Task - 2

Importing necessary libraries

In [1]:

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

Reading the dataset

In [2]:

```
df=pd.read_csv("test.csv")
```

In [3]:

```
df
```

Out[3]:

	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
...	...	...	...	...	...	...	...	...	...	...	...
413	1305	3	Spector, Mr. Woolf	male	NaN	0	0	A.5. 3236	8.0500	NaN	S
414	1306	1	Oliva y Ocana, Dona. Fermina	female	39.0	0	0	PC 17758	108.9000	C105	C
415	1307	3	Saether, Mr. Simon Sivertsen	male	38.5	0	0	SOTON/O.Q. 3101262	7.2500	NaN	S
416	1308	3	Ware, Mr. Frederick	male	NaN	0	0	359309	8.0500	NaN	S
417	1309	3	Peter, Master. Michael J	male	NaN	1	1	2668	22.3583	NaN	C

418 rows × 11 columns

In [4]:

```
df.head()
```

Out[4]:

	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 [5]:

```
df.columns
```

Out[5]:

```
Index(['PassengerId', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp', 'Parch',
       'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

Some information related to the dataset

In [6]:

```
df.info()
```

```
<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
```

In [7]:

```
df.describe()
```

Out[7]:

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

Checking for null values

In [8]:

```
df.isnull().sum()
```

Out[8]:

```
PassengerId      0
Pclass           0
Name             0
Sex              0
Age             86
SibSp            0
Parch            0
Ticket           0
Fare             1
Cabin          327
Embarked         0
dtype: int64
```

In [9]:

```
# Cleaning the data
df.dropna(subset=["Embarked"],inplace=True)
df["Cabin"].fillna("Unknown",inplace=True)
df["Age"].fillna(df["Age"].mean(),inplace=True)
```

In [10]:

```
df.isnull().sum()
```

Out[10]:

```
PassengerId    0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           1
Cabin          0
Embarked       0
dtype: int64
```

Checking for duplicate values

In [11]:

```
df.duplicated().sum()
```

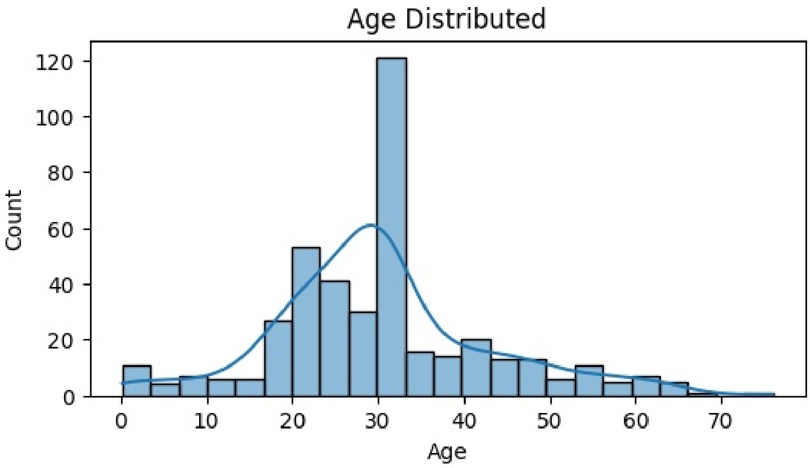
Out[11]:

```
np.int64(0)
```

Visualisation

In [12]:

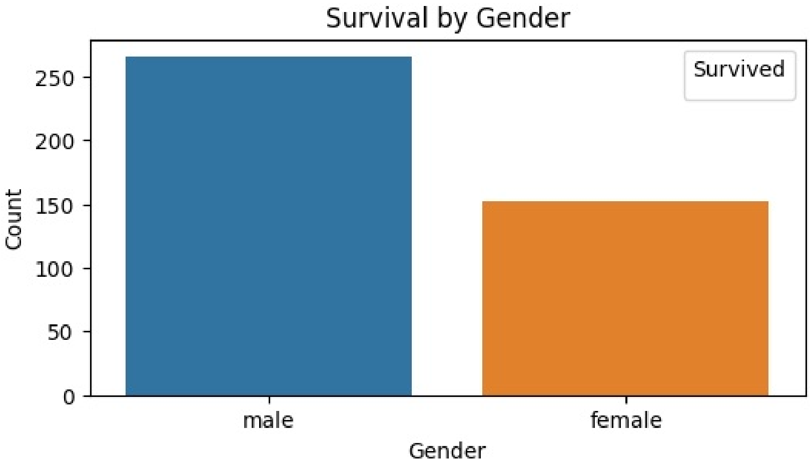
```
plt.figure(figsize=(6,3))
sns.histplot(df["Age"],kde=True)
plt.title("Age Distributed")
plt.xlabel("Age")
plt.ylabel("Count")
plt.show()
```



In [13]:

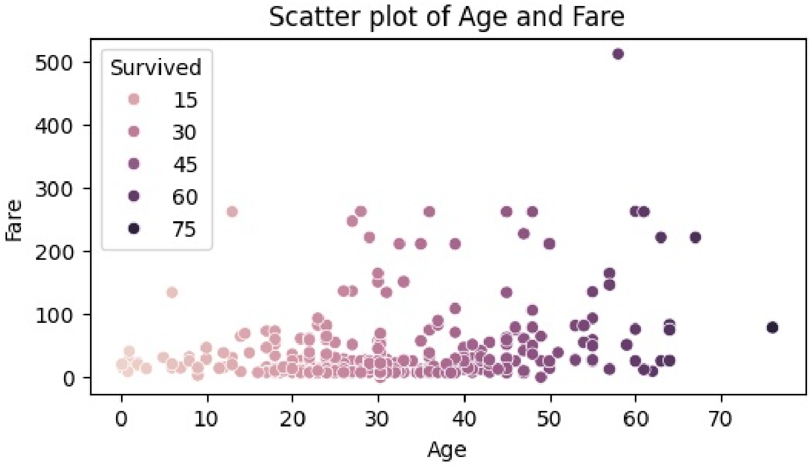
```
plt.figure(figsize=(6,3))
sns.countplot(data=df,x="Sex",hue="Sex")
plt.title("Survival by Gender")
plt.xlabel("Gender")
plt.ylabel("Count")
plt.legend(title="Survived",loc="upper right")
plt.show()
```

```
C:\Users\Komal\AppData\Local\Temp\ipykernel_48036\1569956632.py:6: UserWarning: No artists with labels found to
put in legend.  Note that artists whose label start with an underscore are ignored when legend() is called with
no argument.
  plt.legend(title="Survived",loc="upper right")
```



In [14]:

```
plt.figure(figsize=(6,3))
sns.scatterplot(data=df,x="Age",y="Fare", hue="Age")
plt.title("Scatter plot of Age and Fare")
plt.xlabel("Age")
plt.ylabel("Fare")
plt.legend(title="Survived")
plt.show()
```


Scatter plot of Age and Fare
Survived
15
30
45
60
75
Fare
500
400
300
200
100
0
Age
0
10
20
30
40
50
60
70

In [ ]: