In [1]:
```
#IMPORTING LIBRARIES
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
import warnings
warnings.filterwarnings("ignore")
```

...

In [2]:
```
df=pd.read_csv("titanic_train.csv")
```

In [3]:
```
df.head()
```

Out[3]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Ca
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	

In [4]:
```
df.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
```

EDA

In [5]:
```
df.drop("Cabin",axis=1,inplace=True)
```

In [6]:
```
amean=df["Age"].mean()
df["Age"].fillna(amean,inplace=True)
```

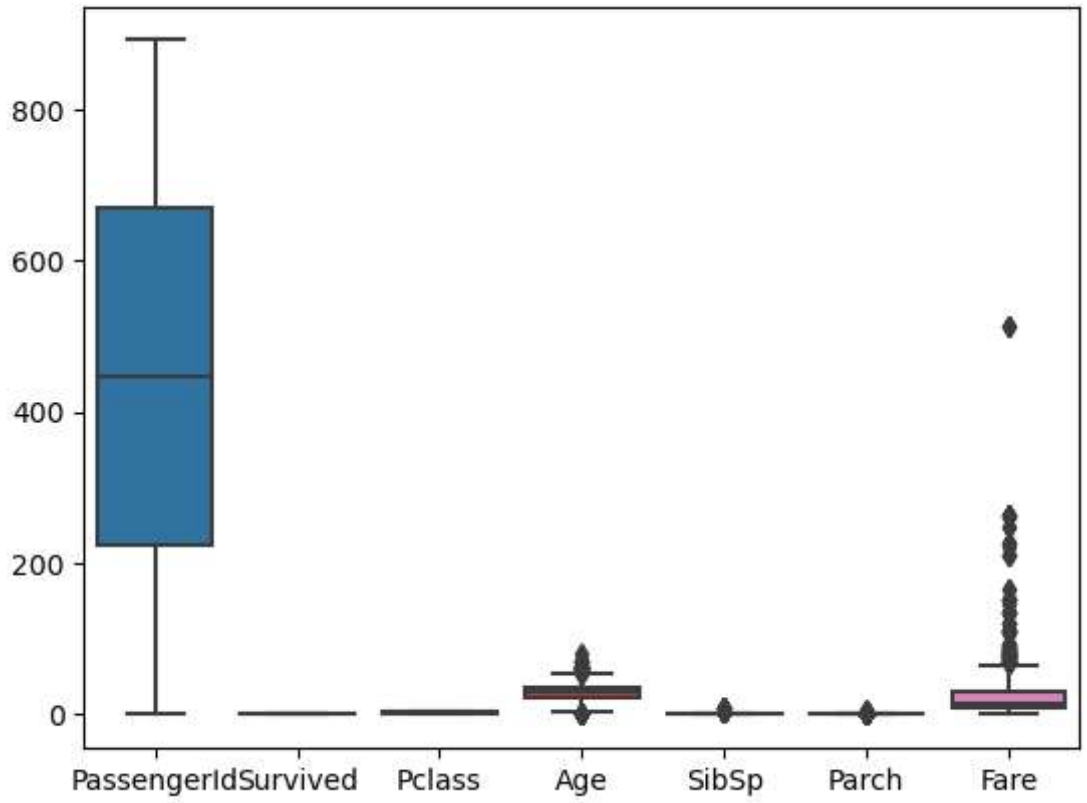
In [7]:
```
df.describe()
```

Out[7]:

	PassengerId	Survived	Pclass	Age	SibSp	Parch	Fare
count	891.000000	891.000000	891.000000	891.000000	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	13.002015	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	22.000000	0.000000	0.000000	7.910400
50%	446.000000	0.000000	3.000000	29.699118	0.000000	0.000000	14.454200
75%	668.500000	1.000000	3.000000	35.000000	1.000000	0.000000	31.000000
max	891.000000	1.000000	3.000000	80.000000	8.000000	6.000000	512.329200

In [8]:
```
sns.boxplot(data = df)
```

Out[8]: <AxesSubplot:>



In [9]:
```
df.drop(["Name","PassengerId","Ticket"],axis=1,inplace=True)
```

In [10]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 891 entries, 0 to 890
Data columns (total 8 columns):
 #   Column    Non-Null Count  Dtype
---  ------    --------------  -----
 0   Survived  891 non-null    int64
 1   Pclass    891 non-null    int64
 2   Sex       891 non-null    object
 3   Age       891 non-null    float64
 4   SibSp     891 non-null    int64
 5   Parch     891 non-null    int64
 6   Fare      891 non-null    float64
 7   Embarked  889 non-null    object
dtypes: float64(2), int64(4), object(2)
memory usage: 55.8+ KB
```

In [11]:
```
from sklearn.preprocessing import OrdinalEncoder as oe
```

In [12]:
```
df[["Sex"]]=oe().fit_transform(df[["Sex"]])
df[["Embarked"]]=oe().fit_transform(df[["Embarked"]])
```

In [13]:
```
df.dropna(inplace = True)
```

In [14]:
```
df
```

Out[14]:

	Survived	Pclass	Sex	Age	SibSp	Parch	Fare	Embarked
0	0	3	1.0	22.000000	1	0	7.2500	2.0
1	1	1	0.0	38.000000	1	0	71.2833	0.0
2	1	3	0.0	26.000000	0	0	7.9250	2.0
3	1	1	0.0	35.000000	1	0	53.1000	2.0
4	0	3	1.0	35.000000	0	0	8.0500	2.0
...	...	...	...	...	...	...	...	...
886	0	2	1.0	27.000000	0	0	13.0000	2.0
887	1	1	0.0	19.000000	0	0	30.0000	2.0
888	0	3	0.0	29.699118	1	2	23.4500	2.0
889	1	1	1.0	26.000000	0	0	30.0000	0.0
890	0	3	1.0	32.000000	0	0	7.7500	1.0

889 rows × 8 columns

SPLITTING THE DATA

In [15]:
```
target=df["Survived"]
target
```

Out[15]:
```
0      0
1      1
2      1
3      1
4      0
      ..
886    0
887    1
888    0
889    1
890    0
Name: Survived, Length: 889, dtype: int64
```

In [16]:
```
features=df.iloc[:,1:]
features
```

Out[16]:

	Pclass	Sex	Age	SibSp	Parch	Fare	Embarked
0	3	1.0	22.000000	1	0	7.2500	2.0
1	1	0.0	38.000000	1	0	71.2833	0.0
2	3	0.0	26.000000	0	0	7.9250	2.0
3	1	0.0	35.000000	1	0	53.1000	2.0
4	3	1.0	35.000000	0	0	8.0500	2.0
...	...	...	...	...	...	...	...
886	2	1.0	27.000000	0	0	13.0000	2.0
887	1	0.0	19.000000	0	0	30.0000	2.0
888	3	0.0	29.699118	1	2	23.4500	2.0
889	1	1.0	26.000000	0	0	30.0000	0.0
890	3	1.0	32.000000	0	0	7.7500	1.0

889 rows × 7 columns

In [17]:
```
from sklearn.model_selection import train_test_split
xtrain,xtest,ytrain,ytest = train_test_split(features,target,test_size=0.30,ra
```

In [18]:
```
xtrain
```

Out[18]:

	Pclass	Sex	Age	SibSp	Parch	Fare	Embarked
115	3	1.0	21.000000	0	0	7.9250	2.0
874	2	0.0	28.000000	1	0	24.0000	0.0
77	3	1.0	29.699118	0	0	8.0500	2.0
876	3	1.0	20.000000	0	0	9.8458	2.0
682	3	1.0	20.000000	0	0	9.2250	2.0
...	...	...	...	...	...	...	...
716	1	0.0	38.000000	0	0	227.5250	0.0
768	3	1.0	29.699118	1	0	24.1500	1.0
73	3	1.0	26.000000	1	0	14.4542	0.0
236	2	1.0	44.000000	1	0	26.0000	2.0
37	3	1.0	21.000000	0	0	8.0500	2.0

622 rows × 7 columns

#APPLYING MODEL

In [19]:
```
from sklearn.linear_model import LogisticRegression
```

In [20]:
```
lr=LogisticRegression()
lr.fit(xtrain,ytrain)
```

Out[20]:
```
LogisticRegression()
```

In [21]:
```
predict = lr.predict(xtest)
```

CONFUSION MATRIX

In [22]:
```
from sklearn.metrics import confusion_matrix
```

In [23]:
```
pd.DataFrame(confusion_matrix(ytest,predict),columns=['Predicted No','Predicte
```

Out[23]:

	Predicted No	Predicted Yes
Actual No	144	22
Actual Yes	22	79

CLASSIFICATION REPORT

In [24]:
```
from sklearn.metrics import classification_report
print(classification_report(ytest,predict))
```

```
              precision    recall  f1-score   support

           0       0.87      0.87      0.87       166
           1       0.78      0.78      0.78       101

    accuracy                           0.84       267
   macro avg       0.82      0.82      0.82       267
weighted avg       0.84      0.84      0.84       267
```

In [ ]:

In [ ]: