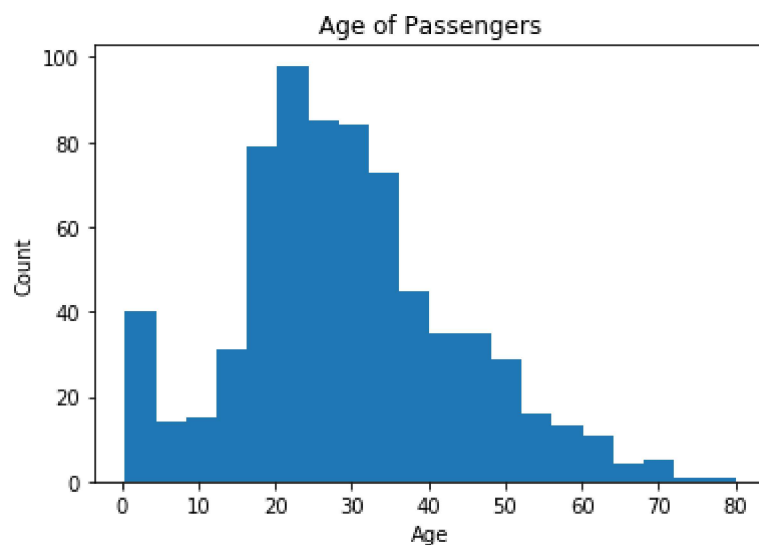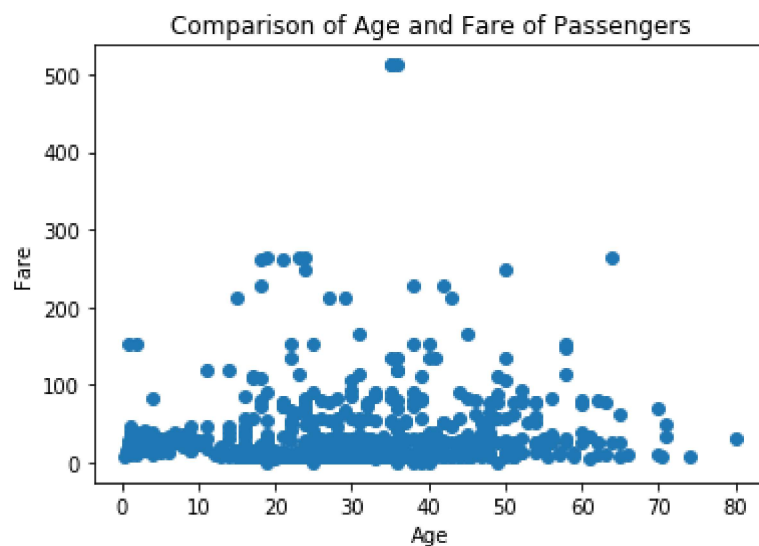

In [20]:
```python
survival_counts = df['Survived'].value_counts()
plt.bar(survival_counts.index, survival_counts.values)
plt.title('Survival Count of Passengers')
plt.xlabel('Survival')
plt.ylabel('Count')
plt.show()
```
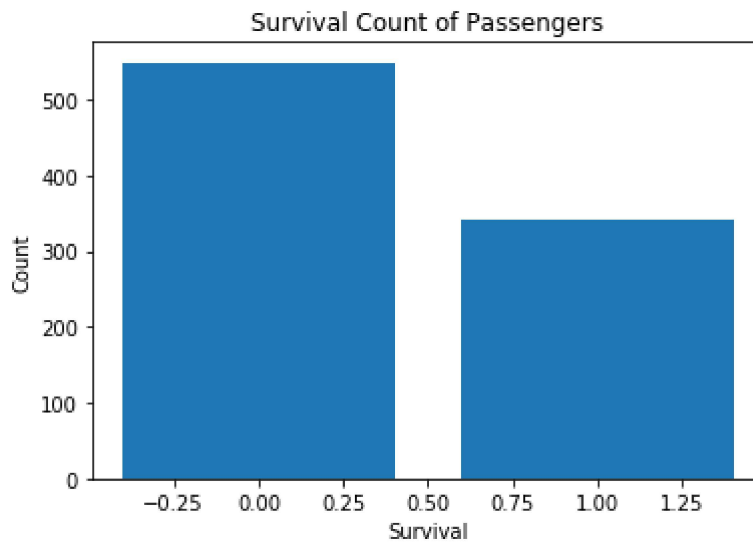
In [21]:
```python
plt.hist(df['Age'].dropna(), bins=20)
plt.title('Age of Passengers')
plt.xlabel('Age')
plt.ylabel('Count')
plt.show()
```


In [22]:
```python
plt.scatter(df['Age'], df['Fare'])
plt.title('Comparison of Age and Fare of Passengers')
plt.xlabel('Age')
plt.ylabel('Fare')
plt.show()
```


In [ ]: