In [2]:
```
#To ignore warnings
import warnings
warnings.filterwarnings("ignore")
import pandas as r
d=r.read_csv("/home/placement/Downloads/Titanic Dataset.csv")
```

In [3]:
```
#This command is to describe the data present in the DataFrame in statistically
d.describe()
```

Out[3]:

	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 [4]:
```
d
```

Out[4]:

	PassengerId	Survived	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	1	0	3	Braund, Mr. Owen Harris	male	22.0	1	0	A/5 21171	7.2500	NaN	S
1	2	1	1	Cumings, Mrs. John Bradley (Florence Briggs Th...	female	38.0	1	0	PC 17599	71.2833	C85	C
2	3	1	3	Heikkinen, Miss. Laina	female	26.0	0	0	STON/O2. 3101282	7.9250	NaN	S
3	4	1	1	Futrelle, Mrs. Jacques Heath (Lily May Peel)	female	35.0	1	0	113803	53.1000	C123	S
4	5	0	3	Allen, Mr. William Henry	male	35.0	0	0	373450	8.0500	NaN	S
...	...	...	...	...	...	...	...	...	...	...	...	...
886	887	0	2	Montvila, Rev. Juozas	male	27.0	0	0	211536	13.0000	NaN	S
887	888	1	1	Graham, Miss. Margaret Edith	female	19.0	0	0	112053	30.0000	B42	S
888	889	0	3	Johnston, Miss. Catherine Helen "Carrie"	female	NaN	1	2	W./C. 6607	23.4500	NaN	S
889	890	1	1	Behr, Mr. Karl Howell	male	26.0	0	0	111369	30.0000	C148	C
890	891	0	3	Dooley, Mr. Patrick	male	32.0	0	0	370376	7.7500	NaN	Q

891 rows × 12 columns

In [5]:
```
#This command is to sum the NaN values
d.isna().sum()
```

Out[5]:
```
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
```

In [6]:
```
#This command is to find unique elements or values in column
d['Pclass'].unique()
```

Out[6]:
```
array([3, 1, 2])
```

In [7]:
```
d['Survived'].unique()
```

Out[7]:
```
array([0, 1])
```

In [8]:
```
d['SibSp'].unique()
```

Out[8]:
```
array([1, 0, 3, 4, 2, 5, 8])
```

In [9]:
```
d['Parch'].unique()
```

Out[9]:
```
array([0, 1, 2, 5, 3, 4, 6])
```

In [10]:
```
d['Age'].unique()
```

Out[10]:
```
array([22.  , 38.  , 26.  , 35.  ,   nan, 54.  ,  2.  , 27.  , 14.  ,
        4.  , 58.  , 20.  , 39.  , 55.  , 31.  , 34.  , 15.  , 28.  ,
        8.  , 19.  , 40.  , 66.  , 42.  , 21.  , 18.  ,  3.  ,  7.  ,
       49.  , 29.  , 65.  , 28.5 ,  5.  , 11.  , 45.  , 17.  , 32.  ,
       16.  , 25.  ,  0.83, 30.  , 33.  , 23.  , 24.  , 46.  , 59.  ,
       71.  , 37.  , 47.  , 14.5 , 70.5 , 32.5 , 12.  ,  9.  , 36.5 ,
       51.  , 55.5 , 40.5 , 44.  ,  1.  , 61.  , 56.  , 50.  , 36.  ,
       45.5 , 20.5 , 62.  , 41.  , 52.  , 63.  , 23.5 ,  0.92, 43.  ,
       60.  , 10.  , 64.  , 13.  , 48.  ,  0.75, 53.  , 57.  , 80.  ,
       70.  , 24.5 ,  6.  ,  0.67, 30.5 ,  0.42, 34.5 , 74.  ])
```

In [11]:
```
d['Ticket'].unique()
```

```
'S.O.C. 14879', '2680', '1601', '348123', '349208', '374746',
'248738', '364516', '345767', '345779', '330932', '113059',
'SO/C 14885', '3101278', 'W./C. 6608', 'SOTON/OQ 392086', '343275',
'343276', '347466', 'W.E.P. 5734', 'C.A. 2315', '364500', '374910',
'PC 17754', 'PC 17759', '231919', '244367', '349245', '349215',
'35281', '7540', '3101276', '349207', '343120', '312991', '349249',
'371110', '110465', '2665', '324669', '4136', '2627',
'STON/O 2. 3101294', '370369', 'PC 17558', 'A4. 54510', '27267',
'370372', 'C 17369', '2668', '347061', '349241',
'SOTON/O.Q. 3101307', 'A/5. 3337', '228414', 'C.A. 29178',
'SC/PARIS 2133', '11752', '7534', 'PC 17593', '2678', '347081',
'STON/O2. 3101279', '365222', '231945', 'C.A. 33112', '350043',
'230080', '244310', 'S.O.P. 1166', '113776', 'A.5. 11206',
'A/5. 851', 'Fa 265302', 'PC 17597', '35851', 'SOTON/OQ 392090',
'315037', 'CA. 2343', '371362', 'C.A. 33595', '347068', '315093',
'363291', '113505', 'PC 17318', '111240', 'STON/O 2. 3101280',
'17764', '350404', '4133', 'PC 17595', '250653', 'LINE',
'SC/PARIS 2131', '230136', '315153', '113767', '370365', '111428',
'364849', '349247', '234604', '28424', '350046', 'PC 17610',
'368703', '4579', '370370', '248747', '345770', '3101264', '2628'
```

In [12]:
```
d['Fare'].unique()
```

Out[12]:
```
array([  7.25  ,  71.2833,   7.925 ,  53.1   ,   8.05  ,   8.4583,
        51.8625,  21.075 ,  11.1333,  30.0708,  16.7   ,  26.55  ,
        31.275 ,   7.8542,  16.    ,  29.125 ,  13.    ,  18.    ,
         7.225 ,  26.    ,   8.0292,  35.5   ,  31.3875, 263.    ,
         7.8792,   7.8958,  27.7208, 146.5208,   7.75  ,  10.5   ,
        82.1708,  52.    ,   7.2292,  11.2417,   9.475 ,  21.    ,
        41.5792,  15.5   ,  21.6792,  17.8   ,  39.6875,   7.8   ,
        76.7292,  61.9792,  27.75  ,  46.9   ,  80.    ,  83.475 ,
        27.9   ,  15.2458,   8.1583,   8.6625,  73.5   ,  14.4542,
        56.4958,   7.65  ,  29.    ,  12.475 ,   9.    ,   9.5   ,
         7.7875,  47.1   ,  15.85  ,  34.375 ,  61.175 ,  20.575 ,
        34.6542,  63.3583,  23.    ,  77.2875,   8.6542,   7.775 ,
        24.15  ,   9.825 ,  14.4583, 247.5208,   7.1417,  22.3583,
         6.975 ,   7.05  ,  14.5   ,  15.0458,  26.2833,   9.2167,
        79.2   ,   6.75  ,  11.5   ,  36.75  ,   7.7958,  12.525 ,
        66.6   ,   7.3125,  61.3792,   7.7333,  69.55  ,  16.1   ,
        15.75  ,  20.525 ,  55.    ,  25.925 ,  33.5   ,  30.6958,
        25.4667,  28.7125,   0.    ,  15.05  ,  39.    ,  22.025 ,
        50.    ,   8.4042,   6.4958,  10.4625,  18.7875,  31.    ,
       113.275 ,  27.    ,  76.2917,  90.    ,   9.35  ,  13.5   ,
         7.55  ,  26.25  ,  12.275 ,   7.125 ,  52.5542,  20.2125,
        86.5   , 512.3292,  79.65  , 153.4625, 135.6333,  19.5   ,
        29.7   ,  77.9583,  20.25  ,  78.85  ,  91.0792,  12.875 ,
         8.85  , 151.55  ,  30.5   ,  23.25  ,  12.35  , 110.8833,
       108.9   ,  24.    ,  56.9292,  83.1583, 262.375 ,  14.    ,
       164.8667, 134.5   ,   6.2375,  57.9792,  28.5   , 133.65  ,
        15.9   ,   9.225 ,  35.    ,  75.25  ,  69.3   ,  55.4417,
       211.5   ,   4.0125, 227.525 ,  15.7417,   7.7292,  12.    ,
       120.    ,  12.65  ,  18.75  ,   6.8583,  32.5   ,   7.875 ,
        14.4   ,  55.9   ,   8.1125,  81.8583,  19.2583,  19.9667,
        89.1042,  38.5   ,   7.725 ,  13.7917,   9.8375,   7.0458,
         7.5208,  12.2875,   9.5875,  49.5042,  78.2667,  15.1   ,
         7.6292,  22.525 ,  26.2875,  59.4   ,   7.4958,  34.0208,
        93.5   , 221.7792, 106.425 ,  49.5   ,  71.    ,  13.8625,
         7.8292,  39.6   ,  17.4   ,  51.4792,  26.3875,  30.    ,
        40.125 ,   8.7125,  15.    ,  33.    ,  42.4   ,  15.55  ,
        65.    ,  32.3208,   7.0542,   8.4333,  25.5875,   9.8417,
         8.1375,  10.1708, 211.3375,  57.    ,  13.4167,   7.7417,
         9.4833,   7.7375,   8.3625,  23.45  ,  25.9292,   8.6833,
```

```
       8.5167,   7.8875,  37.0042,   6.45  ,   6.95  ,   8.3   ,
       6.4375,  39.4   ,  14.1083,  13.8583,  50.4958,   5.    ,
       9.8458,  10.5167])
```

In [13]:
```
d['Cabin'].unique()
```

Out[13]:
```
array([nan, 'C85', 'C123', 'E46', 'G6', 'C103', 'D56', 'A6',
       'C23 C25 C27', 'B78', 'D33', 'B30', 'C52', 'B28', 'C83', 'F33',
       'F G73', 'E31', 'A5', 'D10 D12', 'D26', 'C110', 'B58 B60', 'E101',
       'F E69', 'D47', 'B86', 'F2', 'C2', 'E33', 'B19', 'A7', 'C49', 'F4',
       'A32', 'B4', 'B80', 'A31', 'D36', 'D15', 'C93', 'C78', 'D35',
       'C87', 'B77', 'E67', 'B94', 'C125', 'C99', 'C118', 'D7', 'A19',
       'B49', 'D', 'C22 C26', 'C106', 'C65', 'E36', 'C54',
       'B57 B59 B63 B66', 'C7', 'E34', 'C32', 'B18', 'C124', 'C91', 'E40',
       'T', 'C128', 'D37', 'B35', 'E50', 'C82', 'B96 B98', 'E10', 'E44',
       'A34', 'C104', 'C111', 'C92', 'E38', 'D21', 'E12', 'E63', 'A14',
       'B37', 'C30', 'D20', 'B79', 'E25', 'D46', 'B73', 'C95', 'B38',
       'B39', 'B22', 'C86', 'C70', 'A16', 'C101', 'C68', 'A10', 'E68',
       'B41', 'A20', 'D19', 'D50', 'D9', 'A23', 'B50', 'A26', 'D48',
       'E58', 'C126', 'B71', 'B51 B53 B55', 'D49', 'B5', 'B20', 'F G63',
       'C62 C64', 'E24', 'C90', 'C45', 'E8', 'B101', 'D45', 'C46', 'D30',
       'E121', 'D11', 'E77', 'F38', 'B3', 'D6', 'B82 B84', 'D17', 'A36',
       'B102', 'B69', 'E49', 'C47', 'D28', 'E17', 'A24', 'C50', 'B42',
       'C148'], dtype=object)
```

In [14]:
```
d['Embarked'].unique()
```

Out[14]:
```
array(['S', 'C', 'Q', nan], dtype=object)
```

In [15]:
```
#Removing the columns
data1=d.drop(['PassengerId','Cabin','Name','Ticket','SibSp','Parch'],axis=1)
data1
```

Out[15]:

	Survived	Pclass	Sex	Age	Fare	Embarked
0	0	3	male	22.0	7.2500	S
1	1	1	female	38.0	71.2833	C
2	1	3	female	26.0	7.9250	S
3	1	1	female	35.0	53.1000	S
4	0	3	male	35.0	8.0500	S
...	...	...	...	...	...	...
886	0	2	male	27.0	13.0000	S
887	1	1	female	19.0	30.0000	S
888	0	3	female	NaN	23.4500	S
889	1	1	male	26.0	30.0000	C
890	0	3	male	32.0	7.7500	Q

891 rows × 6 columns

In [16]:
```
#This command is to list the columns
list(data1)
```

Out[16]:
```
['Survived', 'Pclass', 'Sex', 'Age', 'Fare', 'Embarked']
```

In [17]:
```
#The command is to repalce a values
data1['Sex']=data1['Sex'].map({'male':1,'female':0})
data1['Pclass'].unique()
```

Out[17]:
```
array([3, 1, 2])
```

In [18]:
```
data1
```

Out[18]:

	Survived	Pclass	Sex	Age	Fare	Embarked
0	0	3	1	22.0	7.2500	S
1	1	1	0	38.0	71.2833	C
2	1	3	0	26.0	7.9250	S
3	1	1	0	35.0	53.1000	S
4	0	3	1	35.0	8.0500	S
...	...	...	...	...	...	...
886	0	2	1	27.0	13.0000	S
887	1	1	0	19.0	30.0000	S
888	0	3	0	NaN	23.4500	S
889	1	1	1	26.0	30.0000	C
890	0	3	1	32.0	7.7500	Q

891 rows × 6 columns

In [19]:
```
#This command is to fill NaN values
data1=data1.fillna(data1.median())
```

In [20]:
```
data1
```

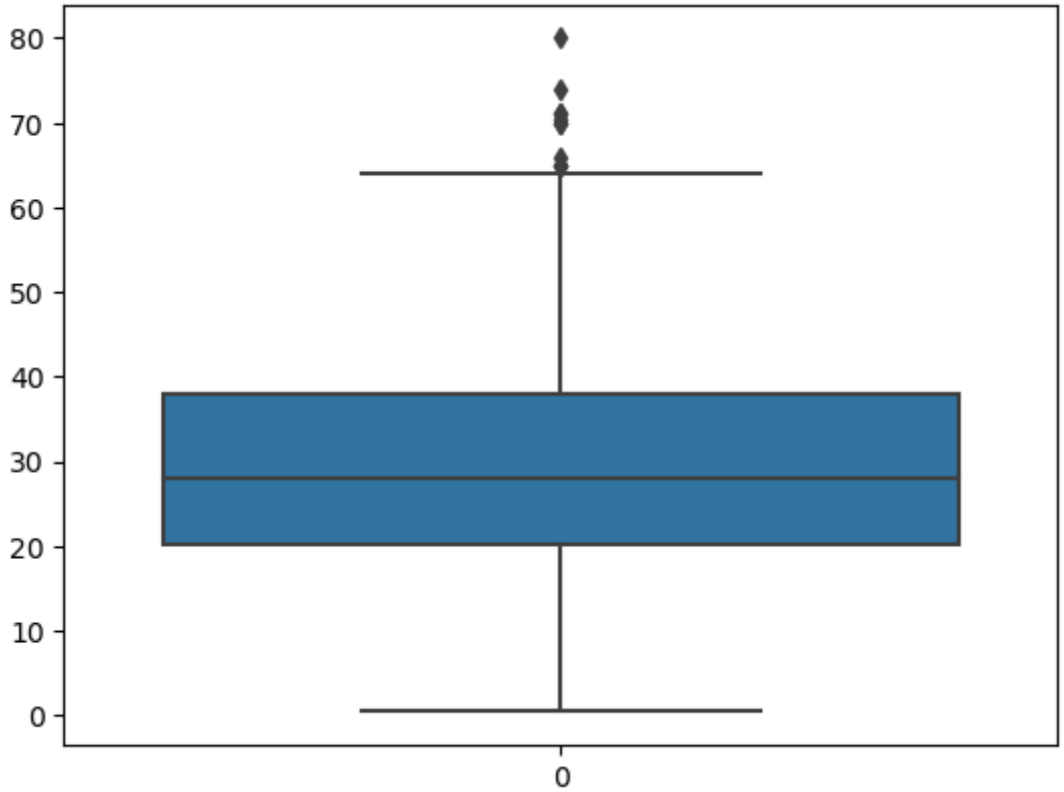
Out[20]:

	Survived	Pclass	Sex	Age	Fare	Embarked
0	0	3	1	22.0	7.2500	S
1	1	1	0	38.0	71.2833	C
2	1	3	0	26.0	7.9250	S
3	1	1	0	35.0	53.1000	S
4	0	3	1	35.0	8.0500	S
...	...	...	...	...	...	...
886	0	2	1	27.0	13.0000	S
887	1	1	0	19.0	30.0000	S
888	0	3	0	28.0	23.4500	S
889	1	1	1	26.0	30.0000	C
890	0	3	1	32.0	7.7500	Q

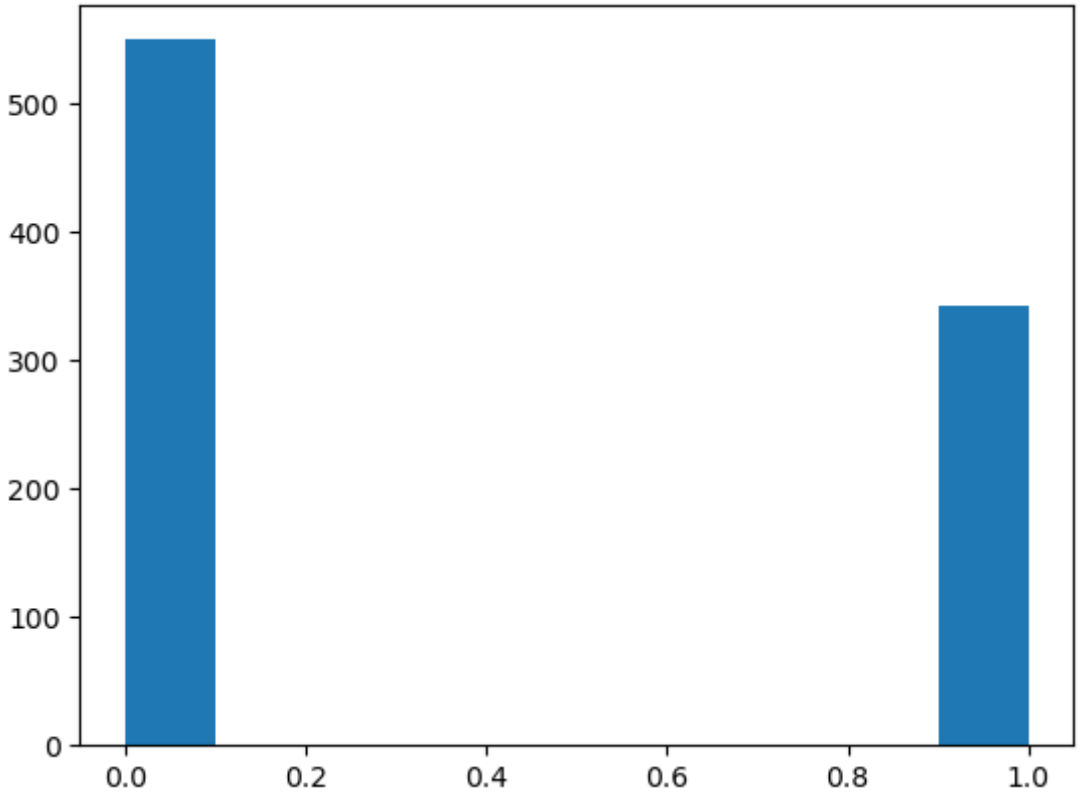
891 rows × 6 columns

In [21]:
```
import seaborn as sns
import matplotlib.pyplot as plt
sns.boxplot(d.Age)
```

Out[21]: <Axes: >

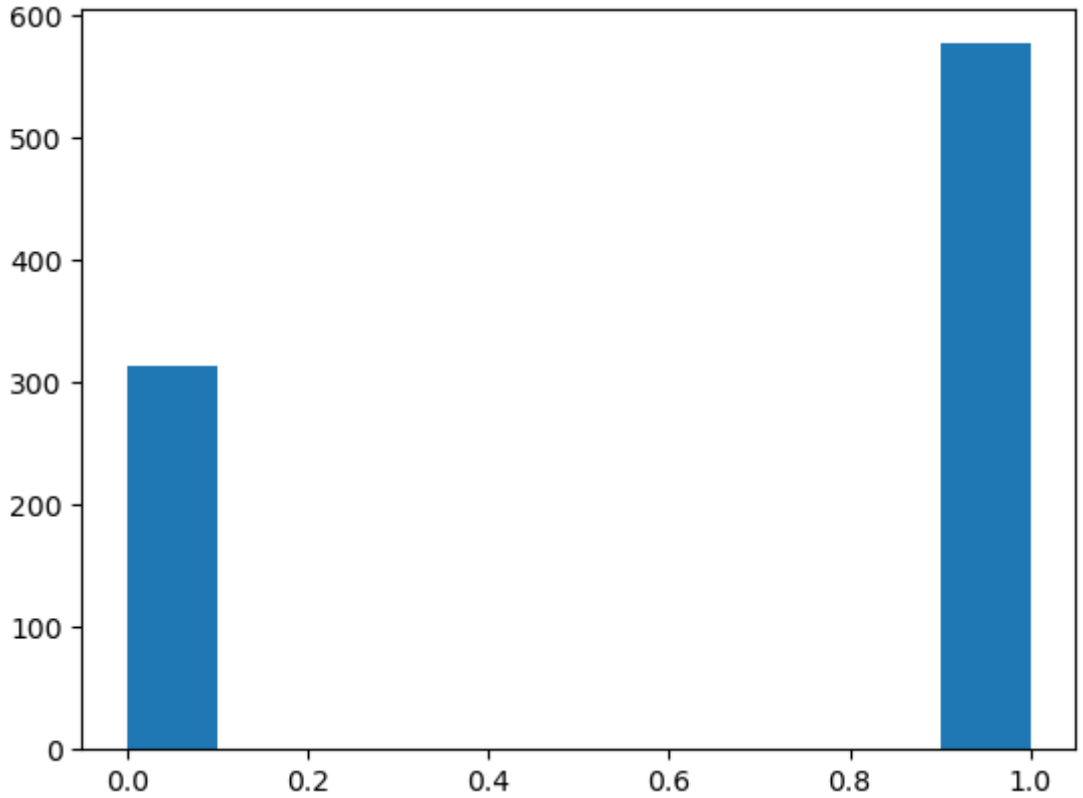


In [22]:
```
plt.hist(data1['Survived'])
plt.show()
```



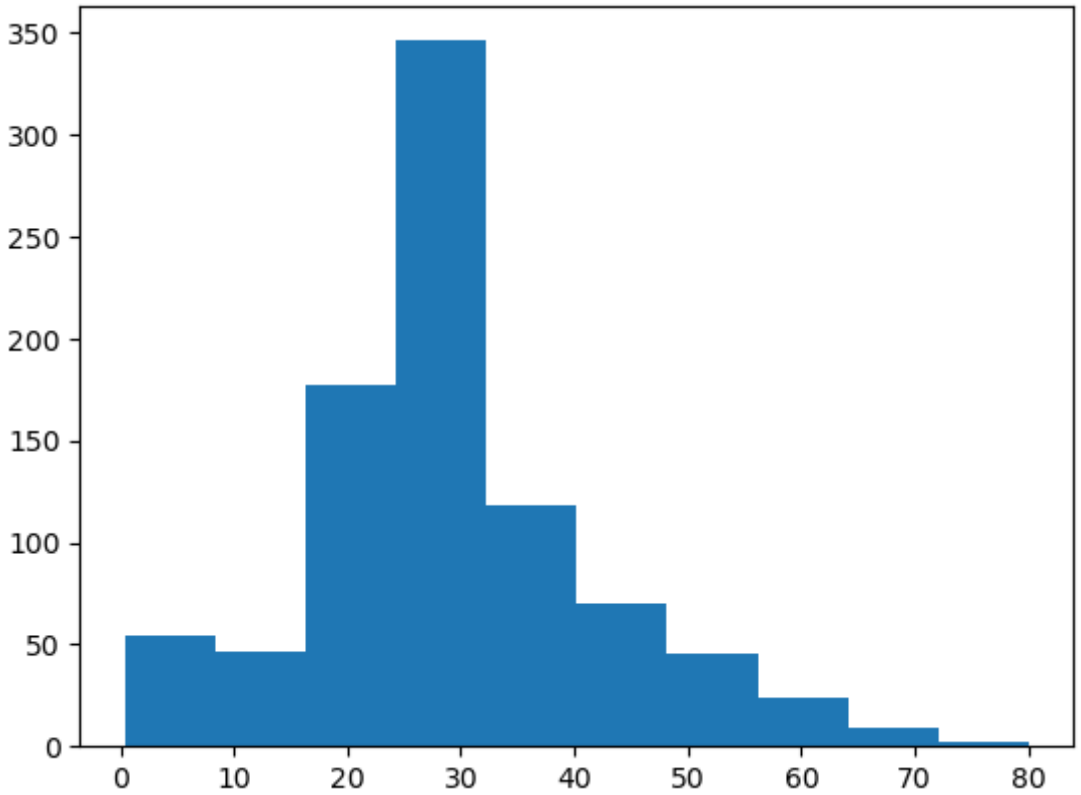
In [23]:
```
plt.hist(data1['Sex'])
```

Out[23]:
```
(array([314.,   0.,   0.,   0.,   0.,   0.,   0.,   0.,   0., 577.]),
 array([0. , 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, 1. ]),
 <BarContainer object of 10 artists>)
```



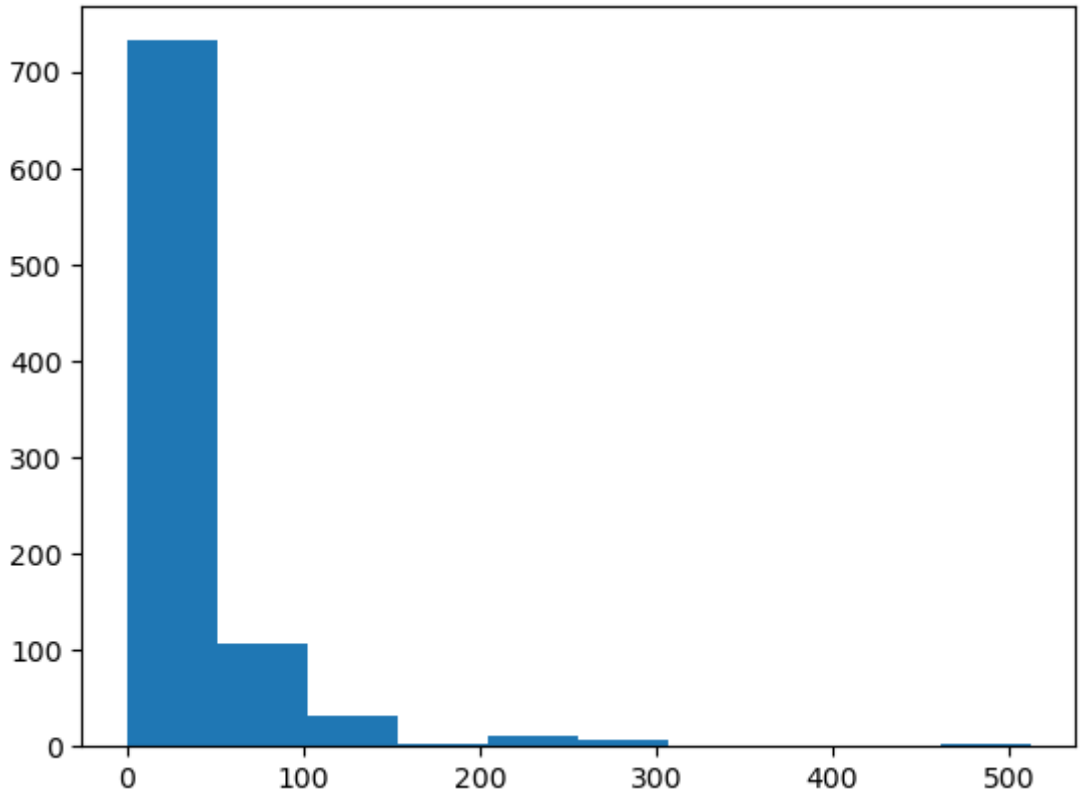
In [24]:
```
[/520plt.hist(data1['Age'])
```

Out[24]:
```
(array([ 54.,  46., 177., 346., 118.,  70.,  45.,  24.,   9.,   2.]),
 array([ 0.42 ,  8.378, 16.336, 24.294, 32.252, 40.21 , 48.168, 56.126,
        64.084, 72.042, 80.   ]),
 <BarContainer object of 10 artists>)
```



In [25]:
```
plt.hist(data1['Fare'])
```

Out[25]:
```
(array([732., 106.,  31.,   2.,  11.,   6.,   0.,   0.,   0.,   3.]),
 array([  0.     ,  51.23292, 102.46584, 153.69876, 204.93168, 256.1646 ,
        307.39752, 358.63044, 409.86336, 461.09628, 512.3292 ]),
 <BarContainer object of 10 artists>)
```



In [26]:
```
data1.isna().sum()
```

Out[26]:
```
Survived    0
Pclass      0
Sex         0
Age         0
Fare        0
Embarked    2
dtype: int64
```

In [27]:
```
data1['Age'].unique()
```

Out[27]:
```
array([22.  , 38.  , 26.  , 35.  , 28.  , 54.  ,  2.  , 27.  , 14.  ,
        4.  , 58.  , 20.  , 39.  , 55.  , 31.  , 34.  , 15.  ,  8.  ,
       19.  , 40.  , 66.  , 42.  , 21.  , 18.  ,  3.  ,  7.  , 49.  ,
       29.  , 65.  , 28.5 ,  5.  , 11.  , 45.  , 17.  , 32.  , 16.  ,
       25.  ,  0.83, 30.  , 33.  , 23.  , 24.  , 46.  , 59.  , 71.  ,
       37.  , 47.  , 14.5 , 70.5 , 32.5 , 12.  ,  9.  , 36.5 , 51.  ,
       55.5 , 40.5 , 44.  ,  1.  , 61.  , 56.  , 50.  , 36.  , 45.5 ,
       20.5 , 62.  , 41.  , 52.  , 63.  , 23.5 ,  0.92, 43.  , 60.  ,
       10.  , 64.  , 13.  , 48.  ,  0.75, 53.  , 57.  , 80.  , 70.  ,
       24.5 ,  6.  ,  0.67, 30.5 ,  0.42, 34.5 , 74.  ])
```

In [28]:
```
data1.groupby(['Age']).count()
```

Out[28]:

Age	Survived	Pclass	Sex	Fare	Embarked
0.42	1	1	1	1	1
0.67	1	1	1	1	1
0.75	2	2	2	2	2
0.83	2	2	2	2	2
0.92	1	1	1	1	1
...	...	...	...	...	...
70.00	2	2	2	2	2
70.50	1	1	1	1	1
71.00	2	2	2	2	2
74.00	1	1	1	1	1
80.00	1	1	1	1	1

88 rows × 5 columns

In [29]:
```
data1["Pclass"]=data1["Pclass"].map({1:'F',2:'S',3:'Third'})
```

In [30]:
```
data1.isna().sum()
```

Out[30]:
```
Survived    0
Pclass      0
Sex         0
Age         0
Fare        0
Embarked    2
dtype: int64
```

In [31]:
```
#Converting strings into integer
data1=r.get_dummies(data1)
```

In [32]:
```
data1.shape
```

Out[32]:
```
(891, 10)
```

In [33]:
```
data1.head(500)
```

Out[33]:

	Survived	Sex	Age	Fare	Pclass_F	Pclass_S	Pclass_Third	Embarked_C	Embarked_Q	Embarked_S
0	0	1	22.0	7.2500	0	0	1	0	0	1
1	1	0	38.0	71.2833	1	0	0	1	0	0
2	1	0	26.0	7.9250	0	0	1	0	0	1
3	1	0	35.0	53.1000	1	0	0	0	0	1
4	0	1	35.0	8.0500	0	0	1	0	0	1
...	...	...	...	...	...	...	...	...	...	...
495	0	1	28.0	14.4583	0	0	1	1	0	0
496	1	0	54.0	78.2667	1	0	0	1	0	0
497	0	1	28.0	15.1000	0	0	1	0	0	1
498	0	0	25.0	151.5500	1	0	0	0	0	1
499	0	1	24.0	7.7958	0	0	1	0	0	1

500 rows × 10 columns

In [34]:
```
data1.isna().sum()
```

Out[34]:
```
Survived        0
Sex             0
Age             0
Fare            0
Pclass_F        0
Pclass_S        0
Pclass_Third    0
Embarked_C      0
Embarked_Q      0
Embarked_S      0
dtype: int64
```

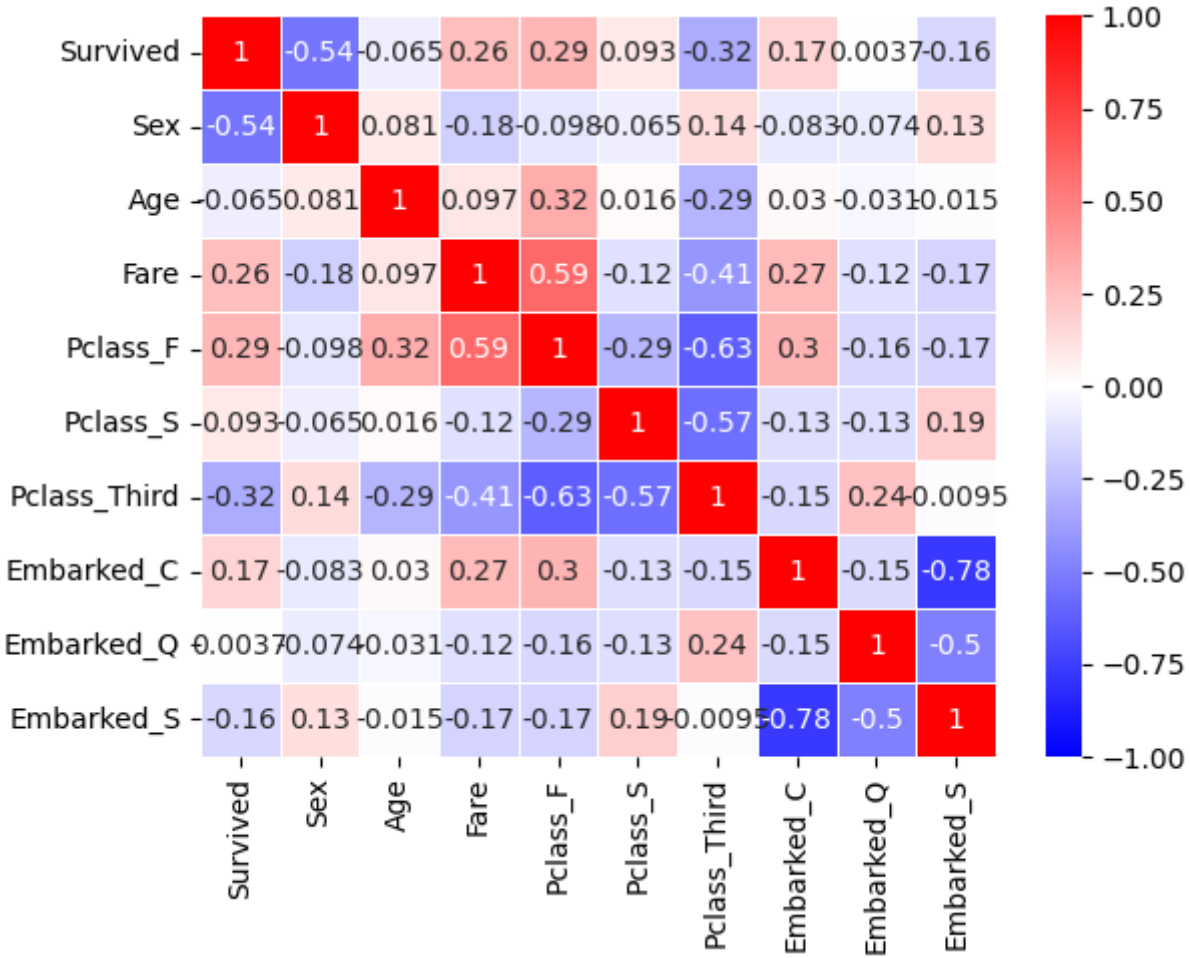
In [35]:
```
#Finding the correlation
d3=data1.corr()
d3
```

Out[35]:

