

Assignment No 10 : Data Visualization 3

 --

Importing Required Libraries

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
```

Reading csv into Dataframe

```
In [2]: df = pd.read_csv('iris.csv')
df
```

```
Out[2]:
```

	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

Data preprocessing

```
In [3]: df.shape
```

Out[3]: (150, 6)

In [4]: `df.columns`

Out[4]: Index(['Id', 'SepalLengthCm', 'SepalWidthCm', 'PetalLengthCm', 'PetalWidthCm',
'Species'],
dtype='object')

In [5]: `df.dtypes`

Out[5]: Id int64
SepalLengthCm float64
SepalWidthCm float64
PetalLengthCm float64
PetalWidthCm float64
Species object
dtype: object

In [6]: `df.info()`

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 150 entries, 0 to 149
Data columns (total 6 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Id                    150 non-null   int64
1   SepalLengthCm         150 non-null   float64
2   SepalWidthCm          150 non-null   float64
3   PetalLengthCm         150 non-null   float64
4   PetalWidthCm          150 non-null   float64
5   Species               150 non-null   object
dtypes: float64(4), int64(1), object(1)
memory usage: 7.2+ KB
```

In [7]: `df.describe()`

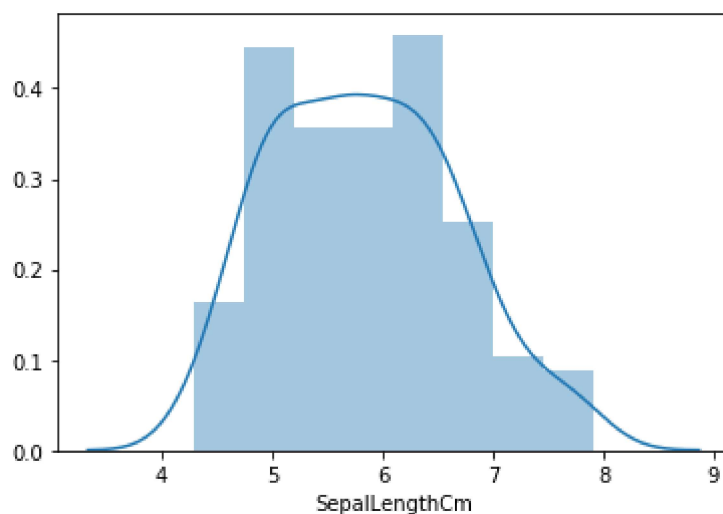
Out[7]:

	Id	SepalLengthCm	SepalWidthCm	PetalLengthCm	PetalWidthCm
count	150.000000	150.000000	150.000000	150.000000	150.000000
mean	75.500000	5.843333	3.054000	3.758667	1.198667
std	43.445368	0.828066	0.433594	1.764420	0.763161
min	1.000000	4.300000	2.000000	1.000000	0.100000
25%	38.250000	5.100000	2.800000	1.600000	0.300000
50%	75.500000	5.800000	3.000000	4.350000	1.300000
75%	112.750000	6.400000	3.300000	5.100000	1.800000
max	150.000000	7.900000	4.400000	6.900000	2.500000

Data Visualization

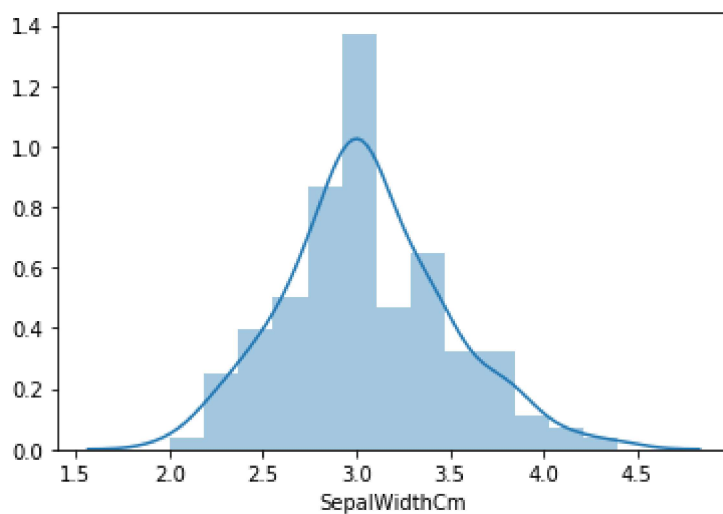
```
In [9]: sns.distplot(df['SepalLengthCm'])
```

```
Out[9]: <matplotlib.axes._subplots.AxesSubplot at 0x491aa5fec8>
```



