ML8

May 23, 2022

[ ]:
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# Apply k-NN Classification technique to solve given problem: In the following diagram let blue circles
# indicate positive examples and orange squares indicate negative examples.
# We want to use k-NN algorithm for classifying the points. If k=3, find the class of the point (6,6).
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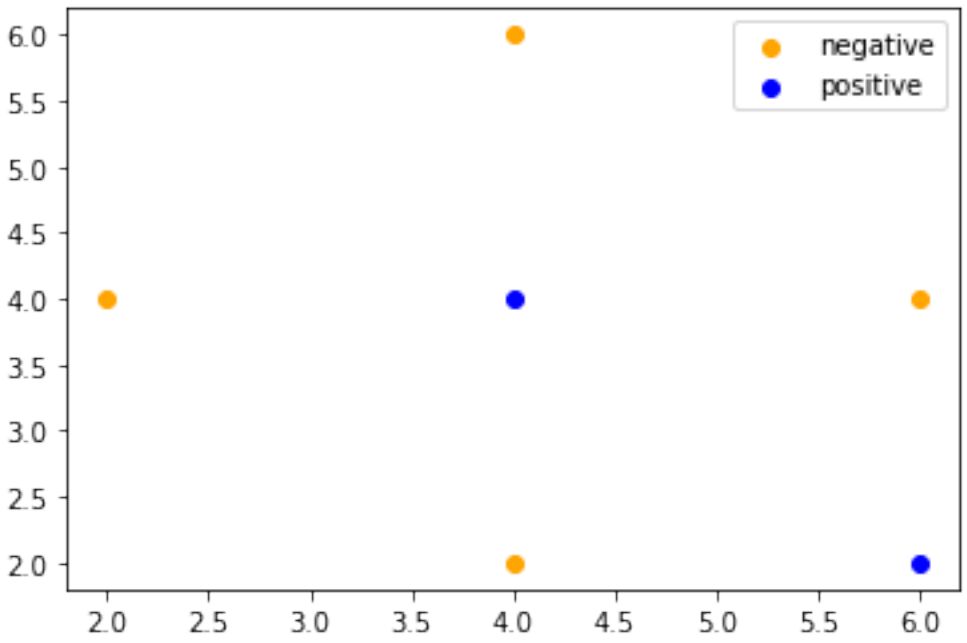
[1]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.neighbors import KNeighborsClassifier
```

[9]:
```
x = np.array([[2,4],[4,2],[4,6],[6,4],[4,4],[6,2]])
y = np.array(["negative","negative","negative","negative","positive","positive"])

negative = x[:4]
positive = x[4:]
negative
positive
```

[9]:
```
array([[4, 4],
       [6, 2]])
```

[10]:
```
plt.figure()
plt.scatter(negative[:,0],negative[:,1],label='negative',c='orange')
plt.scatter(positive[:,0],positive[:,1],label='positive',c='blue')
plt.legend()
plt.show()
```



[11]:
```
# k = 3

clf = KNeighborsClassifier(n_neighbors=3)
clf.fit(x,y)
```

[11]:
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KNeighborsClassifier(n_neighbors=3)
```

[13]:
```
x_test = np.array([6,6])
y_pred = clf.predict([x_test])
y_pred
```

[13]:
```
array(['negative'], dtype='<U8')
```