	Survived	Sex	Age	Fare	Pclass_F	Pclass_S	Pclass_Third	Embarked_C	Embarked_Q	Embarked_S
Survived	1.000000	-0.543351	-0.064910	0.257307	0.285904	0.093349	-0.322308	0.168240	0.003650	-0.155660
Sex	-0.543351	1.000000	0.081163	-0.182333	-0.098013	-0.064746	0.137143	-0.082853	-0.074115	0.125722
Age	-0.064910	0.081163	1.000000	0.096688	0.323896	0.015831	-0.291955	0.030248	-0.031415	-0.014665
Fare	0.257307	-0.182333	0.096688	1.000000	0.591711	-0.118557	-0.413333	0.269335	-0.117216	-0.166603
Pclass_F	0.285904	-0.098013	0.323896	0.591711	1.000000	-0.288585	-0.626738	0.296423	-0.155342	-0.170379
Pclass_S	0.093349	-0.064746	0.015831	-0.118557	-0.288585	1.000000	-0.565210	-0.125416	-0.127301	0.192061
Pclass_Third	-0.322308	0.137143	-0.291955	-0.413333	-0.626738	-0.565210	1.000000	-0.153329	0.237449	-0.009511
Embarked_C	0.168240	-0.082853	0.030248	0.269335	0.296423	-0.125416	-0.153329	1.000000	-0.148258	-0.778359
Embarked_Q	0.003650	-0.074115	-0.031415	-0.117216	-0.155342	-0.127301	0.237449	-0.148258	1.000000	-0.496624
Embarked_S	-0.155660	0.125722	-0.014665	-0.166603	-0.170379	0.192061	-0.009511	-0.778359	-0.496624	1.000000

In [36]:
```
#This create a heatmap
import seaborn as sns
sns.heatmap(d3,vmax=1,vmin=-1,annot=True,linewidth=.5,cmap='bwr')
```

Out[36]: <Axes: >



In [37]:
```
d.groupby('Survived').count()
```

Out[37]:

Survived	PassengerId	Pclass	Name	Sex	Age	SibSp	Parch	Ticket	Fare	Cabin	Embarked
0	549	549	549	549	424	549	549	549	549	68	549
1	342	342	342	342	290	342	342	342	342	136	340

In [38]:
```
y=data1['Survived']
x=data1.drop('Survived',axis=1)
```

In [39]:
```
#spliting data to create the model
from sklearn.model_selection import train_test_split
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.33,random_state=42)
```

In [40]:
```
from sklearn.linear_model import LogisticRegression
classifier=LogisticRegression()
classifier.fit(x_train,y_train) #training and fitting LR object using training data
```

Out[40]:
```
LogisticRegression()
```
In a Jupyter environment, please rerun this cell to show the HTML representation or trust the notebook.
On GitHub, the HTML representation is unable to render, please try loading this page with nbviewer.org.

In [41]:
```
y_pred=classifier.predict(x_test)
y_pred
```

Out[41]:
```
array([0, 0, 0, 1, 1, 1, 1, 0, 1, 1, 0, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 0,
       1, 0, 0, 0, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 0,
       1, 0, 0, 0, 0, 0, 1, 1, 0, 0, 0, 1, 0, 1, 1, 1, 0, 1, 1, 0, 0, 1,
       0, 0, 0, 1, 1, 1, 1, 1, 0, 0, 1, 1, 1, 0, 0, 1, 1, 0, 0, 0, 1, 1,
       0, 0, 0, 1, 0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0,
       1, 0, 1, 0, 0, 0, 0, 0, 1, 0, 0, 1, 1, 0, 0, 0, 1, 1, 1, 0, 1, 0,
       0, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 0, 1, 1, 0, 0, 1, 0, 0, 0, 0, 1,
       0, 0, 0, 1, 1, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 1, 1, 0, 1, 0, 0,
       0, 1, 1, 0, 0, 0, 0, 1, 1, 0, 0, 0, 0, 1, 0, 0, 0, 0, 1, 1, 1, 0,
       1, 1, 0, 0, 1, 0, 0, 1, 0, 0, 0, 0, 1, 0, 1, 0, 0, 0, 1, 0, 1, 0,
       0, 1, 0, 0, 0, 1, 0, 1, 1, 0, 0, 1, 0, 1, 0, 1, 1, 1, 1, 0, 0, 1,
       0, 1, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 1, 0, 1, 1, 0, 1, 0,
       0, 0, 0, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0, 1, 0, 0, 0,
       1, 0, 0, 0, 0, 0, 1, 1, 0])
```

In [42]:
```
from sklearn.metrics import confusion_matrix
confusion_matrix(y_test,y_pred)
```

Out[42]:
```
array([[154,  21],
       [ 37,  83]])
```

In [43]:
```
from sklearn.metrics import accuracy_score
accuracy_score(y_pred,y_test)
```

Out[43]:
```
0.8033898305084746
```

In [44]:
```
results=r.DataFrame(columns=['Actual','Predicted']) #To compare the actual and predicted price
results['Actual']=y_test
results['Predicted']=y_pred
results=results.reset_index()
results['Id']=results.index
results
```

Out[44]:

	index	Actual	Predicted	Id
0	709	1	0	0
1	439	0	0	1
2	840	0	0	2
3	720	1	1	3
4	39	1	1	4
...	...	...	...	...
290	715	0	0	290
291	525	0	0	291
292	381	1	1	292
293	140	0	1	293
294	173	0	0	294

295 rows × 4 columns

In [46]:
```
#Plotting the actual and predicted values
import seaborn as sns
import matplotlib.pyplot as plt
sns.lineplot(x='Id',y='Actual',data=results.head(20))
sns.lineplot(x='Id',y='Predicted',data=results.head(20))
plt.plot()
```

Out[46]: []