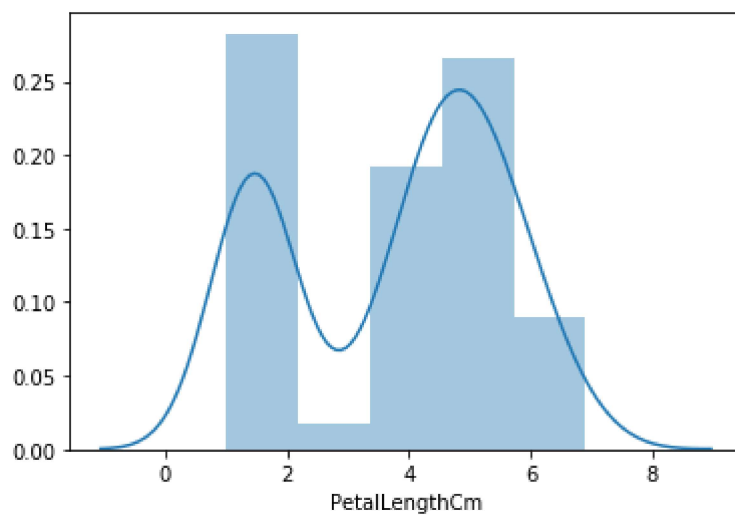
```
In [10]: sns.distplot(df['SepalWidthCm'])
```

```
Out[10]: <matplotlib.axes._subplots.AxesSubplot at 0x4919d7a808>
```



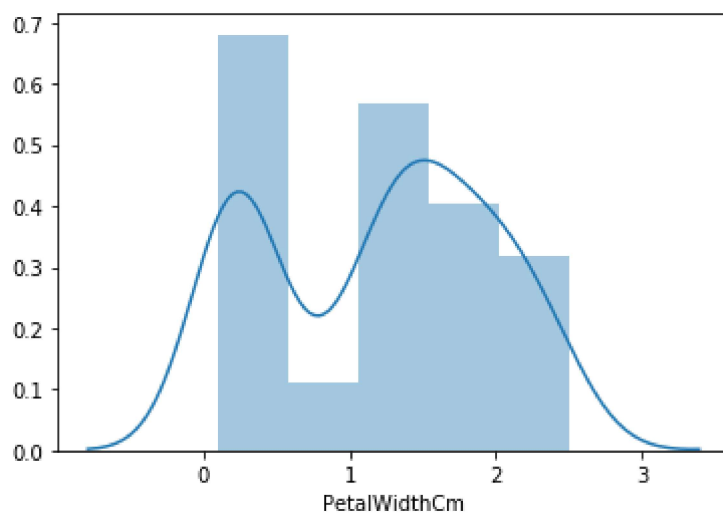
```
In [11]: sns.distplot(df['PetalLengthCm'])
```

```
Out[11]: <matplotlib.axes._subplots.AxesSubplot at 0x491ad8f0c8>
```



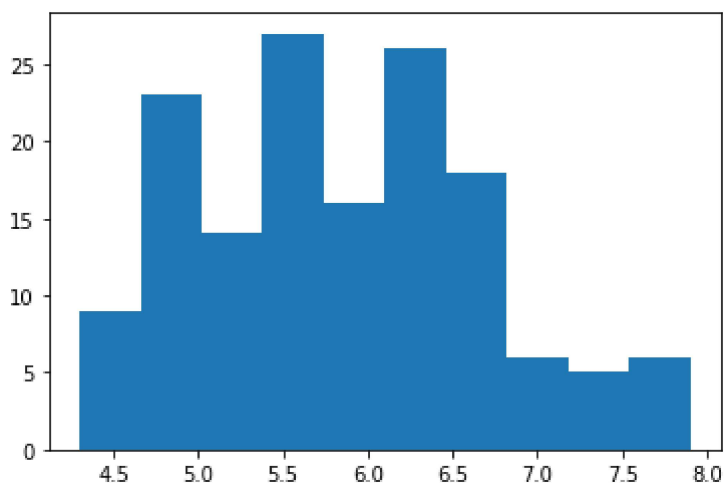
```
In [18]: sns.distplot(df['PetalWidthCm'])
```

```
Out[18]: <matplotlib.axes._subplots.AxesSubplot at 0x49203185c8>
```



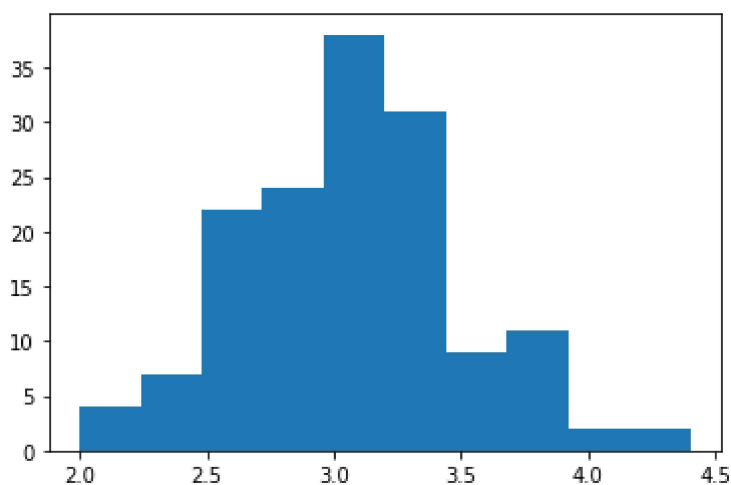
```
In [13]: plt.hist(df['SepalLengthCm'])
```

```
Out[13]: (array([ 9., 23., 14., 27., 16., 26., 18.,  6.,  5.,  6.]),
 array([4.3 , 4.66, 5.02, 5.38, 5.74, 6.1 , 6.46, 6.82, 7.18, 7.54, 7.9 ]),
 <a list of 10 Patch objects>)
```



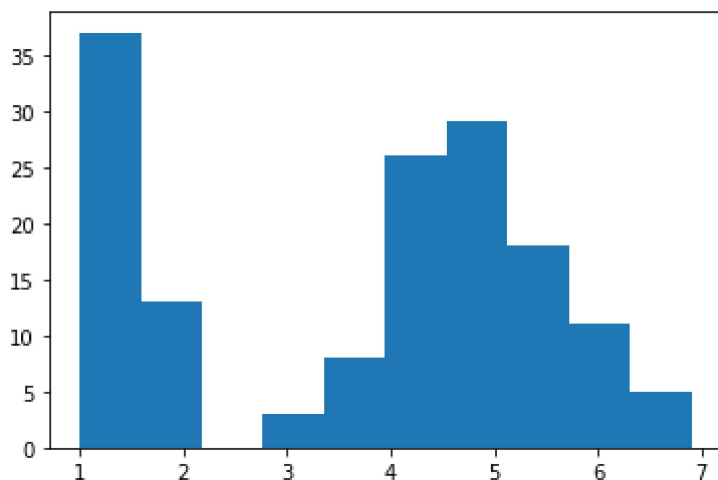
In [14]: `plt.hist(df['SepalWidthCm'])`

Out[14]: (array([4., 7., 22., 24., 38., 31., 9., 11., 2., 2.]),
array([2. , 2.24, 2.48, 2.72, 2.96, 3.2 , 3.44, 3.68, 3.92, 4.16, 4.4]),
<a list of 10 Patch objects>)



