

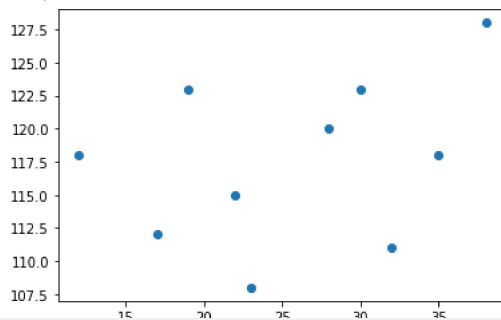
```
# Title : K-Means Clustering
```

```
import matplotlib.pyplot as plt
%matplotlib inline
import numpy as np
from sklearn.cluster import KMeans
```

```
x=np.array([[17,112],
            [28,120],
            [12,118],
            [23,108],
            [22,115],
            [19,123],
            [32,111],
            [35,118],
            [30,123],
            [38,128]])
```

```
plt.scatter(x[:,0],x[:,1], label='True Position')
```

```
>>> <matplotlib.collections.PathCollection at 0x7f97022a4590>
```



```
KMeans=KMeans(n_clusters=2)
KMeans.fit(x)
```

```
>>> KMeans(algorithm='auto', copy_x=True, init='k-means++', max_iter=300,
            n_clusters=2, n_init=10, n_jobs=None, precompute_distances='auto',
            random_state=None, tol=0.0001, verbose=0)
```

```
print(KMeans.cluster_centers_)
```

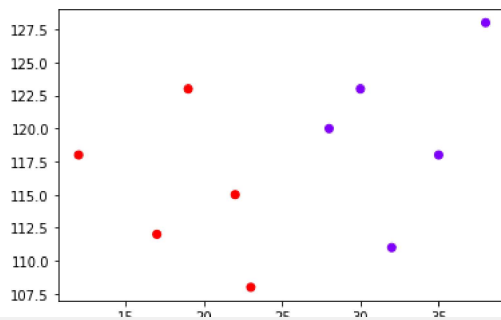
```
>>> [[ 32.6 120. ]
      [ 18.6 115.2]]
```

```
print(KMeans.labels_)
```

```
>>> [1 0 1 1 1 1 0 0 0 0]
```

```
plt.scatter(x[:,0],x[:,1], c=KMeans.labels_, cmap='rainbow')
```

```
>>> <matplotlib.collections.PathCollection at 0x7f97022a4250>
```



```
plt.scatter(x[:,0],x[:,1], c=KMeans.labels_, cmap='rainbow')
plt.scatter(KMeans.cluster_centers_[0,0], KMeans.cluster_centers_[0,1], color='black')
```

 <matplotlib.collections.PathCollection at 0x7f9701c9aa50>

