Case - Hotel

February 14, 2021

1 Case - Hotel

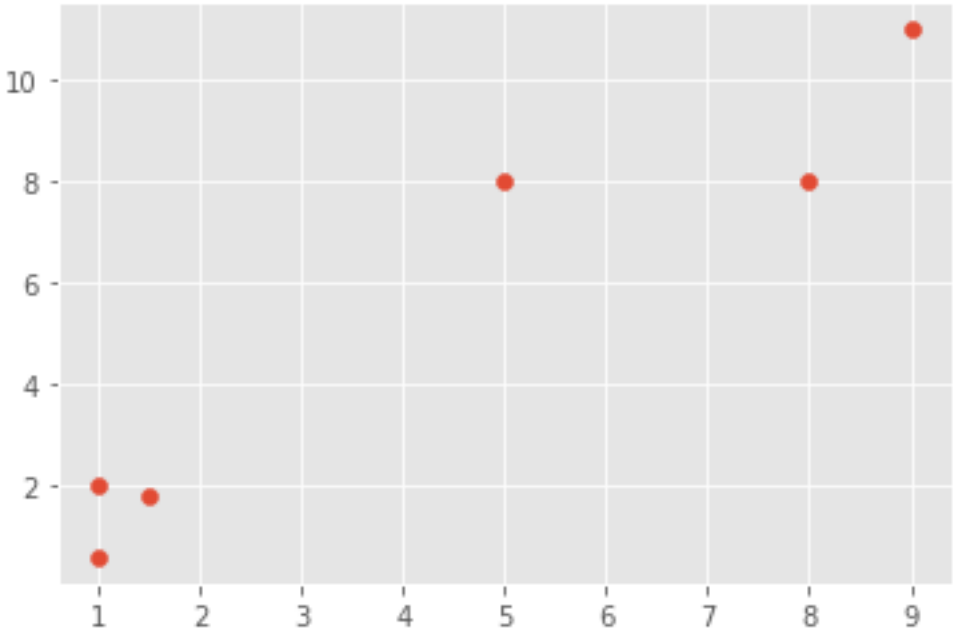
Uma cadeia de hotel gostaria de estabelecer suas novas unidades de uma forma optimizada.

[1]:
```
import numpy as np
import matplotlib.pyplot as plt
from matplotlib import style
from sklearn.cluster import KMeans
```

[2]:
```
style.use("ggplot")
```

[3]:
```
x = [1, 5, 1.5, 8, 1, 9]
y = [2, 8, 1.8, 8, 0.6, 11]
```

[4]:
```
plt.scatter(x, y)
plt.show()
```



[5]:
```
X = np.array([[1, 2], [5, 8], [1.5, 1.8], [8, 8], [1, 0.6], [9, 11]])
```

[6]:
```
kmeans = KMeans(n_clusters=2)
```

[7]:
```
kmeans.fit(X)
```

[7]:
```
KMeans(n_clusters=2)
```

[8]:
```
centroids = kmeans.cluster_centers_
```

[9]:
```
labels = kmeans.labels_
print(centroids)
print(labels)
```

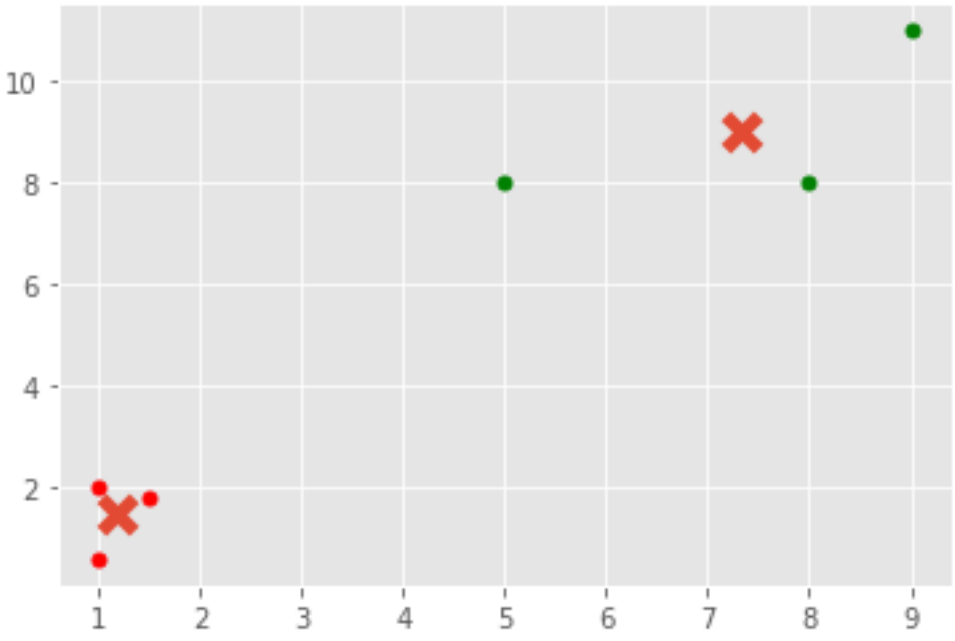
```
[[7.33333333 9.        ]
 [1.16666667 1.46666667]]
[1 0 1 0 1 0]
```

[10]:
```
colors = ["g.", "r.", "c.", "y."]

for i in range(len(X)):
    print("Cordenada:", X[i], "label:", labels[i])
    plt.plot(X[i][0], X[i][1], colors[labels[i]], markersize = 10)

plt.scatter(centroids[:, 0], centroids[:, 1], marker = "x", s=150,␣
 ↪linewidths=5, zorder=10)
plt.show()
```

```
Cordenada: [1. 2.] label: 1
Cordenada: [5. 8.] label: 0
Cordenada: [1.5 1.8] label: 1
Cordenada: [8. 8.] label: 0
Cordenada: [1.  0.6] label: 1
Cordenada: [ 9. 11.] label: 0
```


10
8
6
4
2
1
2
3
4
5
6
7
8
9