PROG 4 KNN CLASSIFICATION

AIM:

To upload Iris.csv with three features sepal length, Sepal width and species, read the Test data from user to apply KNN Classification Algorithm and Predict the Test case (Assume K=5).without using predefined function.

SOURCE CODE:

```
import  pandas as pd
import numpy as np
from sklearn.neighbors import KNeighborsClassifier
from sklearn.model_selection import train_test_split
from sklearn.metrics import mean_squared_error



data = pd.read_csv('./iris.csv')
train_data,test_data =train_test_split(data,test_size=0.2,random_state=5)
x_train,y_train = train_data.loc[:,["sepal.length","petal.width"]],train_data['variety']
x_test,y_test = test_data.loc[:,["sepal.length","petal.width"]],test_data['variety']



model  = KNeighborsClassifier(n_neighbors=5)
model.fit(x_train,y_train)
predicted_data = model.predict(x_test)

def replacing_catagory(l):
   for i,e in enumerate(l) :
      if e == 'Versicolor':
         l[i]=1
      if e == 'Setosa':
         l[i]=0
      if e == 'Virginica':
         l[i]=2
   return l
```

```
y_test = replacing_catagory(np.array(y_test))
predicted_data = replacing_catagory(predicted_data)
mse = mean_squared_error(y_test, predicted_data)


print('The mean squared error is ',mse)
```

OUTPUT:

```
The mean squared error is  0.1
```

RESULT:

Thus the program was executed and the output was verified successfully.