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Div : 4

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

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

```
train.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
```

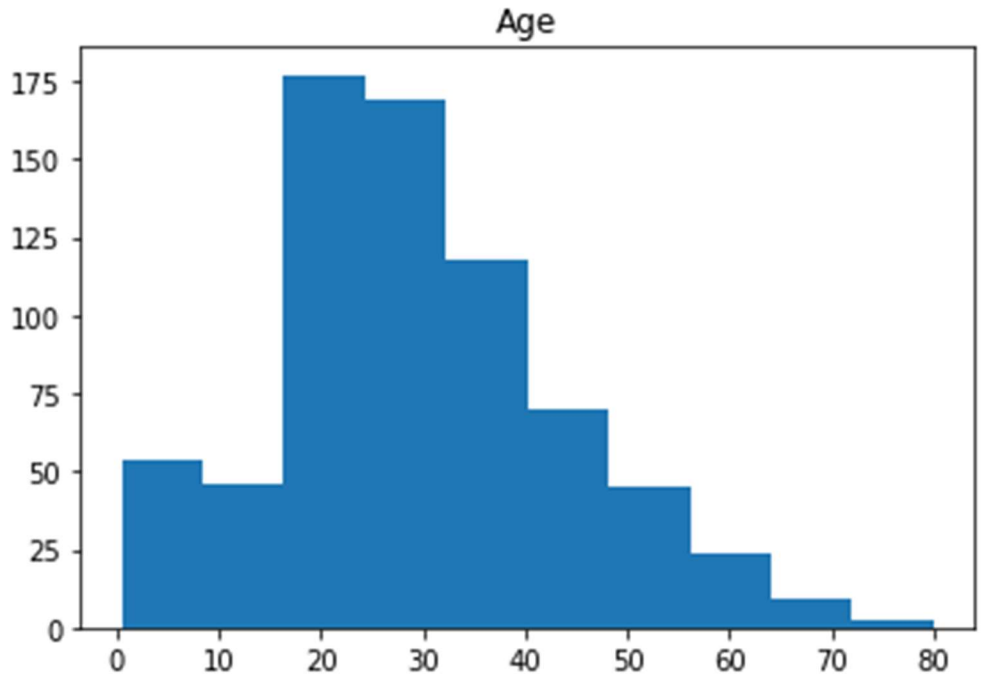
```
train.describe()
```

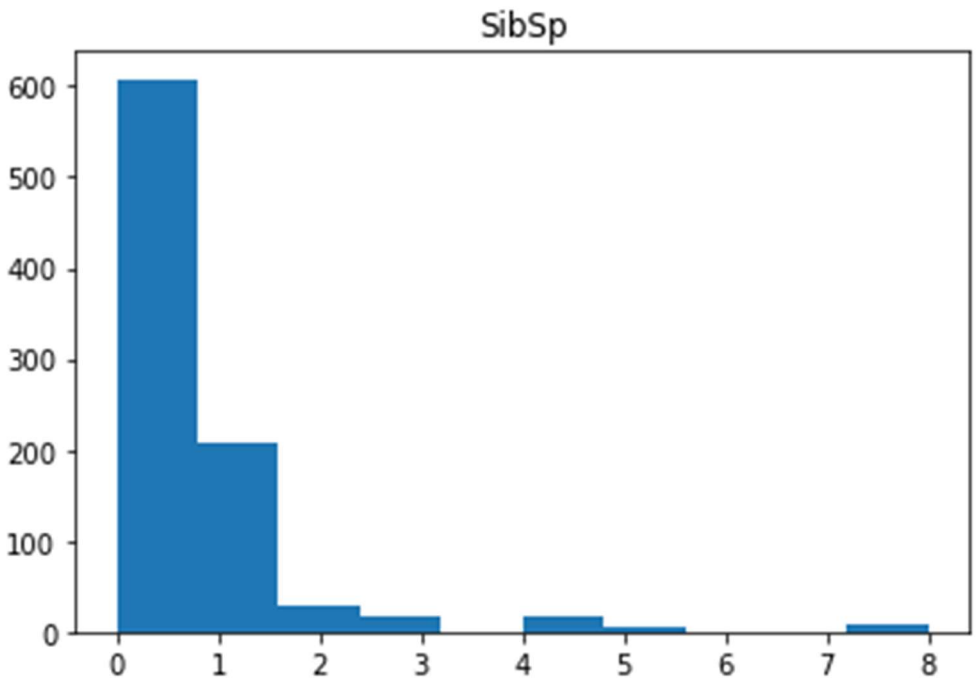
```
       PassengerId    Survived      Pclass         Age       SibSp  \
count   891.000000  891.000000  891.000000  714.000000  891.000000   
mean    446.000000    0.383838    2.308642   29.699118    0.523008   
std     257.353842    0.486592    0.836071   14.526497    1.102743   
min       1.000000    0.000000    1.000000    0.420000    0.000000   
25%     223.500000    0.000000    2.000000   20.125000    0.000000   
50%     446.000000    0.000000    3.000000   28.000000    0.000000   
75%     668.500000    1.000000    3.000000   38.000000    1.000000   
max     891.000000    1.000000    3.000000   80.000000    8.000000   
```

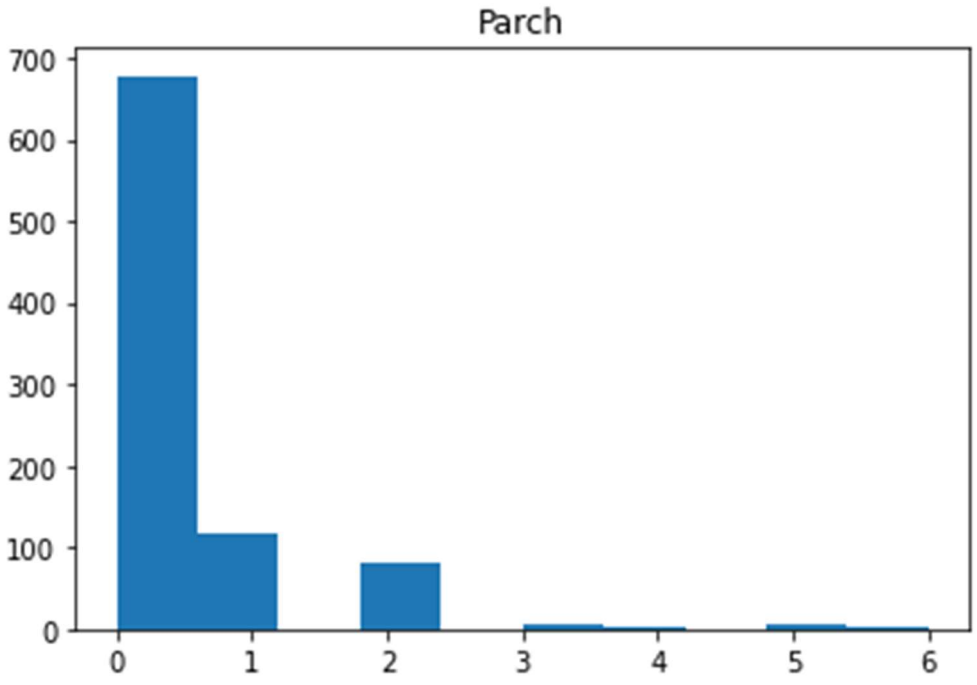
```
            Parch        Fare
count  891.000000  891.000000
mean     0.381594   32.204208
std      0.806057   49.693429
min      0.000000    0.000000
25%      0.000000    7.910400
50%      0.000000   14.454200
75%      0.000000   31.000000
max      6.000000  512.329200
```

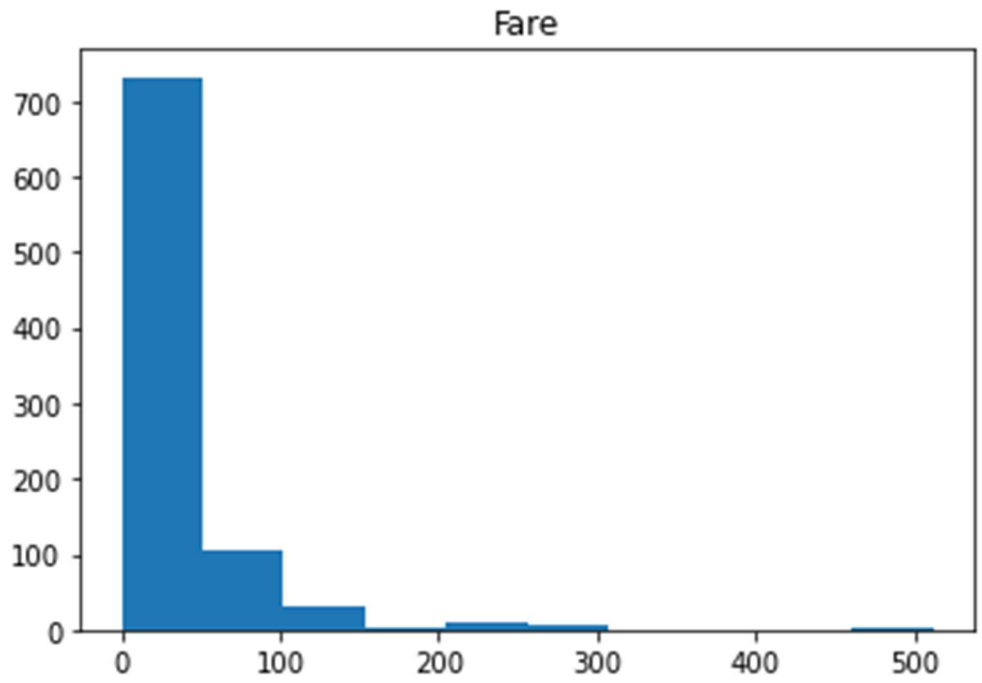
```
# look at numerical and categorical values seperately
df_num = train[['Age','SibSp','Parch','Fare']]
df_cat = train[['Survived','Pclass','Sex','Ticket','Cabin','Embarked']]
```

```
for i in df_num.columns:
    plt.hist(df_num[i])
    plt.title(i)
    plt.show()
```




SibSp
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8


Parch
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6

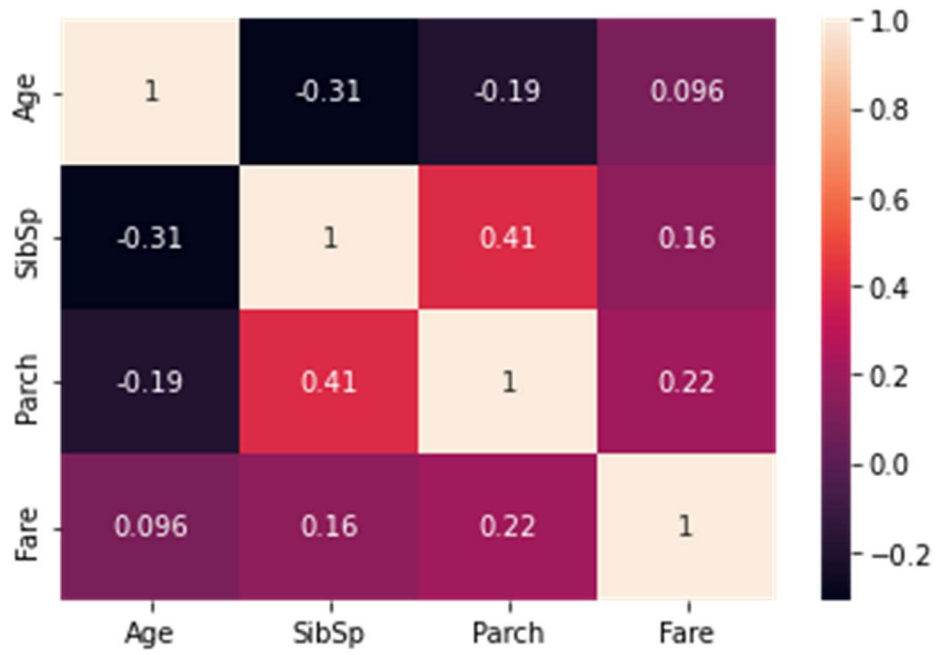



```
print(df_num.corr())
```

```
             Age     SibSp     Parch      Fare
Age     1.000000 -0.308247 -0.189119  0.096067
SibSp  -0.308247  1.000000  0.414838  0.159651
Parch  -0.189119  0.414838  1.000000  0.216225
Fare    0.096067  0.159651  0.216225  1.000000
```

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

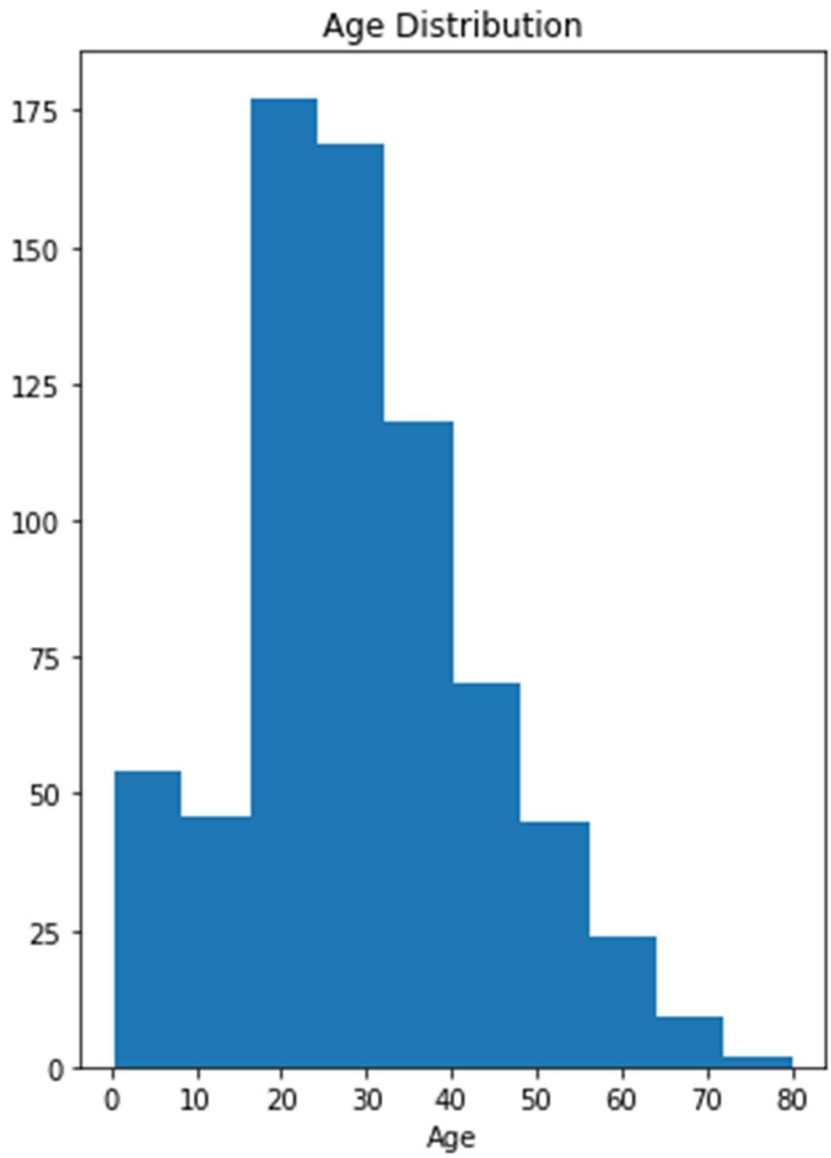
```
<AxesSubplot:>
```



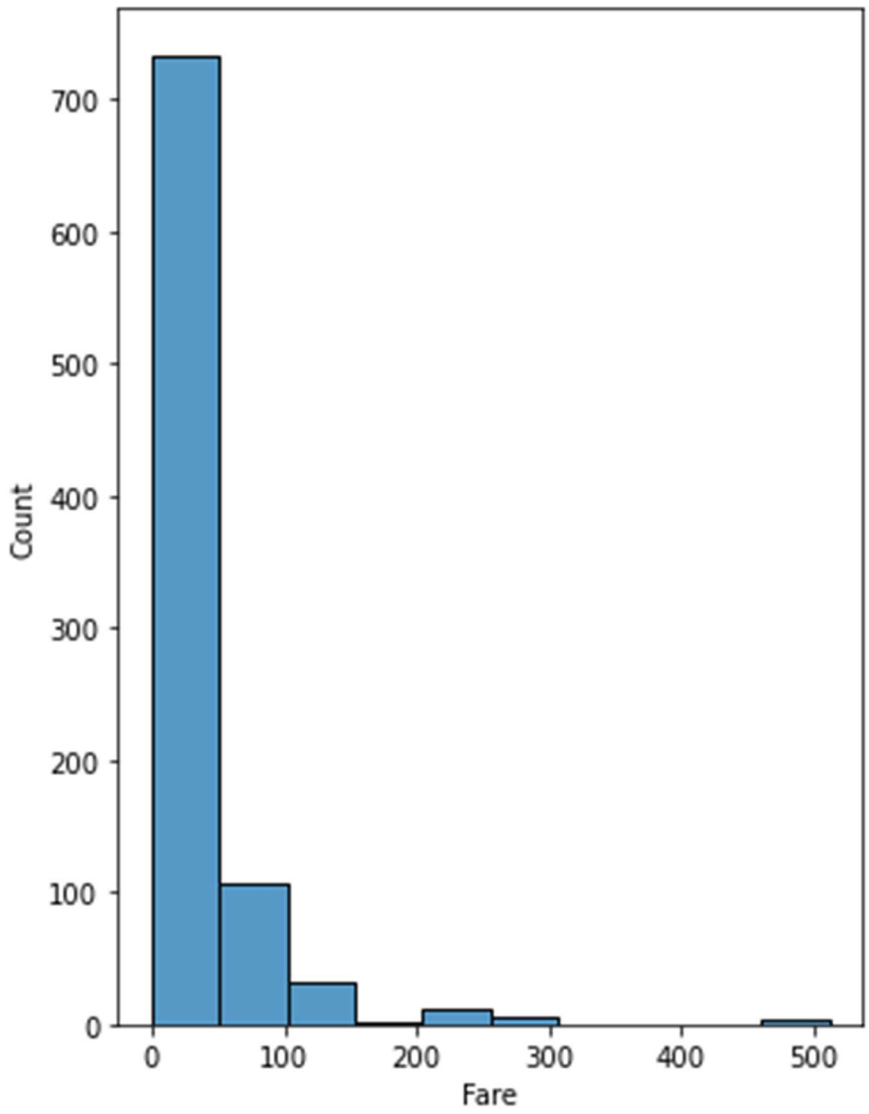

```
pd.pivot_table(train,index='Survived', values=['Age','SibSp','Parch','Fare'])
```

```
                Age       Fare     Parch     SibSp
Survived
0         30.626179  22.117887  0.329690  0.553734
1         28.343690  48.395408  0.464912  0.473684
```

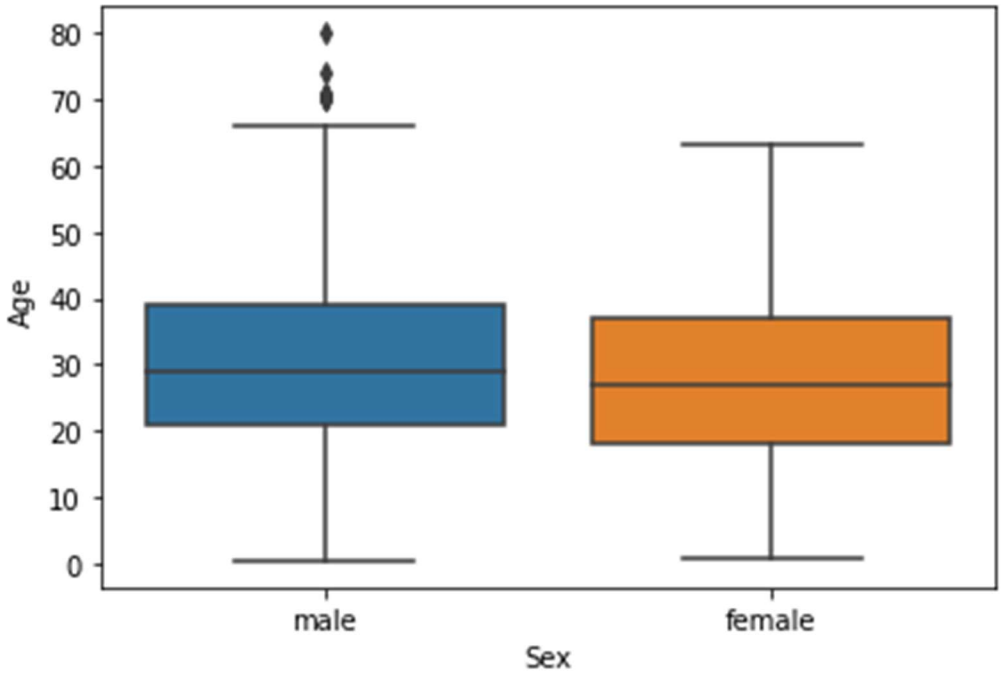
```
plt.figure(figsize=(5,7))
plt.hist(train['Age'])
plt.title("Age Distribution")
plt.xlabel("Age")
plt.show()
```




```
plt.figure(figsize=(5,7))
sns.histplot(train['Fare'], bins=10)
plt.show()
```




```
sns.boxplot(x='Sex',y='Age', data=train)
plt.show()
```

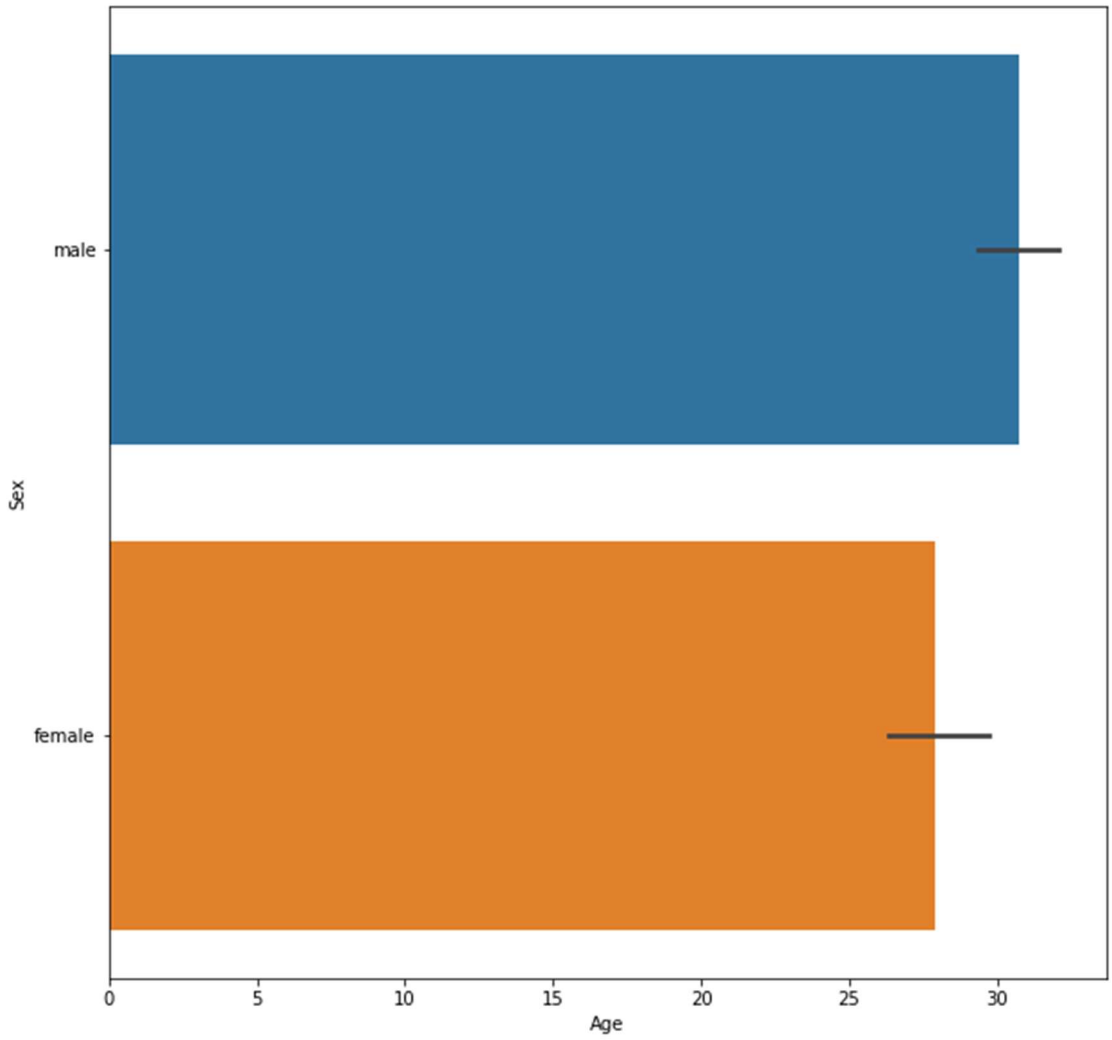



```
test1 = pd.DataFrame()

test1 = train[['Sex','Age','Survived']]

test1
```

```
        Sex   Age  Survived
0      male  22.0         0
1    female  38.0         1
2    female  26.0         1
3    female  35.0         1
4      male  35.0         0
..      ...   ...       ...
886    male  27.0         0
887  female  19.0         1
888  female   NaN         0
889    male  26.0         1
890    male  32.0         0

[891 rows x 3 columns]
```

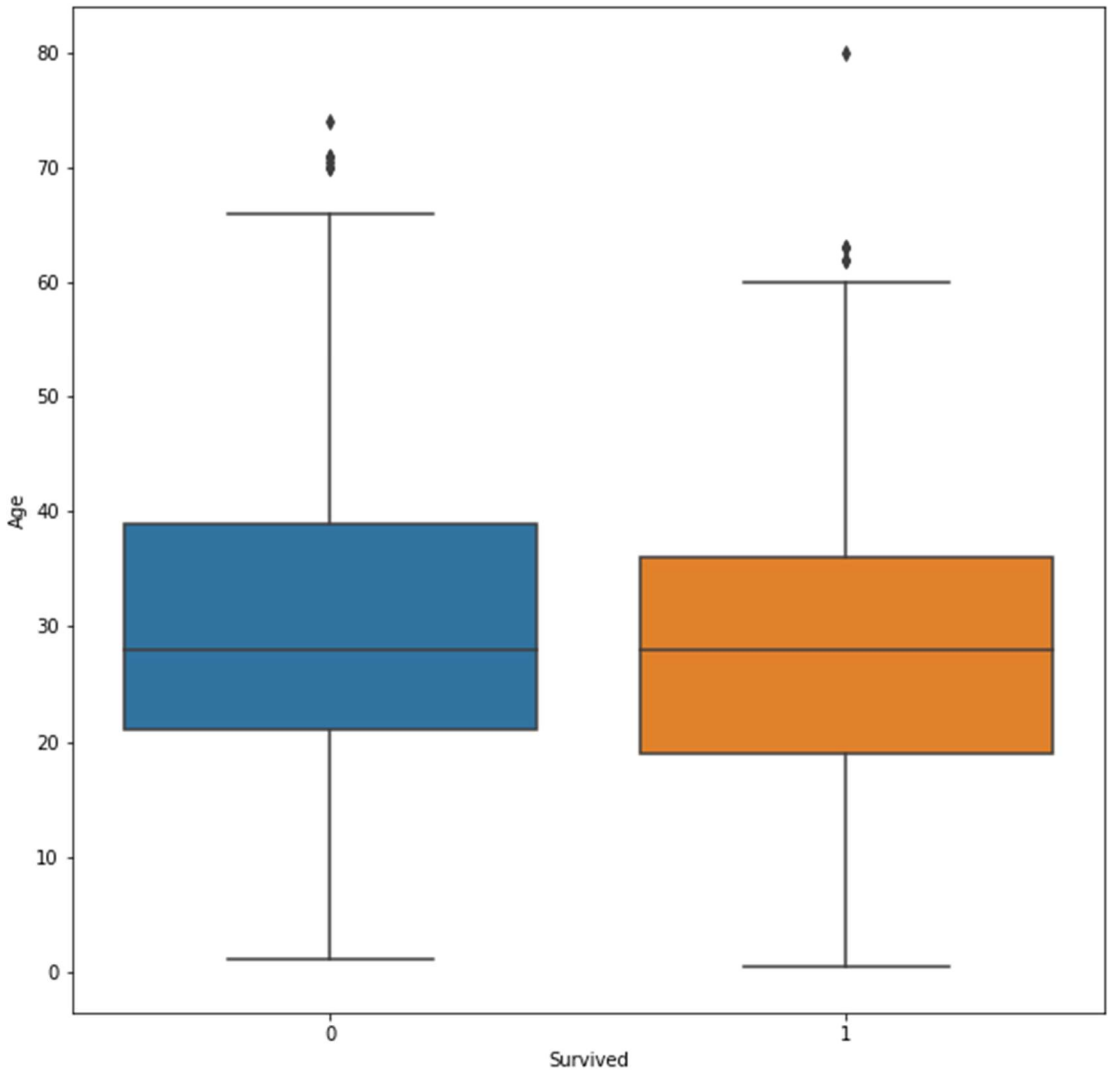
```
plt.figure(figsize=(10,10))
sns.barplot(x=test1['Age'],y=test1['Sex'])
```

```
<AxesSubplot:xlabel='Age', ylabel='Sex'>
```




```
plt.figure(figsize=(10,10))
sns.boxplot(x='Survived',y='Age', data=train)
```

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


80
70
60
50
40
30
20
10
0
Age
0
1
Survived