

Assignment No. 9

Aim : Data Visualization II

1. Use the inbuilt dataset 'titanic' as used in the above problem. Plot a box plot for distribution of age with respect to each gender along with the information about whether they survived or not. (Column names : 'sex' and 'age')
2. Write observations on the inference from the above statistics.

Solⁿ :

OUTPUT :

The screenshot shows a Kaggle notebook interface with the following content:

```
[1]: import numpy as np # linear algebra
import pandas as pd
df=pd.read_csv('../input/titanic-extended/full.csv')
```

```
[3]: import seaborn as sns
import matplotlib.pyplot as plt
%matplotlib inline
```

```
[4]: df.head
```

The output of the code shows the first few rows of the dataset:

	PassengerId	Survived	Pclass	
0	1	0.0	3	
1	2	1.0	1	
2	3	1.0	3	
3	4	1.0	1	
4	5	0.0	3	
...
1304	1305	NaN	3	
1305	1306	NaN	1	
1306	1307	NaN	3	
1307	1308	NaN	3	
1308	1309	NaN	3	

The notebook also shows the following data on the right side:

Input

- titanic-extended
 - full.csv
 - test.csv
 - train.csv

Output (44.1MB / 19.6GB)

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[4]: df.head

```
[4]: cbound method NDFrame.head of
0      1      0.0      3
1      2      1.0      1
2      3      1.0      3
3      4      1.0      1
4      5      0.0      3
...
1304    1305    NaN      3
1305    1306    NaN      1
1306    1307    NaN      3
1307    1308    NaN      3
1308    1309    NaN      3

      Name Sex Age SibSp \
0      Braund, Mr. Owen Harris male 22.0 1
1  Cumings, Mrs. John Bradley (Florence Briggs Th... female 38.0 1
2      Heikkinen, Miss. Laina female 26.0 0
3  Futrelle, Mrs. Jacques Heath (Lily May Peel) female 35.0 1
4      Allen, Mr. William Henry male 35.0 0
...
1304    Spector, Mr. Woolf male NaN 0
1305    Oliva y Ocana, Dona. Fernina female 39.0 0
1306    Sæther, Mr. Simon Sivertsen male 38.5 0
1307    Ware, Mr. Frederick male NaN 0
1308    Peter, Master. Michael J male NaN 1

      Parch Ticket Fare Embarked WikiId \
0      0      A/5 21171 7.2500 S 691.0
1      0      PC 17599 71.2833 C 90.0
2      0  STON/O2. 3101282 7.9250 S 865.0
3      0      113803 53.1000 S 127.0
4      0      373450 8.0500 S 627.0
...
1304    0      A.S. 3236 8.0500 S 1227.0
1305    0      PC 17758 108.9000 C 229.0
1306    0  SOTON/O.Q. 3101262 7.2500 S 1169.0
1307    0      359309 8.0500 S 1289.0
1308    1      2668 22.3583 C 702.0

      Name_wiki Age_wiki \
0      Braund, Mr. Owen Harris 22.0
1  Cumings, Mrs. Florence Briggs (née Thayer) 35.0
2      Heikkinen, Miss Laina 26.0
3  Futrelle, Mrs. Lily May (née Peel) 35.0
4      Allen, Mr. William Henry 35.0
...
1304    Spector, Mr. Woolf 23.0
1305    and maid, Doña Fernina Oliva y Ocana 39.0
1306    Sæther, Mr. Simon Sivertsen 43.0
1307    Ware, Mr. Frederick William 34.0
1308    Butrus-Youssef, Master Hakkhul 4.0

      Hometown Boarded \
0      Bridgerule, Devon, England Southampton
1      New York, New York, US Cherbourg
2      Jyväskylä, Finland Southampton
3      Scituate, Massachusetts, US Southampton
4      Birmingham, West Midlands, England Southampton
...
1304    London, England Southampton
1305    Madrid, Spain Cherbourg
1306    Skaun, Sør-Trøndelag, Norway Southampton
1307    Greenwich, London, England Southampton
1308    Sar'al[81], Syria Cherbourg

      Destination Lifeboat Body Class
0      Qu'Appelle Valley, Saskatchewan, Canada NaN NaN 3.0
1      New York, New York, US 4 NaN 1.0
2      New York City 147 NaN 3.0
3      Scituate, Massachusetts, US D NaN 1.0
4      New York City NaN NaN 3.0
...
```

Console

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```
...
1304    0      A.S. 3236 8.0500 S 1227.0
1305    0      PC 17758 108.9000 C 229.0
1306    0  SOTON/O.Q. 3101262 7.2500 S 1169.0
1307    0      359309 8.0500 S 1289.0
1308    1      2668 22.3583 C 702.0

      Name_wiki Age_wiki \
0      Braund, Mr. Owen Harris 22.0
1  Cumings, Mrs. Florence Briggs (née Thayer) 35.0
2      Heikkinen, Miss Laina 26.0
3  Futrelle, Mrs. Lily May (née Peel) 35.0
4      Allen, Mr. William Henry 35.0
...
1304    Spector, Mr. Woolf 23.0
1305    and maid, Doña Fernina Oliva y Ocana 39.0
1306    Sæther, Mr. Simon Sivertsen 43.0
1307    Ware, Mr. Frederick William 34.0
1308    Butrus-Youssef, Master Hakkhul 4.0

      Hometown Boarded \
0      Bridgerule, Devon, England Southampton
1      New York, New York, US Cherbourg
2      Jyväskylä, Finland Southampton
3      Scituate, Massachusetts, US Southampton
4      Birmingham, West Midlands, England Southampton
...
1304    London, England Southampton
1305    Madrid, Spain Cherbourg
1306    Skaun, Sør-Trøndelag, Norway Southampton
1307    Greenwich, London, England Southampton
1308    Sar'al[81], Syria Cherbourg

      Destination Lifeboat Body Class
0      Qu'Appelle Valley, Saskatchewan, Canada NaN NaN 3.0
1      New York, New York, US 4 NaN 1.0
2      New York City 147 NaN 3.0
3      Scituate, Massachusetts, US D NaN 1.0
4      New York City NaN NaN 3.0
...
```

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Draft Session (16m)

Destination Lifeboat Body Class

```
0 Qu'Appelle Valley, Saskatchewan, Canada NaN NaN 3.0
1 New York, New York, US 4 NaN 1.0
2 New York City 14? NaN 3.0
3 Scituate, Massachusetts, US 0 NaN 1.0
4 New York City NaN NaN 3.0
...
1304 New York City NaN NaN 3.0
1305 New York, New York, US 8 NaN 1.0
1306 US NaN 32MB 3.0
1307 New York City NaN NaN 3.0
1308 Detroit, Michigan, US 0 NaN 3.0
```

[1309 rows x 21 columns]

[5]:

```
df.info()

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 1309 entries, 0 to 1308
Data columns (total 21 columns):
# Column Non-Null Count Dtype
---
0 PassengerId 1309 non-null int64
1 Survived 891 non-null float64
2 Pclass 1309 non-null int64
3 Name 1309 non-null object
4 Sex 1309 non-null object
5 Age 1046 non-null float64
6 SibSp 1309 non-null int64
7 Parch 1309 non-null int64
8 Ticket 1309 non-null object
9 Fare 1308 non-null float64
10 Cabin 295 non-null object
11 Embarked 1307 non-null object
12 WikiId 1304 non-null float64
13 Name_wiki 1304 non-null object
14 Age_wiki 1302 non-null float64
15 Hometown 1304 non-null object
16 Boarded 1304 non-null object
17 Destination 1304 non-null object
18 Lifeboat 502 non-null object
19 Body 130 non-null object
20 Class 1304 non-null float64
dtypes: float64(6), int64(4), object(11)
memory usage: 214.9+ KB
```

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kaggle.com/code/kshitijshinde/notebookd84a52e0d1/edit

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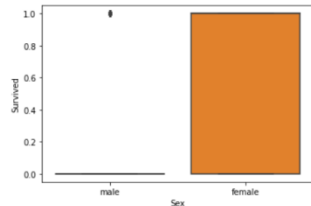
Draft Session (17m)

```
10 Cabin 295 non-null object
11 Embarked 1307 non-null object
12 WikiId 1304 non-null float64
13 Name_wiki 1304 non-null object
14 Age_wiki 1302 non-null float64
15 Hometown 1304 non-null object
16 Boarded 1304 non-null object
17 Destination 1304 non-null object
18 Lifeboat 502 non-null object
19 Body 130 non-null object
20 Class 1304 non-null float64
dtypes: float64(6), int64(4), object(11)
memory usage: 214.9+ KB
```

[6]:

```
sns.boxplot(x='Sex', y='Survived', data=df)
```

[6]: <AxesSubplot: xlabel='Sex', ylabel='Survived'>



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Run All Code

0.0

male female Sex

```
[8]: sns.boxplot(x='Sex', y='Age', data=df, hue='Survived')
```

[8]: <AxesSubplot:xlabel='Sex', ylabel='Age'>

Age

Survived

0.0

1.0

male female Sex

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Data + Add data

Input

- titanic-extended
 - full.csv
 - test.csv
 - train.csv

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