In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [3]:
```
diabetes = pd.read_csv('User/Muralikrisna/Desktop/diabetes.csv')
print(diabetes.columns)
```

```
Index(['Pregnancies', 'Glucose', 'BloodPressure', 'SkinThickness', 'Insulin',
       'BMI', 'DiabetesPedigreeFunction', 'Age', 'Outcome'],
      dtype='object')
```

In [4]:
```
diabetes.head()
```

Out[4]:

| | Pregnancies | Glucose | BloodPressure | SkinThickness | Insulin | BMI | DiabetesPedigreeFunction |
|---|---|---|---|---|---|---|---|
| **0** | 6 | 148 | 72 | 35 | 0 | 33.6 | 0.627 |
| **1** | 1 | 85 | 66 | 29 | 0 | 26.6 | 0.351 |
| **2** | 8 | 183 | 64 | 0 | 0 | 23.3 | 0.672 |
| **3** | 1 | 89 | 66 | 23 | 94 | 28.1 | 0.167 |
| **4** | 0 | 137 | 40 | 35 | 168 | 43.1 | 2.288 |

In [5]:
```
print("dimension of diabetes data: {}".format(diabetes.shape))
```

```
dimension of diabetes data: (768, 9)
```

In [6]:
```
print(diabetes.groupby('Outcome').size())
```

```
Outcome
0    500
1    268
dtype: int64
```

In [7]:
```
from sklearn.model_selection import train_test_split
X_train, X_test, y_train, y_test = train_test_split(diabetes.loc[:, diabetes.col
```

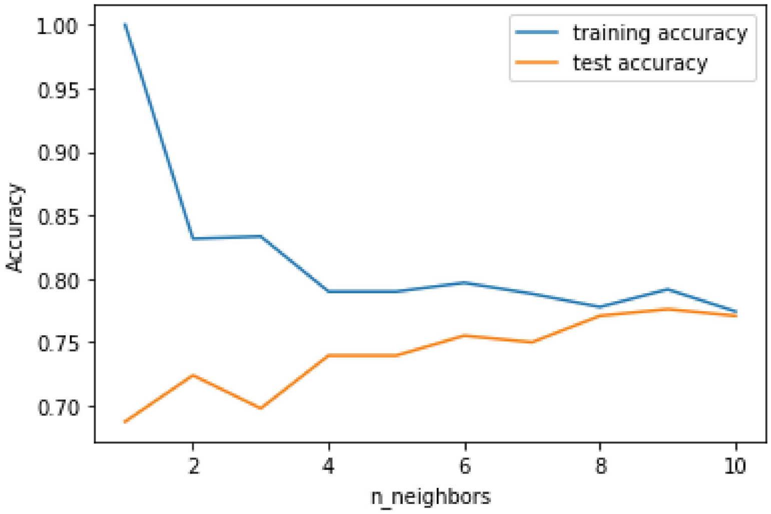
In [8]:

```
from sklearn.neighbors import KNeighborsClassifier
training_accuracy = []
test_accuracy = []

neighbors_settings = range(1, 11)
for n_neighbors in neighbors_settings:
    knn = KNeighborsClassifier(n_neighbors=n_neighbors)
    knn.fit(X_train, y_train)
    training_accuracy.append(knn.score(X_train, y_train))
    test_accuracy.append(knn.score(X_test, y_test))
```

In [9]:

```
plt.plot(neighbors_settings, training_accuracy, label="training accuracy")
plt.plot(neighbors_settings, test_accuracy, label="test accuracy")
plt.ylabel("Accuracy")
plt.xlabel("n_neighbors")
plt.legend()
plt.savefig('knn_compare_model')
```



In [10]:

```
knn = KNeighborsClassifier(11)

knn.fit(X_train,y_train)
knn.score(X_test,y_test)
```

Out[10]:

```
0.78125
```

In [ ]: