

Assignment -4

Assignment Date	27 October 2022
Student Name	Zoohi Fathima K.M
Student Roll Number	812419104708
Maximum Marks	2 Marks

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Double-click (or enter) to edit

IMPORTING LIBRARIES

[ ]
Double-click (or enter) to edit

[ ] import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns

[ ] from google.colab import drive
drive.mount('/content/drive')
Mounted at /content/drive

[ ] #load the data
df = pd.read_csv('/content/drive/My Drive/Machine Learning/abalone.csv')

[ ] df
```

```
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Connect Editing
#load the data
df = pd.read_csv('/content/drive/My Drive/Machine Learning/abalone.csv')

[ ] df

Sex Length Diameter Height Whole weight Shucked weight Viscera weight Shell weight Rings
0 M 0.455 0.365 0.095 0.5140 0.2245 0.1010 0.1500 15
1 M 0.350 0.265 0.090 0.2255 0.0995 0.0485 0.0700 7
2 F 0.530 0.420 0.135 0.6770 0.2565 0.1415 0.2100 9
3 M 0.440 0.365 0.125 0.5160 0.2155 0.1140 0.1550 10
4 I 0.330 0.255 0.080 0.2050 0.0895 0.0395 0.0550 7
... ..
4172 F 0.565 0.450 0.165 0.8870 0.3700 0.2390 0.2490 11
4173 M 0.590 0.440 0.135 0.9660 0.4390 0.2145 0.2605 10
4174 M 0.600 0.475 0.205 1.1760 0.5255 0.2875 0.3080 9
4175 F 0.625 0.485 0.150 1.0945 0.5310 0.2610 0.2960 10
4176 M 0.710 0.555 0.195 1.9485 0.9455 0.3765 0.4950 12
4177 rows x 9 columns

[ ] df.head()
```

```
max 0.815000 0.650000 1.130000 2.825500 1.488000 0.760000 1.005000 29.000000
```

```
df['age'] = df['Rings']*1.5  
df = df.drop('Rings', axis = 1)
```

```
[ ] from sklearn.preprocessing import StandardScaler  
from sklearn.model_selection import train_test_split, cross_val_score  
from sklearn.feature_selection import SelectKBest  
from sklearn.metrics import r2_score, mean_squared_error  
import warnings  
warnings.filterwarnings("ignore", category=DeprecationWarning)
```

UNIVARIATE ANALYSIS

```
[ ] sns.heatmap(df.isnull())
```

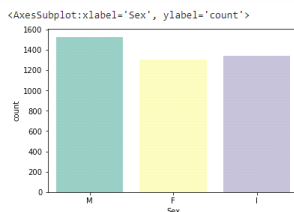


```
[ ] df.info()
```

```
<class 'pandas.core.frame.DataFrame'>  
RangeIndex: 4177 entries, 0 to 4176  
Data columns (total 9 columns):  
#   Column      Non-Null Count  Dtype  
---  ---  
0   Sex          4177 non-null   object  
1   Length       4177 non-null   float64  
2   Diameter     4177 non-null   float64  
3   Height       4177 non-null   float64  
4   Whole weight 4177 non-null   float64  
5   Shucked weight 4177 non-null   float64  
6   Viscera weight 4177 non-null   float64  
7   Shell weight 4177 non-null   float64  
8   age          4177 non-null   float64  
dtypes: float64(8), object(1)  
memory usage: 293.8+ KB
```

```
6   Viscera weight 4177 non-null   float64  
7   Shell weight 4177 non-null   float64  
8   age          4177 non-null   float64  
dtypes: float64(8), object(1)  
memory usage: 293.8+ KB
```

```
[ ] sns.countplot(x = 'Sex', data = df, palette = 'Set3')
```



```
[ ] plt.figure(figsize = (20,7))  
sns.swarmplot(x = 'Sex', y = 'age', data = df, hue = 'Sex')  
sns.violinplot(x = 'Sex', y = 'age', data = df)
```

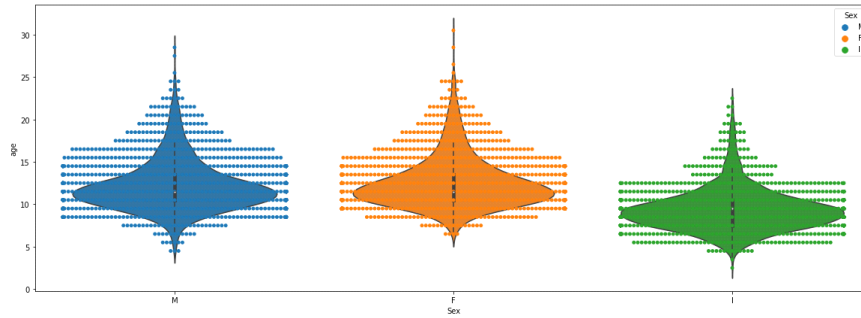
```
C:\Users\Harini S\anaconda3\lib\site-packages\seaborn\categorical.py:1296: UserWarning: 56.2% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.  
warnings.warn(msg, UserWarning)  
C:\Users\Harini S\anaconda3\lib\site-packages\seaborn\categorical.py:1296: UserWarning: 52.2% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.
```

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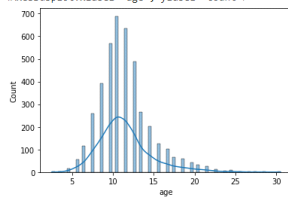
```
sns.violinplot(x = 'Sex', y = 'age', data = df, hue = 'Sex')
sns.violinplot(x = 'Sex', y = 'age', data = df)
```

C:\Users\Harini S\anaconda3\lib\site-packages\seaborn\categorical.py:1296: UserWarning: 56.2% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.
warnings.warn(msg, UserWarning)
C:\Users\Harini S\anaconda3\lib\site-packages\seaborn\categorical.py:1296: UserWarning: 52.2% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.
warnings.warn(msg, UserWarning)
C:\Users\Harini S\anaconda3\lib\site-packages\seaborn\categorical.py:1296: UserWarning: 58.5% of the points cannot be placed; you may want to decrease the size of the markers or use stripplot.
warnings.warn(msg, UserWarning)
<AxesSubplot:xlabel='Sex', ylabel='age'>



```
[ ] sns.histplot(df.age,kde=True)
```

<AxesSubplot:xlabel='age', ylabel='Count'>

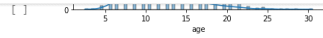


► BIVARIATE ANALYSIS

[] 4.3 cells hidden

► MULTI VARIATE ANALYSIS

[] 4.1 cell hidden



▸ BIVARIATE ANALYSIS

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▸ MULTI VARIATE ANALYSIS

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▸ MISSING VALUES

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▸ OUTLIERS

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▸ CATEGORICAL COLUMNS

▸ SCALING THE INDEPENDENT VARIABLE

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▸ SPLITTING THE DATA

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▸ BUILDING MODEL

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▸ TRAINING THE MODEL

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▸ TESTING THE MODEL

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