In [ ]:
```
# Write a program to implement k-Nearest Neighbour algorithm
#to classify the iris dataset.
# Print both correct and wrong predictions.
```

In [1]:
```
import numpy as np
import pandas as pd
from sklearn.neighbors import KNeighborsClassifier
from sklearn.model_selection import train_test_split
from sklearn import metrics
```

In [2]:
```
# Read dataset to pandas dataframe
dataset = pd.read_csv("IRIS.csv")
```

In [3]:
```
X = dataset.iloc[:, :-1]
y = dataset.iloc[:, -1]
```

In [4]:
```
X
```

Out[4]:

	sepal_length	sepal_width	petal_length	petal_width
0	5.1	3.5	1.4	0.2
1	4.9	3.0	1.4	0.2
2	4.7	3.2	1.3	0.2
3	4.6	3.1	1.5	0.2
4	5.0	3.6	1.4	0.2
...	...	...	...	...
145	6.7	3.0	5.2	2.3
146	6.3	2.5	5.0	1.9
147	6.5	3.0	5.2	2.0
148	6.2	3.4	5.4	2.3
149	5.9	3.0	5.1	1.8

150 rows × 4 columns

In [6]:
```
y
```

Out[6]:
```
0         Iris-setosa
1         Iris-setosa
2         Iris-setosa
3         Iris-setosa
4         Iris-setosa
            ...
145    Iris-virginica
146    Iris-virginica
147    Iris-virginica
148    Iris-virginica
149    Iris-virginica
Name: species, Length: 150, dtype: object
```

In [7]:
```
print(X.head())
```

```
   sepal_length  sepal_width  petal_length  petal_width
0           5.1          3.5           1.4          0.2
1           4.9          3.0           1.4          0.2
2           4.7          3.2           1.3          0.2
3           4.6          3.1           1.5          0.2
4           5.0          3.6           1.4          0.2
```

In [8]:
```
Xtrain, Xtest, ytrain, ytest = train_test_split(X, y, test_size=0.20)
```

In [9]:
```
classifier = KNeighborsClassifier(n_neighbors=5).fit(Xtrain, ytrain)
```

In [10]:
```
ypred = classifier.predict(Xtest)
```

In [14]:
```
#  Print both correct and wrong predictions.
i = 0

print ('Original Label    ', '  Predicted Label', '  Correct/Wrong')

for label in ytest:
    print (label  ,    ypred[i], end="")
    if (label == ypred[i]):
        print ('         Correct')
    else:
        print ('         Wrong')
    i = i + 1
```

```
Original Label      Predicted Label   Correct/Wrong
Iris-versicolor Iris-versicolor         Correct
Iris-virginica Iris-virginica         Correct
Iris-virginica Iris-virginica         Correct
Iris-virginica Iris-virginica         Correct
Iris-virginica Iris-virginica         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-versicolor Iris-virginica         Wrong
Iris-versicolor Iris-versicolor         Correct
Iris-setosa Iris-setosa         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-setosa Iris-setosa         Correct
Iris-virginica Iris-virginica         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-setosa Iris-setosa         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-virginica Iris-virginica         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-setosa Iris-setosa         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-virginica Iris-virginica         Correct
Iris-virginica Iris-virginica         Correct
Iris-setosa Iris-setosa         Correct
Iris-versicolor Iris-virginica         Wrong
Iris-versicolor Iris-versicolor         Correct
Iris-versicolor Iris-versicolor         Correct
Iris-virginica Iris-virginica         Correct
Iris-virginica Iris-virginica         Correct
```

In [ ]: