Name:- Muhammad Huzaifa Waseem (2303-KHI-DEG-021)
Pair Partner:- Muhammad Faizan Rafique (2303.005.KHI.DEG)

UNIT 2.3

Assignment

At First we import pandas as pd and read “CSV” file by using “Pandas read_csv()” function and store it in “df” variable.

[10]:
```
import pandas as pd
df = pd.read_csv("./Iris.csv")
df
```

[10]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

Then we filter data using boolean expression like it gives only those rows of data frame which contains "Iris-setosa" in column of "Species" by using df[df["Species"]=="Iris-setosa"] and store it in “Iris_setosa_df”.
After this we select all rows of 2nd column (SepalLengthCm) from “Iris_setosa_df” data frame by using “Iris_setosa_df.iloc[:, 1]” and calculate their mean or average by using “mean()” function and store it in “avg_Iris_setos_sepal_length” variable

Similarly we do these steps for calculating Average values of Sepal Length for "Iris-versicolor" and "Iris-virginica"

[11]:
```
Iris_setosa_df = df[df["Species"]=="Iris-setosa"]
avg_Iris_setos_sepal_length = Iris_setosa_df.iloc[:, 1].mean()
avg_Iris_setos_sepal_length
```

[11]:
```
5.006
```

[12]:
```
Iris_versicolor_df = df[df["Species"]=="Iris-versicolor"]
avg_Iris_versicolor_length = Iris_versicolor_df.iloc[:, 1].mean()
avg_Iris_versicolor_length
```

[12]:
```
5.936
```

[13]:
```
Iris_virginica_df = df[df["Species"]=="Iris-virginica"]
avg_Iris_virginica_length = Iris_virginica_df.iloc[:, 1].mean()
avg_Iris_virginica_length
```

[13]:
```
6.587999999999998
```

At the end we print all the average sepal length for each of three iris species by using print formate.

```
[14]: print(f'average sepal length of Iris-setosa is {avg_Iris_setos_sepal_length} cm')
      print(f'average sepal length of Iris-versicolor is {avg_Iris_versicolor_length} cm')
      print(f'average sepal length of Iris-virginica is {avg_Iris_virginica_length} cm')

      average sepal length of Iris-setosa is 5.006 cm
      average sepal length of Iris-versicolor is 5.936 cm
      average sepal length of Iris-virginica is 6.587999999999998 cm
```

Complete Code:-


```
[10]: import pandas as pd
      df = pd.read_csv("./Iris.csv")
      df
```

[10]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm	Species
0	1	5.1	3.5	1.4	0.2	Iris-setosa
1	2	4.9	3.0	1.4	0.2	Iris-setosa
2	3	4.7	3.2	1.3	0.2	Iris-setosa
3	4	4.6	3.1	1.5	0.2	Iris-setosa
4	5	5.0	3.6	1.4	0.2	Iris-setosa
...	...	...	...	...	...	...
145	146	6.7	3.0	5.2	2.3	Iris-virginica
146	147	6.3	2.5	5.0	1.9	Iris-virginica
147	148	6.5	3.0	5.2	2.0	Iris-virginica
148	149	6.2	3.4	5.4	2.3	Iris-virginica
149	150	5.9	3.0	5.1	1.8	Iris-virginica

150 rows × 6 columns

```
[11]: Iris_setosa_df = df[df["Species"]=="Iris-setosa"]
      avg_Iris_setos_sepal_length = Iris_setosa_df.iloc[:, 1].mean()
      avg_Iris_setos_sepal_length

[11]: 5.006

[12]: Iris_versicolor_df = df[df["Species"]=="Iris-versicolor"]
      avg_Iris_versicolor_length = Iris_versicolor_df.iloc[:, 1].mean()
      avg_Iris_versicolor_length

[12]: 5.936

[13]: Iris_virginica_df = df[df["Species"]=="Iris-virginica"]
      avg_Iris_virginica_length = Iris_virginica_df.iloc[:, 1].mean()
      avg_Iris_virginica_length

[13]: 6.587999999999998

[14]: print(f'average sepal length of Iris-setosa is {avg_Iris_setos_sepal_length} cm')
      print(f'average sepal length of Iris-versicolor is {avg_Iris_versicolor_length} cm')
      print(f'average sepal length of Iris-virginica is {avg_Iris_virginica_length} cm')

      average sepal length of Iris-setosa is 5.006 cm
      average sepal length of Iris-versicolor is 5.936 cm
      average sepal length of Iris-virginica is 6.587999999999998 cm
```