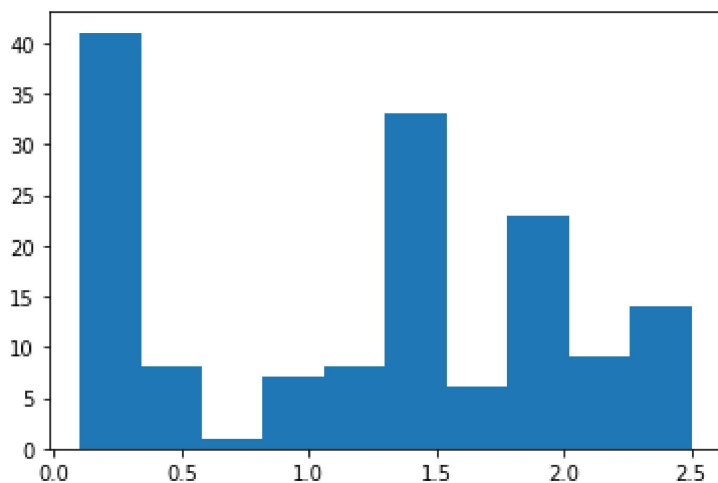
In [15]: `plt.hist(df['PetalLengthCm'])`

Out[15]: (array([37., 13., 0., 3., 8., 26., 29., 18., 11., 5.]),
array([1. , 1.59, 2.18, 2.77, 3.36, 3.95, 4.54, 5.13, 5.72, 6.31, 6.9]),
<a list of 10 Patch objects>)



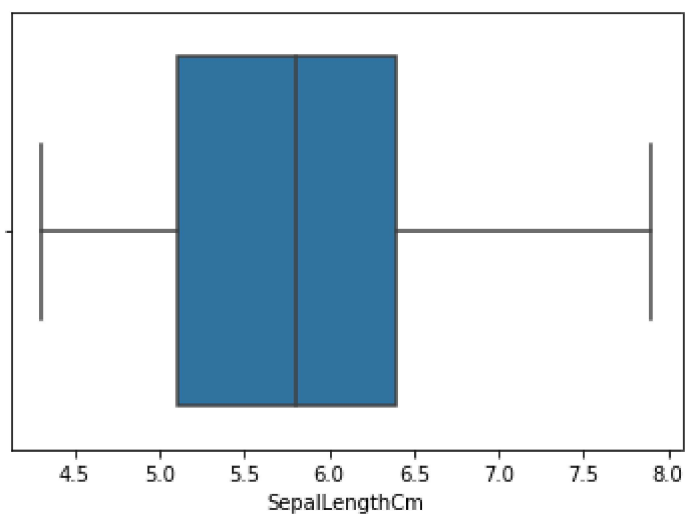
```
In [16]: plt.hist(df['PetalWidthCm'])
```

```
Out[16]: (array([41.,  8.,  1.,  7.,  8., 33.,  6., 23.,  9., 14.]),  
          array([0.1, 0.34, 0.58, 0.82, 1.06, 1.3, 1.54, 1.78, 2.02, 2.26, 2.5 ]),  
          <a list of 10 Patch objects>)
```



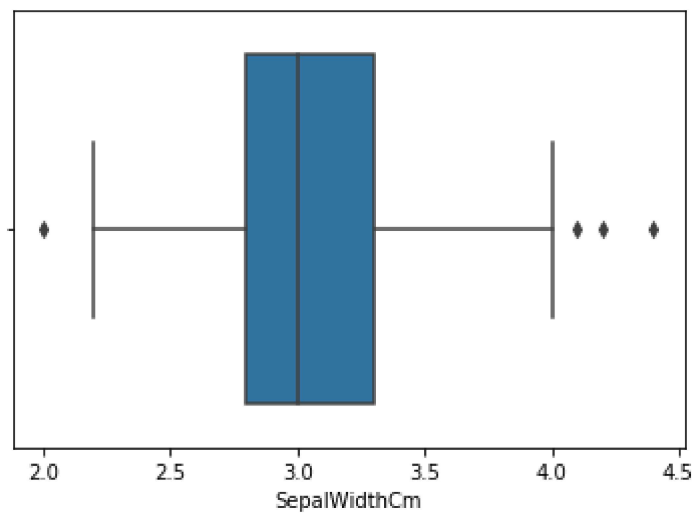
```
In [19]: sns.boxplot(df['SepalLengthCm'])
```

```
Out[19]: <matplotlib.axes._subplots.AxesSubplot at 0x492033df88>
```



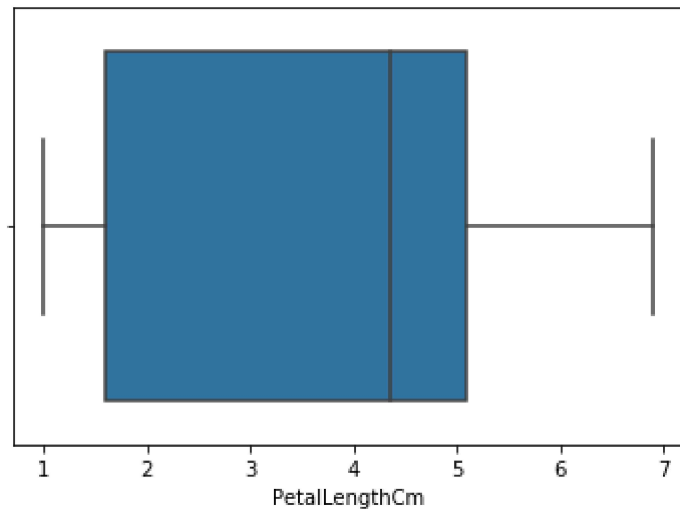
```
In [20]: sns.boxplot(df['SepalWidthCm'])
```

```
Out[20]: <matplotlib.axes._subplots.AxesSubplot at 0x49203d7d48>
```



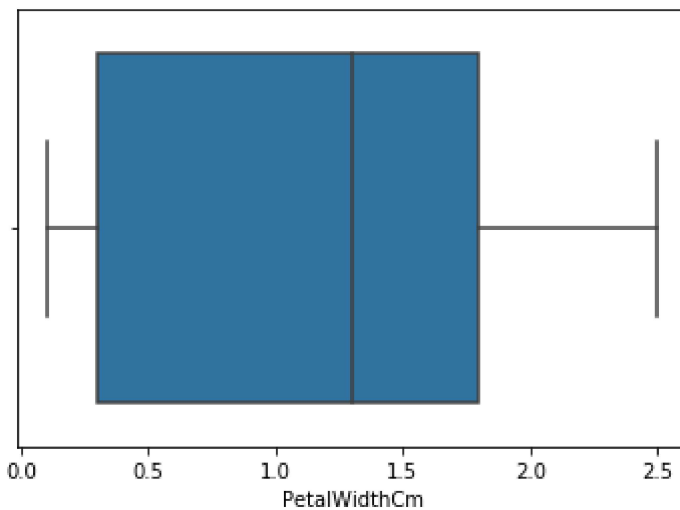
```
In [21]: sns.boxplot(df['PetalLengthCm'])
```

```
Out[21]: <matplotlib.axes._subplots.AxesSubplot at 0x492043fe88>
```



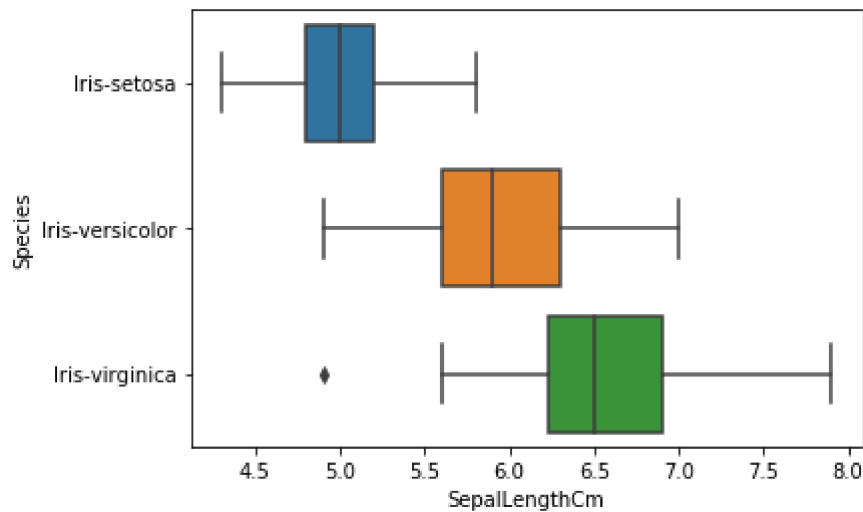
```
In [22]: sns.boxplot(df['PetalWidthCm'])
```

```
Out[22]: <matplotlib.axes._subplots.AxesSubplot at 0x492047cf88>
```



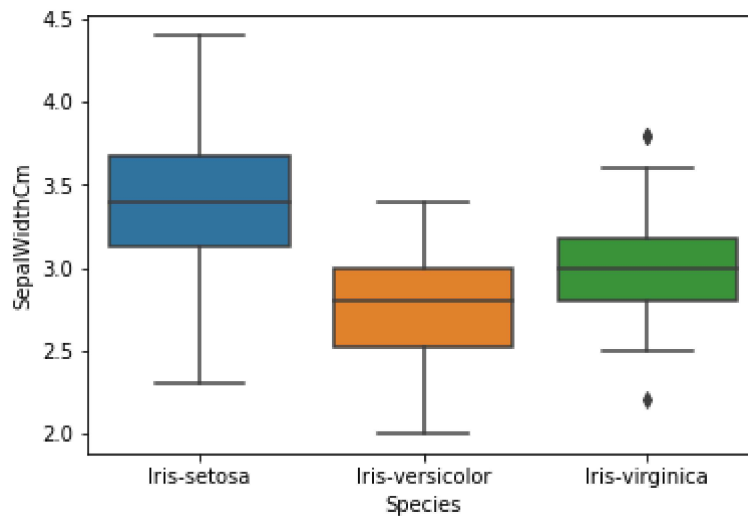
```
In [27]: sns.boxplot(data = df, x = df['SepalLengthCm'], y = df['Species'])
```

```
Out[27]: <matplotlib.axes._subplots.AxesSubplot at 0x49206243c8>
```



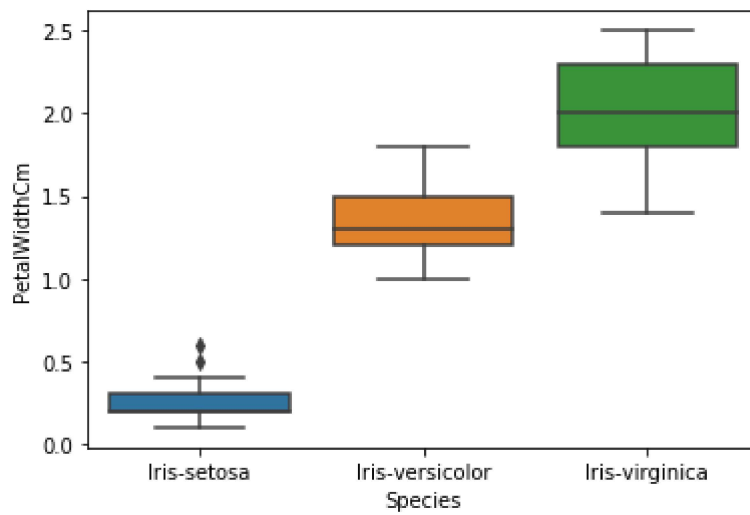
```
In [28]: sns.boxplot(data = df, x = df['Species'], y = df['SepalWidthCm'])
```

```
Out[28]: <matplotlib.axes._subplots.AxesSubplot at 0x49206b7688>
```



```
In [29]: sns.boxplot(data = df, x = df['Species'], y = df['PetalWidthCm'])
```

```
Out[29]: <matplotlib.axes._subplots.AxesSubplot at 0x49207549c8>
```

```
In [30]: sns.boxplot(data = df, x = df['Species'], y = df['PetalLengthCm'])
```

```
Out[30]: <matplotlib.axes._subplots.AxesSubplot at 0x49207d9ac8>
```

