GUDIVADA JAYANTH

21BAI1853

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

```
data=pd.read_csv('Titanic-Dataset.csv')
data.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	F
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2
1	2	1	1	Cumings, Mrs. John Bradley (Florence	female	38.0	1	0	PC 17599	71.2

```
data.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
```

```
data.describe()
```

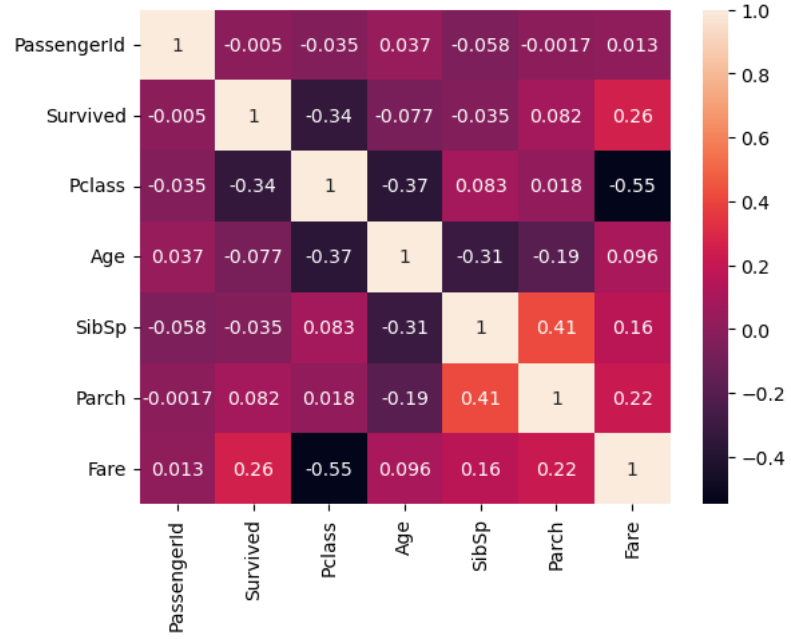
	PassengerId	Survived	Pclass	Age	SibSp	Parch	
count	891.000000	891.000000	891.000000	714.000000	891.000000	891.000000	891.0
mean	446.000000	0.383838	2.308642	29.699118	0.523008	0.381594	32.2
std	257.353842	0.486592	0.836071	14.526497	1.102743	0.806057	49.6
min	1.000000	0.000000	1.000000	0.420000	0.000000	0.000000	0.0
25%	223.500000	0.000000	2.000000	20.125000	0.000000	0.000000	7.9
50%	446.000000	0.000000	3.000000	28.000000	0.000000	0.000000	14.4
75%	668.500000	1.000000	3.000000	38.000000	1.000000	0.000000	31.0
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.000000	512.3

```
corr=data.corr()
corr
```

	PassengerId	Survived	Pclass	Age	SibSp	Parch	F
PassengerId	1.000000	-0.005007	-0.035144	0.036847	-0.057527	-0.001652	0.012

```
sns.heatmap(corr,annot=True)
```

```
<AxesSubplot:>
```




```
data.Cabin.value_counts()
```

```
B96 B98        4
G6             4
C23 C25 C27    4
C22 C26        3
F33            3
              ..
E34            1
C7             1
C54            1
E36            1
C148           1
Name: Cabin, Length: 147, dtype: int64
```

```
data.Embarked.value_counts()
```

```
S    644
C    168
Q     77
Name: Embarked, dtype: int64
```

```
data.Parch.value_counts()
```

```
0    678
1    118
2     80
5      5
3      5
4      4
6      1
Name: Parch, dtype: int64
```

```
data.isnull().any()
```

```
PassengerId    False
Survived       False
Pclass         False
Name           False
Sex            False
Age             True
SibSp          False
Parch          False
Ticket         False
Fare           False
Cabin           True
```

```
Embarked        True
dtype: bool
```

```
data.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
```

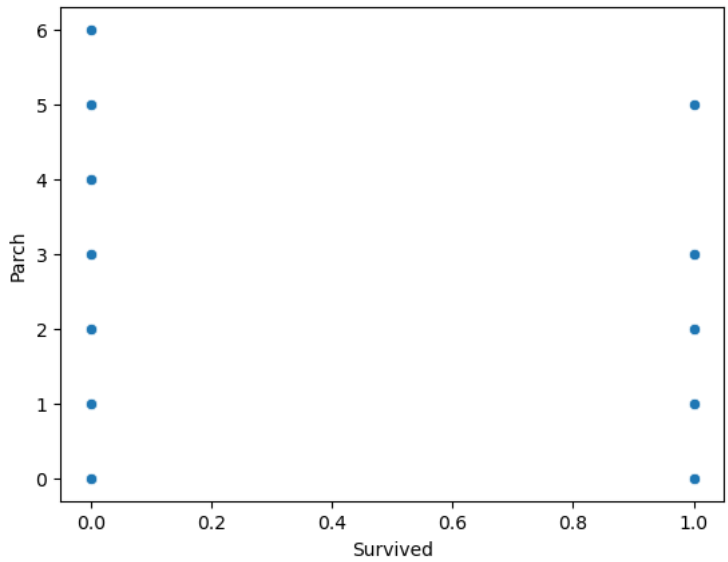
```
data["Age"].fillna(data["Age"].mean(),inplace=True)
data["Cabin"].fillna(data["Cabin"].mode()[0],inplace=True)
data["Embarked"].fillna(data["Embarked"].mode()[0],inplace=True)
```

```
data.isnull().sum()#I removed all null values
```

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

```
sns.scatterplot(x=data["Survived"],y=data["Parch"])
```

```
<AxesSubplot:xlabel='Survived', ylabel='Parch'>
```

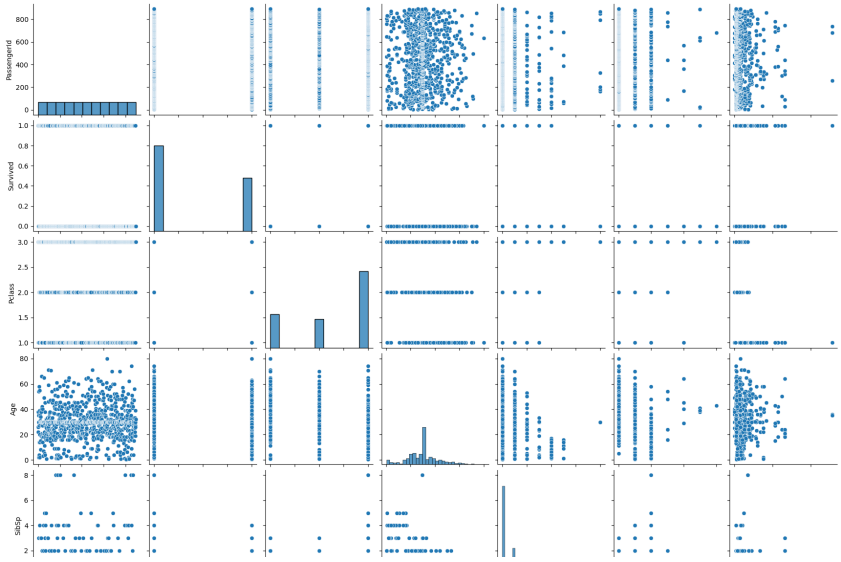



```
sns.scatterplot(x=data["Survived"],y=data["Fare"])
```

```
<AxesSubplot:xlabel='Survived', ylabel='Fare'>
```


```
sns.pairplot(data)
```

```
<seaborn.axisgrid.PairGrid at 0x2064cd352e0>
```




```
from sklearn.preprocessing import LabelEncoder
le=LabelEncoder()
```


```
data["Sex"]=le.fit_transform(data["Sex"])
```

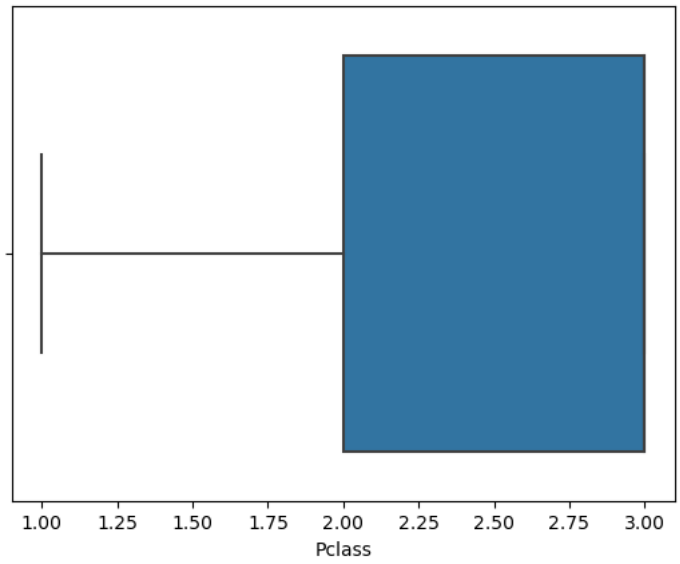

```
data["Embarked"]=le.fit_transform(data["Embarked"])
```

```
data.head()
```

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	F
0	1	0	3	Braund, Mr. Owen Harris	1	22.0	1	0	A/5 21171	7.2
1	2	1	1	Cumings, Mrs. John Bradley (Florence	0	38.0	1	0	PC 17599	71.2

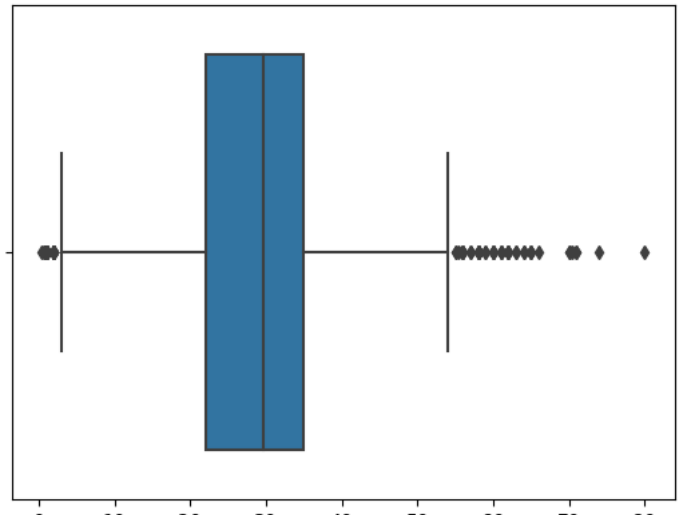
```
sns.boxplot(data['Pclass'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Pclass'>
```



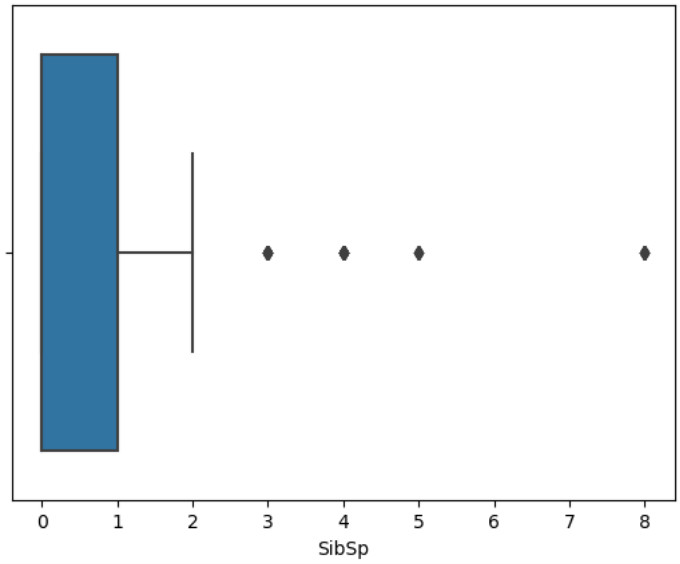

```
sns.boxplot(data['Age'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Age'>
```



```
sns.boxplot(data['SibSp'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='SibSp'>
```

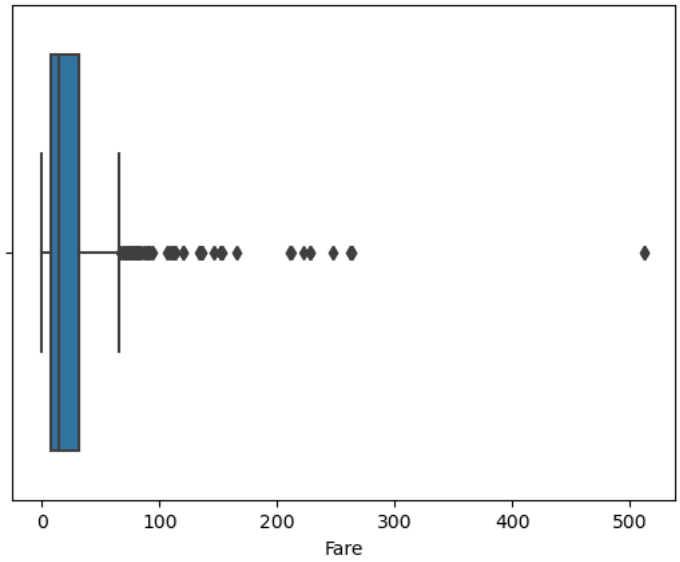



```
sns.boxplot(data['Parch'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
```

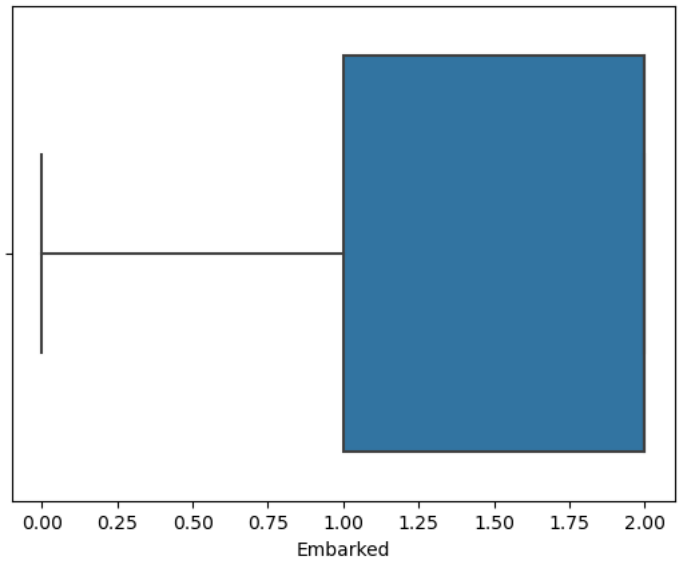
```
sns.boxplot(data['Fare'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Fare'>
```




```
sns.boxplot(data['Embarked'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Embarked'>
```




```
q1=data.Age.quantile(0.25)
q3=data.Age.quantile(0.75)
print(q1)
print(q3)
```

```
22.0
35.0
```

```
iqr=q3-q1
iqr
```

```
13.0
```

```
upperlimit = q3+1.5*iqr
upperlimit
```

```
54.5
```

```
lowerlimit=q1-1.5*iqr
lowerlimit
```

```
2.5
```

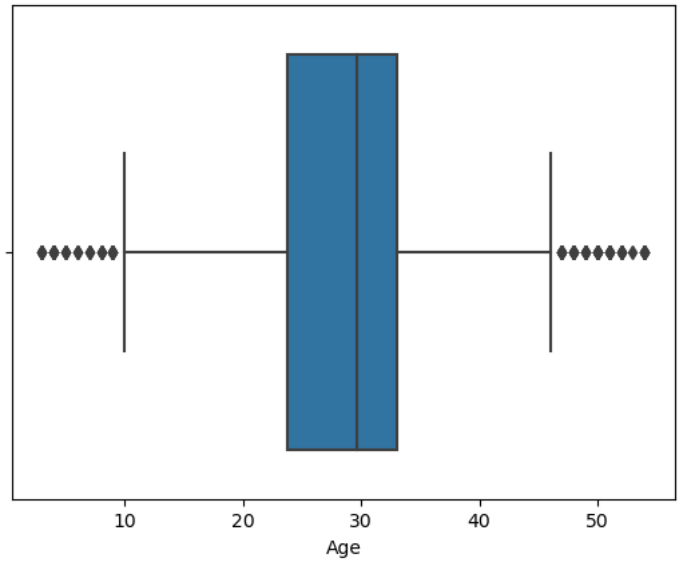
```
data.median()
```

```
C:\Users\harsh\AppData\Local\Temp\ipykernel_11488\4184645713.py:1: FutureWarning: Dropping of nuisance columns in DataFrame reducti
  data.median()
PassengerId    446.000000
Survived         0.000000
Pclass           3.000000
Sex              1.000000
Age             29.699118
SibSp            0.000000
Parch            0.000000
Fare            14.454200
Embarked         2.000000
dtype: float64
```

```
data['Age']=np.where(data['Age']>upperlimit,29.699118,data['Age'])
data['Age'] = np.where(data['Age'] < lowerlimit,29.699118, data['Age'])
```

```
sns.boxplot(data['Age'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Age'>
```




```
q1=data.SibSp.quantile(0.25)
q3=data.SibSp.quantile(0.75)
print(q1)
print(q3)
```

```
0.0
1.0
```

```
iqr=q3-q1
iqr
```

```
1.0
```

```
upperlimit = q3+1.5*iqr
upperlimit
```

```
2.5
```

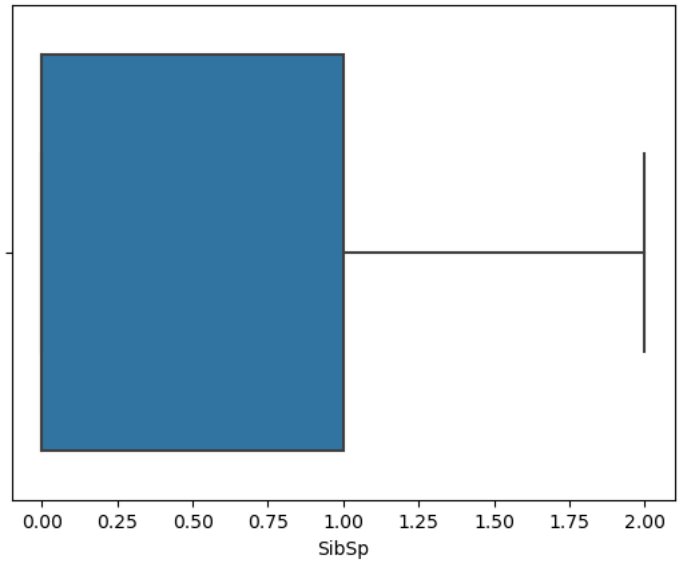
```
lowerlimit=q1-1.5*iqr
lowerlimit
```

```
-1.5
```

```
data['SibSp']=np.where(data['SibSp']>upperlimit,0.000000,data['SibSp'])
```

```
sns.boxplot(data['SibSp'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='SibSp'>
```




```
q1=data.Parch.quantile(0.25)
q3=data.Parch.quantile(0.75)
print(q1)
print(q3)
```

```
0.0
0.0
```

```
iqr=q3-q1
iqr
```

```
0.0
```

```
upperlimit = q3+1.5*iqr
upperlimit
```

```
0.0
```

```
lowerlimit=q1-1.5*iqr
lowerlimit
```

```
0.0
```

```
data['Parch']=np.where(data['Parch']>upperlimit,0.000000,data['Parch'])
```

```
sns.boxplot(data['Parch'])
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Parch'>
```

```
q1=data.Fare.quantile(0.25)
q3=data.Fare.quantile(0.75)
print(q1)
print(q3)
```

```
7.8958
30.0
```

```
iqr=q3-q1
iqr
```

```
22.1042
```

```
upperlimit = q3+1.5*iqr
upperlimit
```

```
63.1563
```

```
lowerlimit=q1-1.5*iqr
lowerlimit
```

```
-25.2605
```

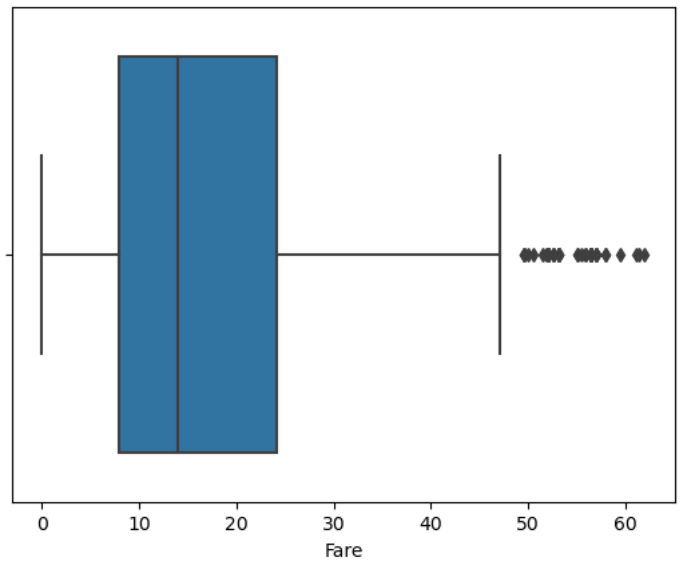
```
data.median()
```

```
C:\Users\harsh\AppData\Local\Temp\ipykernel_11488\4184645713.py:1: FutureWarning: Dropping of nuisance columns in DataFrame reducti
  data.median()
PassengerId    447.500000
Survived         0.000000
Pclass           3.000000
Sex              1.000000
Age             29.699118
SibSp            0.000000
Parch            0.000000
Fare            14.054150
Embarked         2.000000
dtype: float64
```

```
data['Fare']=np.where(data['Fare']>upperlimit,14.054150,data['Fare'])
```

```
sns.boxplot(data.Fare)
```

```
C:\Users\harsh\anaconda3\lib\site-packages\seaborn\_decorators.py:36: FutureWarnin
  warnings.warn(
<AxesSubplot:xlabel='Fare'>
```



```
y=data["Survived"]
```

```
X=data.drop(columns=["Name","PassengerId","Survived","Ticket","Cabin"],axis=1)
```

```
y.head()
```

```
0    0
1    1
2    1
3    1
4    0
Name: Survived, dtype: int64
```

```
from sklearn.preprocessing import MinMaxScaler
ms=MinMaxScaler()
```

```
X_Scaled=ms.fit_transform(X)
```

```
X_Scaled=pd.DataFrame(ms.fit_transform(X),columns=X.columns)
```

```
X_Scaled.head()
```

	Pclass	Sex	Age	SibSp	Parch	Fare	Embarked
0	1.0	1.0	0.372549	0.5	0.0	0.116975	1.0
1	0.0	0.0	0.686275	0.5	0.0	0.226756	0.0
2	1.0	0.0	0.450980	0.0	0.0	0.127865	1.0
3	0.0	0.0	0.627451	0.5	0.0	0.856739	1.0
4	1.0	1.0	0.627451	0.0	0.0	0.129882	1.0

```
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test = train_test_split(X_Scaled,y,test_size =0.2,random_state =0)
```

```
print(x_train.shape,x_test.shape,y_train.shape,y_test.shape)
```

```
(699, 7) (175, 7) (699,) (175,)
```