ML_prog_3

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0.1 Demonstrate K Means Algorithm.

- Use at least one plot to visualize the results.

0.2 Import Packages

[6]:
```
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
from sklearn.datasets import make_blobs
from sklearn.cluster import KMeans
from sklearn.metrics import accuracy_score
```

0.3 Making the blobs. This is a function that creates samples for us

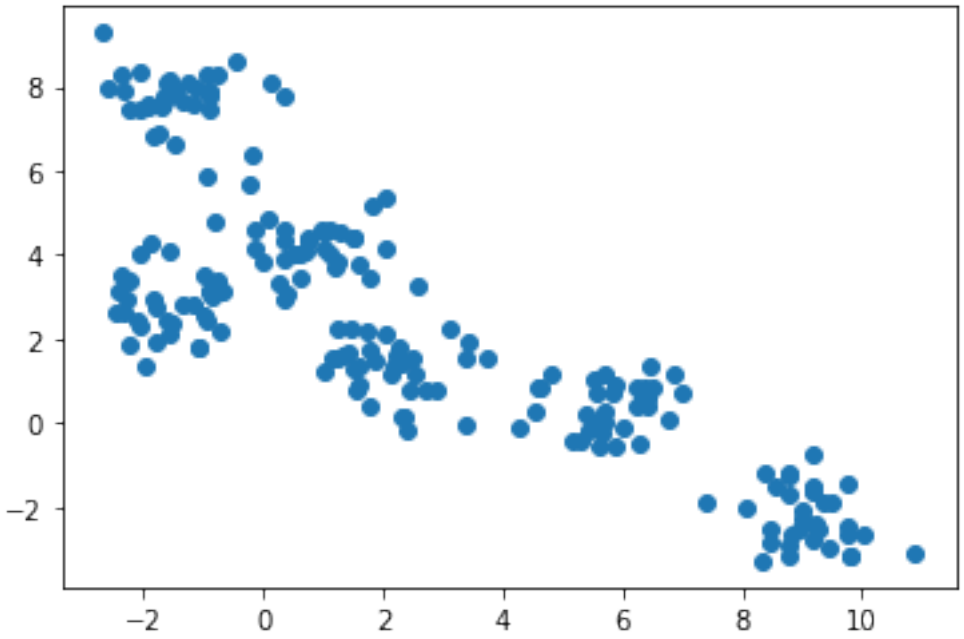
0.3.1 We have 6 centres and 200 samples from this

[7]:
```
X,y = make_blobs(centers=6, n_samples=200, random_state=0, cluster_std=0.7)
print(X[:10],y[:10])
```

```
[[ 4.59652385  0.82673565]
 [-2.05758348  8.38229869]
 [-1.6656756   7.79866291]
 [-2.33013207  2.61140823]
 [ 1.25790923  3.82442026]
 [ 9.00383934 -2.26512351]
 [ 5.68966819  1.19402363]
 [ 2.7183439   0.78915659]
 [ 0.242283    3.30977477]
 [-2.22705476  1.83654249]] [5 3 3 2 0 4 5 1 0 2]
```

0.4 Displaying a scatter to visualize the blob samples

[8]:
```
plt.scatter(X[:,0],X[:,1]);
```



0.5 Using Sklearn KMeans function

Here we are using 6 centers and fitting the model to the blobs we have created. And we are printing the assigned clusters

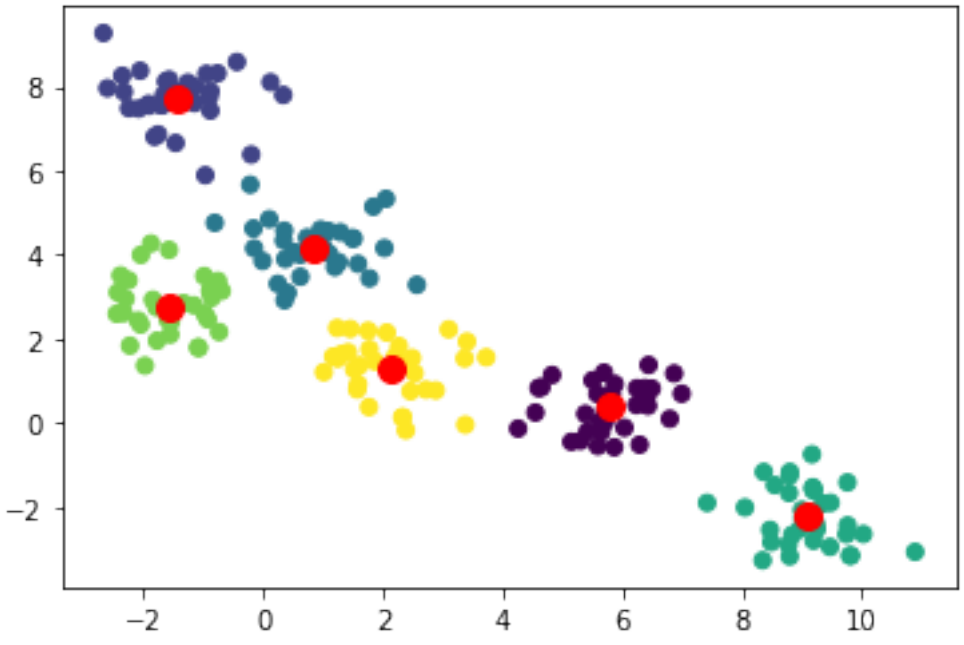
[9]:
```
model = KMeans(6)
model.fit(X)
print(model.cluster_centers_)
```

```
[[ 5.77468094  0.38664656]
 [-1.42522532  7.72281615]
 [ 0.82888311  4.1816144 ]
 [ 9.08478088 -2.22796514]
 [-1.57679219  2.77600457]
 [ 2.13143726  1.29560841]]
```

0.6 Visualizing the clustered data again using the same scatter plot but with colors

We are visualizing the centres of the clusters also

[11]:
```
plt.scatter(X[:,0],X[:,1], c=model.labels_);
plt.scatter(model.cluster_centers_[:,0], model.cluster_centers_[:,1], s=100,␣
↪color="red"); # Show the centres
```



End of notebook