assignment_12

April 15, 2017

1 Live Session Unit 12 Assignment

1.1 Question 1:

1.1.1 a.

```
In [13]: my_list = [45.4,44.2,36.8,35.1,39.0,60.0,47.4,41.1,45.8,35.6]
```

```
In [14]: print(my_list[4])
```

```
39.0
```

1.1.2 b.

```
In [15]: my_list.append(55.2)
```

```
In [16]: print(my_list)
```

```
[45.4, 44.2, 36.8, 35.1, 39.0, 60.0, 47.4, 41.1, 45.8, 35.6, 55.2]
```

1.1.3 c.

```
In [17]: del my_list[5]
```

```
In [18]: print(my_list)
```

```
[45.4, 44.2, 36.8, 35.1, 39.0, 47.4, 41.1, 45.8, 35.6, 55.2]
```

1.1.4 d.

```
In [23]: # solution using simple for loop and if condition
         for item in my_list:
             if item > 45:
                 print(item)
```

```
45.4
47.4
45.8
55.2
```

```
In [27]: # a more compact version using list comprehension
         [item for item in my_list if item > 45]

Out[27]: [45.4, 47.4, 45.8, 55.2]
```

1.2 Question 2

1.2.1 a.

```
In [57]: import numpy as np
```

1.2.2 b.

```
In [59]: a_my_list = np.array(my_list)
```

1.2.3 c.

```
In [60]: np.mean(a_my_list)

Out[60]: 42.560000000000002

In [62]: np.std(a_my_list)

Out[62]: 5.9709630713981143
```

1.2.4 d.

```
In [64]: a_my_list[a_my_list < 45]

Out[64]: array([ 44.2,  36.8,  35.1,  39. ,  41.1,  35.6])
```

1.2.5 e.

```
In [67]: np.min(a_my_list)

Out[67]: 35.100000000000001

In [68]: np.max(a_my_list)

Out[68]: 55.200000000000003
```

1.3 Question 3

1.3.1 a.

```
In [2]: import pandas
```

1.3.2 b.

```
In [4]: iris = pandas.read_csv('./Iris.csv')
```

1.3.3 c.

```
In [5]: iris.head()
```

```
Out[5]:    Id  SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm      Specie
        0   1            5.1           3.5            1.4           0.2  Iris-setos
        1   2            4.9           3.0            1.4           0.2  Iris-setos
        2   3            4.7           3.2            1.3           0.2  Iris-setos
        3   4            4.6           3.1            1.5           0.2  Iris-setos
        4   5            5.0           3.6            1.4           0.2  Iris-setos
```

1.3.4 d.

```
In [9]: iris = iris.drop(['Id'], axis=1)
```

1.3.5 e.

```
In [14]: iris_setosa = iris[iris['Species'] == 'Iris-setosa']
```

1.3.6 f.

```
In [15]: iris.describe()
```

```
Out[15]:        SepalLengthCm  SepalWidthCm  PetalLengthCm  PetalWidthCm
         count     150.000000    150.000000     150.000000    150.000000
         mean        5.843333      3.054000       3.758667      1.198667
         std         0.828066      0.433594       1.764420      0.763161
         min         4.300000      2.000000       1.000000      0.100000
         25%         5.100000      2.800000       1.600000      0.300000
         50%         5.800000      3.000000       4.350000      1.300000
         75%         6.400000      3.300000       5.100000      1.800000
         max         7.900000      4.400000       6.900000      2.500000
```

1.3.7 g.

```
In [17]: iris.groupby(['Species']).describe()
```

```
Out[17]:                         PetalLengthCm  PetalWidthCm  SepalLengthCm  \
         Species
         Iris-setosa     count       50.000000     50.000000      50.000000
                         mean         1.464000      0.244000       5.006000
                         std          0.173511      0.107210       0.352490
                         min          1.000000      0.100000       4.300000
                         25%          1.400000      0.200000       4.800000
                         50%          1.500000      0.200000       5.000000
                         75%          1.575000      0.300000       5.200000
```

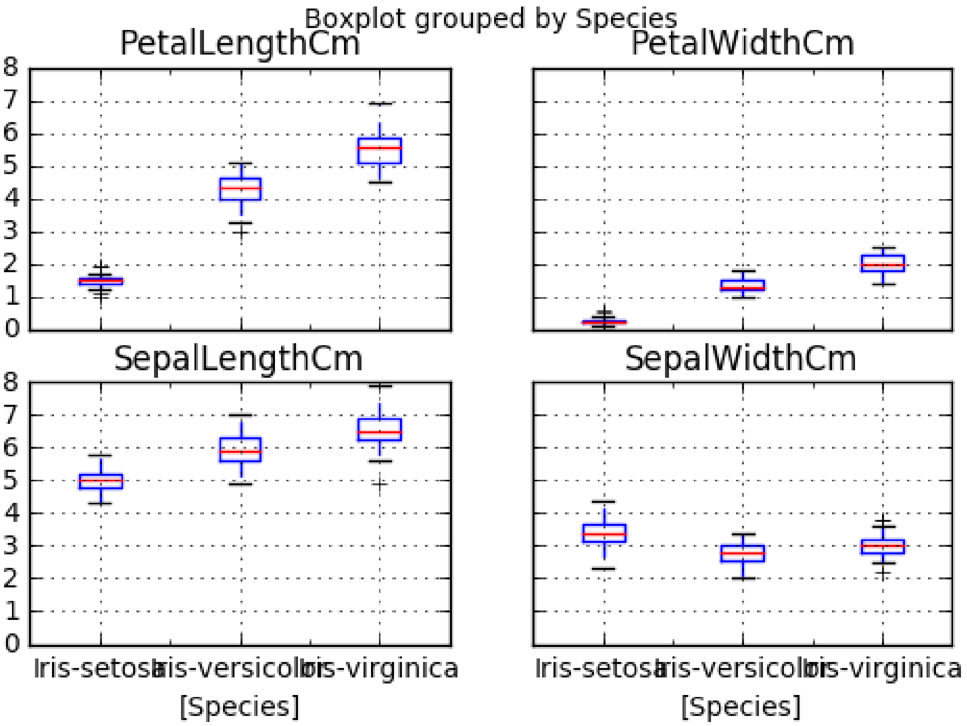
```
                max         1.900000      0.600000       5.800000
Iris-versicolor count      50.000000     50.000000      50.000000
                mean        4.260000      1.326000       5.936000
                std         0.469911      0.197753       0.516171
                min         3.000000      1.000000       4.900000
                25%         4.000000      1.200000       5.600000
                50%         4.350000      1.300000       5.900000
                75%         4.600000      1.500000       6.300000
                max         5.100000      1.800000       7.000000
Iris-virginica  count      50.000000     50.000000      50.000000
                mean        5.552000      2.026000       6.588000
                std         0.551895      0.274650       0.635880
                min         4.500000      1.400000       4.900000
                25%         5.100000      1.800000       6.225000
                50%         5.550000      2.000000       6.500000
                75%         5.875000      2.300000       6.900000
                max         6.900000      2.500000       7.900000

                       SepalWidthCm
Species
Iris-setosa     count     50.000000
                mean       3.418000
                std        0.381024
                min        2.300000
                25%        3.125000
                50%        3.400000
                75%        3.675000
                max        4.400000
Iris-versicolor count     50.000000
                mean       2.770000
                std        0.313798
                min        2.000000
                25%        2.525000
                50%        2.800000
                75%        3.000000
                max        3.400000
Iris-virginica  count     50.000000
                mean       2.974000
                std        0.322497
                min        2.200000
                25%        2.800000
                50%        3.000000
                75%        3.175000
                max        3.800000
```

1.3.8 h.

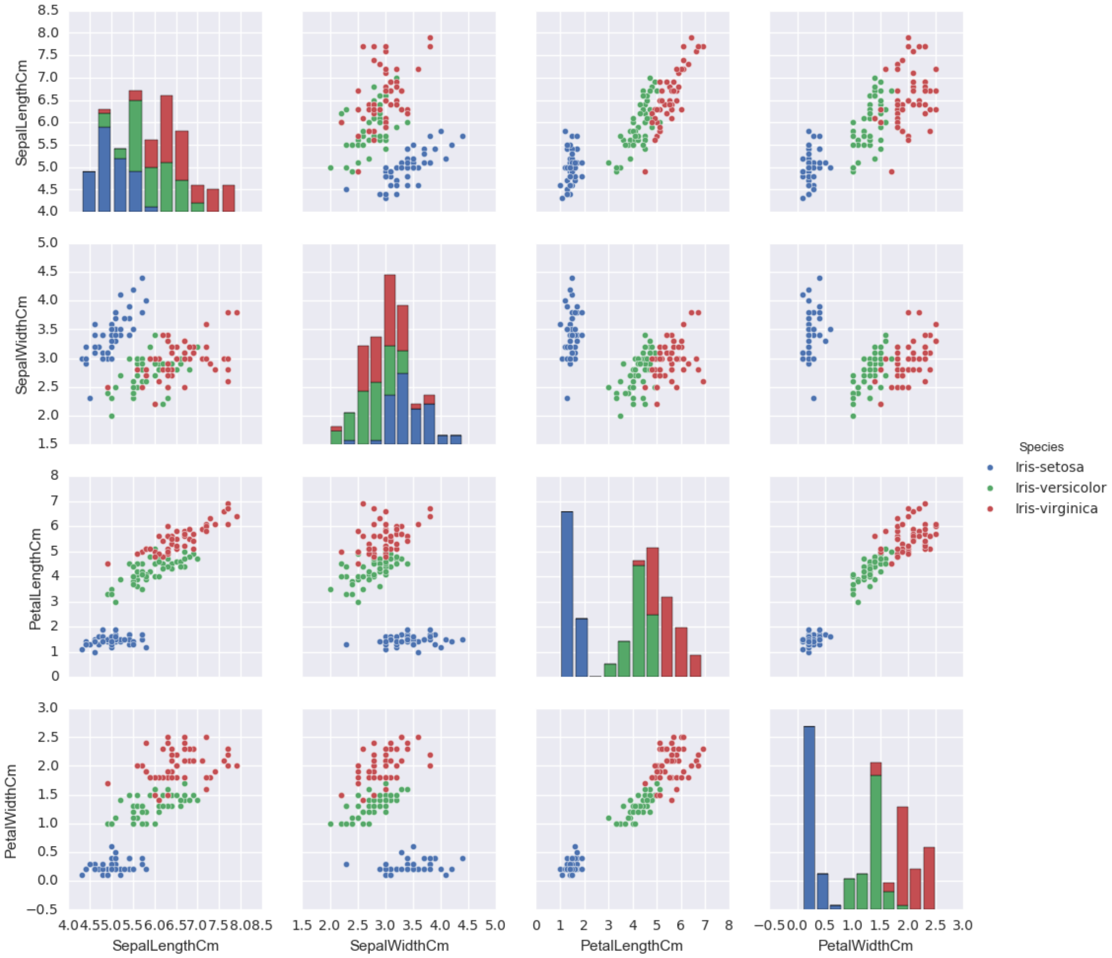
```
In [24]: %matplotlib inline

         plot = iris.boxplot( by='Species')
```



```
In [26]: import seaborn as sns
         sns.pairplot(iris, hue='Species')

Out[26]: <seaborn.axisgrid.PairGrid at 0x116b167f0>
```


SepalLengthCm
8.5
8.0
7.5
7.0
6.5
6.0
5.5
5.0
4.5
4.0
SepalWidthCm
5.0
4.5
4.0
3.5
3.0
2.5
2.0
1.5
PetalLengthCm
8
7
6
5
4
3
2
1
0
PetalWidthCm
3.0
2.5
2.0
1.5
1.0
0.5
0.0
−0.5
4.04.55.05.56.06.57.07.58.08.5
SepalLengthCm
1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0
SepalWidthCm
0 1 2 3 4 5 6 7 8
PetalLengthCm
−0.50.0 0.5 1.0 1.5 2.0 2.5 3.0
PetalWidthCm
Species
Iris-setosa
Iris-versicolor
Iris-virginica

```
In [ ]:
```