

گزارش تمرین دوم داده کاوی

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```
In [3]: iris_SP = iris[['sepal.length', 'sepal.width', 'petal.length', 'petal.width']]
iris_SP.head()
```

```
Out[3]:
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	sepal.length	sepal.width	petal.length	petal.width
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2

```
In [8]: from scipy.cluster.hierarchy import dendrogram, linkage

# generate the linkage matrix
Z = linkage(iris_SP, 'complete')
print (Z)
```

```
[[1.01000000e+02 1.42000000e+02 0.00000000e+00 2.00000000e+00]
 [7.00000000e+00 3.90000000e+01 1.00000000e-01 2.00000000e+00]
 [0.00000000e+00 1.70000000e+01 1.00000000e-01 2.00000000e+00]
 [9.00000000e+00 3.40000000e+01 1.00000000e-01 2.00000000e+00]
 [1.28000000e+02 1.32000000e+02 1.00000000e-01 2.00000000e+00]
 [1.00000000e+01 4.80000000e+01 1.00000000e-01 2.00000000e+00]
 [4.00000000e+00 3.70000000e+01 1.41421356e-01 2.00000000e+00]
 [1.90000000e+01 2.10000000e+01 1.41421356e-01 2.00000000e+00]
 [2.90000000e+01 3.00000000e+01 1.41421356e-01 2.00000000e+00]
 [5.70000000e+01 9.30000000e+01 1.41421356e-01 2.00000000e+00]
 [8.00000000e+01 8.10000000e+01 1.41421356e-01 2.00000000e+00]
 [1.16000000e+02 1.37000000e+02 1.41421356e-01 2.00000000e+00]
 [8.00000000e+00 3.80000000e+01 1.41421356e-01 2.00000000e+00]
 [3.00000000e+00 4.70000000e+01 1.41421356e-01 2.00000000e+00]
 [2.70000000e+01 2.80000000e+01 1.41421356e-01 2.00000000e+00]
 [8.20000000e+01 9.20000000e+01 1.41421356e-01 2.00000000e+00]
 [9.50000000e+01 9.60000000e+01 1.41421356e-01 2.00000000e+00]
 [1.27000000e+02 1.38000000e+02 1.41421356e-01 2.00000000e+00]
 [1.00000000e+00 4.50000000e+01 1.41421356e-01 2.00000000e+00]
 [6.30000000e+01 8.10000000e+01 1.41421356e-01 2.00000000e+00]]
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In [6]: plt.figure(figsize=(10, 8))
plt.scatter(iris.data[:,0], iris.data[:,1], c=clusters, cmap='prism')
plt.show()
```

