Task 2

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

In [4]:
```
data=pd.read_csv(r"C:\Users\ADMIN\Downloads\test.csv")
data
```

Out[4]:

	PassengerId	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare
0	892	3	Kelly, Mr. James	male	34.5	0	0	330911	7.8292
1	893	3	Wilkes, Mrs. James (Ellen Needs)	female	47.0	1	0	363272	7.0000
2	894	2	Myles, Mr. Thomas Francis	male	62.0	0	0	240276	9.6875
3	895	3	Wirz, Mr. Albert	male	27.0	0	0	315154	8.6625
4	896	3	Hirvonen, Mrs. Alexander (Helga E Lindqvist)	female	22.0	1	1	3101298	12.2875
...	...	...	...	...	...	...	...	...	...
413	1305	3	Spector, Mr. Woolf	male	NaN	0	0	A.5. 3236	8.0500
414	1306	1	Oliva y Ocana, Dona. Fermina	female	39.0	0	0	PC 17758	108.9000
415	1307	3	Saether, Mr. Simon Sivertsen	male	38.5	0	0	SOTON/O.Q. 3101262	7.2500
416	1308	3	Ware, Mr. Frederick	male	NaN	0	0	359309	8.0500
417	1309	3	Peter, Master. Michael J	male	NaN	1	1	2668	22.3583

418 rows × 11 columns

In [5]:
```
data.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]:
```
data.isnull().sum()
```

Out[7]:
```
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 [10]:
```
data['Age'].fillna(data['Age'].median(), inplace=True)
data['Fare'].fillna(data['Fare'].median(), inplace=True)
data.dropna(subset=["Embarked"],inplace=True)
data.drop(columns=['Cabin'], inplace=True)
```

```
C:\Users\ADMIN\AppData\Local\Temp\ipykernel_17432\202506673.py:1: FutureWarning:
A value is trying to be set on a copy of a DataFrame or Series through chained as
signment using an inplace method.
The behavior will change in pandas 3.0. This inplace method will never work becau
se the intermediate object on which we are setting values always behaves as a cop
y.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.meth
od({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to pe
rform the operation inplace on the original object.


  data['Age'].fillna(data['Age'].median(), inplace=True)
C:\Users\ADMIN\AppData\Local\Temp\ipykernel_17432\202506673.py:2: FutureWarning:
A value is trying to be set on a copy of a DataFrame or Series through chained as
signment using an inplace method.
The behavior will change in pandas 3.0. This inplace method will never work becau
se the intermediate object on which we are setting values always behaves as a cop
y.

For example, when doing 'df[col].method(value, inplace=True)', try using 'df.meth
od({col: value}, inplace=True)' or df[col] = df[col].method(value) instead, to pe
rform the operation inplace on the original object.


  data['Fare'].fillna(data['Fare'].median(), inplace=True)
```

```
---------------------------------------------------------------------------
KeyError                                  Traceback (most recent call last)
Cell In[10], line 4
      2 data['Fare'].fillna(data['Fare'].median(), inplace=True)
      3 data.dropna(subset=["Embarked"],inplace=True)
----> 4 data.drop(columns=['Cabin'], inplace=True)

File ~\anaconda3\Lib\site-packages\pandas\core\frame.py:5581, in DataFrame.drop(s
elf, labels, axis, index, columns, level, inplace, errors)
   5433 def drop(
   5434     self,
   5435     labels: IndexLabel | None = None,
   (...)
   5442     errors: IgnoreRaise = "raise",
   5443 ) -> DataFrame | None:
   5444     """
   5445     Drop specified labels from rows or columns.
   5446
   (...)
   5579             weight  1.0     0.8
   5580     """
-> 5581     return super().drop(
   5582         labels=labels,
   5583         axis=axis,
   5584         index=index,
   5585         columns=columns,
   5586         level=level,
   5587         inplace=inplace,
   5588         errors=errors,
   5589     )

File ~\anaconda3\Lib\site-packages\pandas\core\generic.py:4788, in NDFrame.drop(s
elf, labels, axis, index, columns, level, inplace, errors)
   4786 for axis, labels in axes.items():
   4787     if labels is not None:
-> 4788         obj = obj._drop_axis(labels, axis, level=level, errors=errors)
   4790 if inplace:
   4791     self._update_inplace(obj)

File ~\anaconda3\Lib\site-packages\pandas\core\generic.py:4830, in NDFrame._drop_
axis(self, labels, axis, level, errors, only_slice)
   4828         new_axis = axis.drop(labels, level=level, errors=errors)
   4829     else:
-> 4830         new_axis = axis.drop(labels, errors=errors)
   4831     indexer = axis.get_indexer(new_axis)
   4833 # Case for non-unique axis
   4834 else:

File ~\anaconda3\Lib\site-packages\pandas\core\indexes\base.py:7070, in Index.dro
p(self, labels, errors)
   7068 if mask.any():
   7069     if errors != "ignore":
-> 7070         raise KeyError(f"{labels[mask].tolist()} not found in axis")
   7071     indexer = indexer[~mask]
   7072 return self.delete(indexer)

KeyError: "['Cabin'] not found in axis"
```

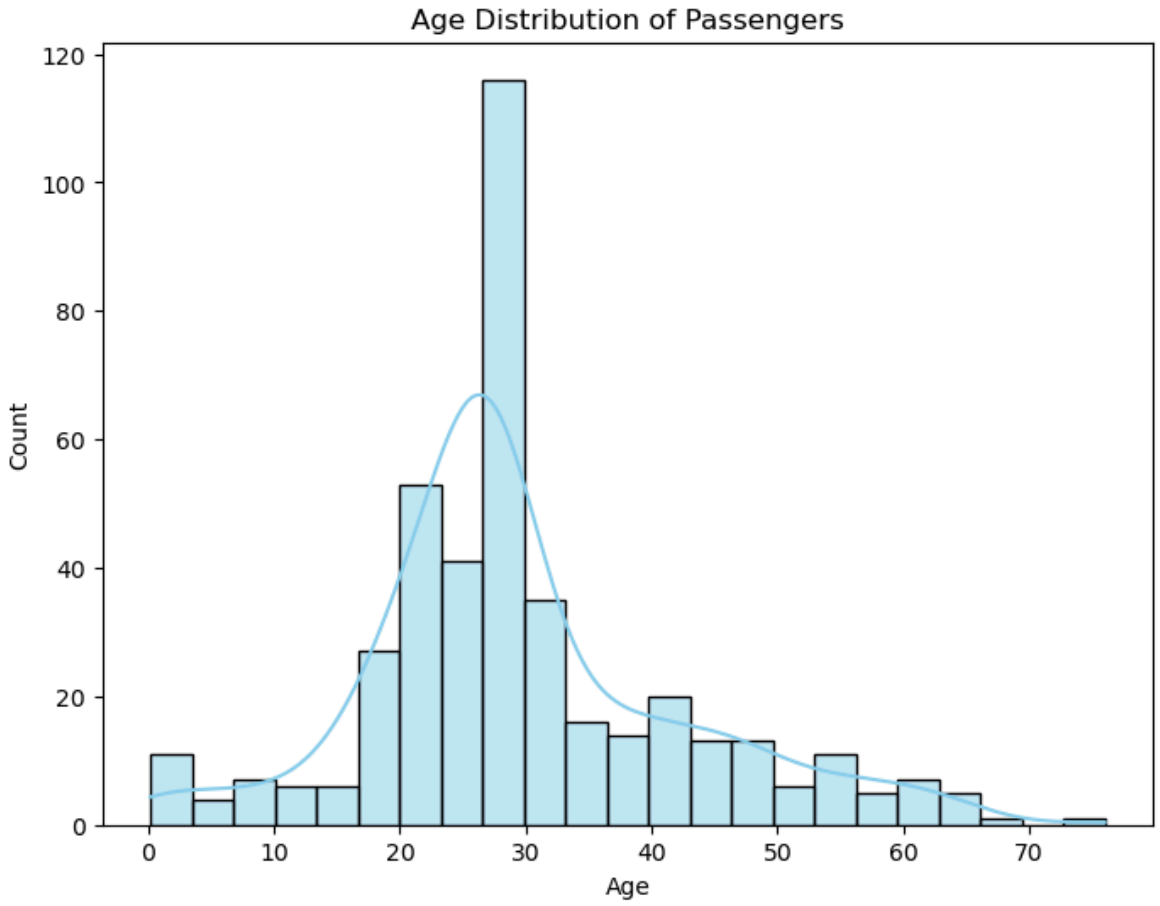
In [11]:
```
data.isnull().sum()
```

Out[11]:
```
PassengerId    0
Pclass         0
Name           0
Sex            0
Age            0
SibSp          0
Parch          0
Ticket         0
Fare           0
Embarked       0
dtype: int64
```

In [13]:
```
data.duplicated().sum()
```

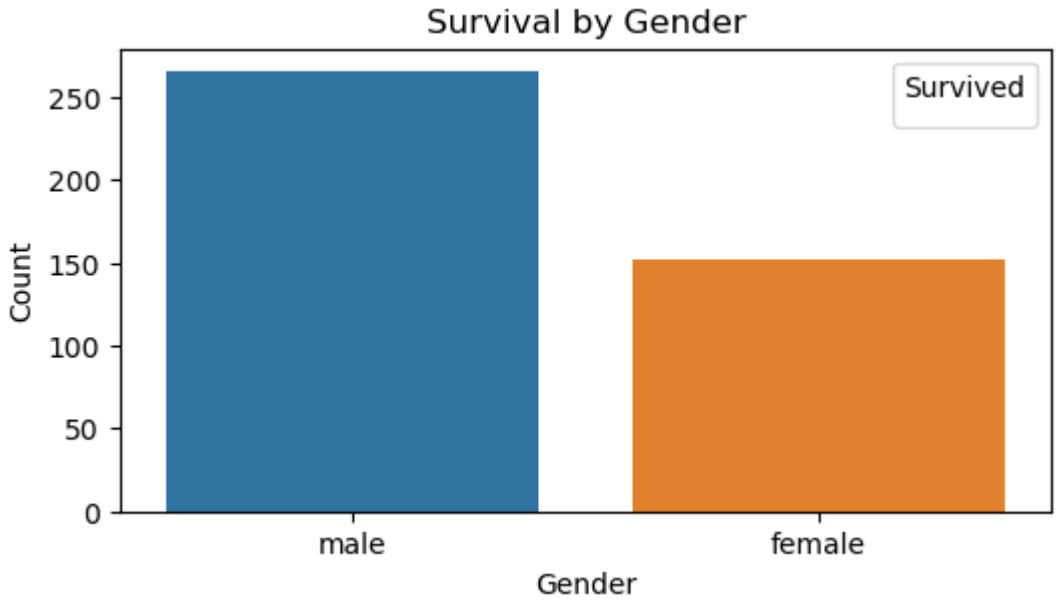
Out[13]:
```
np.int64(0)
```

In [16]:
```
plt.figure(figsize=(8,6))
sns.histplot(data['Age'], kde=True, color='skyblue')
plt.title("Age Distribution of Passengers")
plt.show()
```

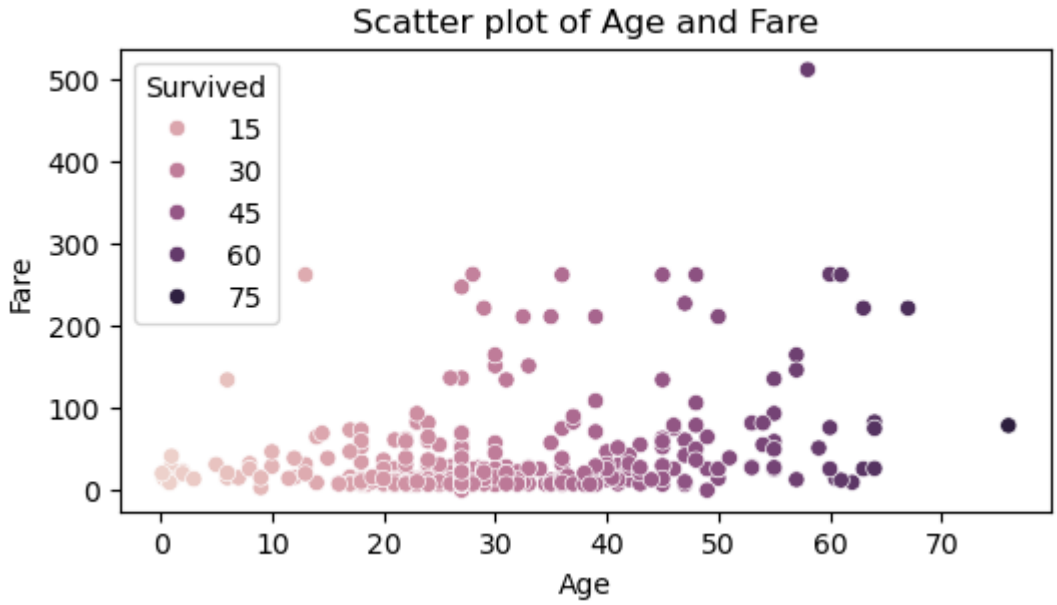


In [18]:
```
plt.figure(figsize=(6,3))
sns.countplot(data=data,x="Sex",hue="Sex")
plt.title("Survival by Gender")
plt.xlabel("Gender")
plt.ylabel("Count")
plt.legend(title="Survived",loc="upper right")
plt.show()
```

```
C:\Users\ADMIN\AppData\Local\Temp\ipykernel_17432\1338631981.py:6: UserWarning: N
o artists with labels found to put in legend.  Note that artists whose label star
t with an underscore are ignored when legend() is called with no argument.
  plt.legend(title="Survived",loc="upper right")
```



In [19]:
```
plt.figure(figsize=(6,3))
sns.scatterplot(data=data,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()
```



In [ ]: