

**Write a program to implement k-Nearest Neighbour algorithm to classify the iris data set. Print both correct and wrong predictions. Python ML library classes can be used for this problem.**

```
#Load and return the iris dataset (classification). The iris dataset is a classic and very easy multi-class classification dataset.
```

```
from sklearn.datasets import load_iris
```

```
from sklearn.neighbors import KNeighborsClassifier
```

```
from sklearn.model_selection import train_test_split
```

```
import numpy as np
```

```
dataset=load_iris()
```

```
#print(dataset)
```

```
X_train,X_test,y_train,y_test=train_test_split(dataset["data"],dataset["target"],random_state=0)
```

```
kn=KNeighborsClassifier(n_neighbors=1)
```

```
kn.fit(X_train,y_train)
```

```
KNeighborsClassifier(algorithm='auto', leaf_size=30, metric='minkowski',
```

```
metric_params=None, n_jobs=None, n_neighbors=1, p=2,
```

```
weights='uniform')
```

```
for i in range(len(X_test)):
```

```
    x=X_test[i]
```

```
    x_new=np.array([x])
```

```
    prediction=kn.predict(x_new)
```

```
    print("TARGET=",y_test[i],dataset["target_names"][y_test[i]],"PREDICTED=",prediction,dataset["target_names"][prediction])
```

```
print(kn.score(X_test,y_test))
```

Output:

TARGET= 2 virginica PREDICTED= [2] ['virginica']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']

TARGET= 0 setosa PREDICTED= [0] ['setosa']

TARGET= 2 virginica PREDICTED= [2] ['virginica']

TARGET= 0 setosa PREDICTED= [0] ['setosa']

TARGET= 2 virginica PREDICTED= [2] ['virginica']

TARGET= 0 setosa PREDICTED= [0] ['setosa']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']

TARGET= 2 virginica PREDICTED= [2] ['virginica']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']

TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 2 virginica PREDICTED= [2] ['virginica']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 2 virginica PREDICTED= [2] ['virginica']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 2 virginica PREDICTED= [2] ['virginica']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 2 virginica PREDICTED= [2] ['virginica']  
TARGET= 2 virginica PREDICTED= [2] ['virginica']  
TARGET= 1 versicolor PREDICTED= [1] ['versicolor']  
TARGET= 0 setosa PREDICTED= [0] ['setosa']  
TARGET= 1 versicolor PREDICTED= [2] ['virginica']

0.9736842105263158