

```
In [2]: import sklearn

import pandas as pd

from sklearn.datasets import load_iris

iris=load_iris()

iris.keys()

df=pd.DataFrame(iris['data'])

print(df)

print(iris['target_names'])

iris['feature_names']
```

	0	1	2	3
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 x 4 columns]
['setosa' 'versicolor' 'virginica']
```

```
Out[2]: ['sepal length (cm)',
'sepal width (cm)',
'petal length (cm)',
'petal width (cm)']
```

```
In [3]: X=df

y=iris['target']
```

```
In [4]: from sklearn.model_selection import train_test_split

X_train, X_test, y_train, y_test = train_test_split(X, y, test_size=0.33, random_
```

```
In [5]: from sklearn.neighbors import KNeighborsClassifier

knn=KNeighborsClassifier(n_neighbors=3)
```

```
In [6]: knn.fit(X_train,y_train)
```

```
Out[6]: KNeighborsClassifier(n_neighbors=3)
```

```
In [7]: import numpy as np

x_new=np.array([[5,2.9,1,0.2]])
```

```
In [8]: prediction=knn.predict(x_new)

iris['target_names'][prediction]
```

C:\Users\Madhu Mohan Vamsi\anaconda3\lib\site-packages\sklearn\neighbors_classification.py:228: FutureWarning: Unlike other reduction functions (e.g. `skew`, `kurtosis`), the default behavior of `mode` typically preserves the axis it acts along. In SciPy 1.11.0, this behavior will change: the default value of `keepdims` will become False, the `axis` over which the statistic is taken will be eliminated, and the value None will no longer be accepted. Set `keepdims` to True or False to avoid this warning.

```
mode, _ = stats.mode(_y[neigh_ind, k], axis=1)
```

```
Out[8]: array(['setosa'], dtype='<U10')
```

```
In [9]: from sklearn.metrics import confusion_matrix

from sklearn.metrics import accuracy_score

from sklearn.metrics import classification_report

y_pred=knn.predict(X_test)

cm=confusion_matrix(y_test,y_pred)

print(cm)

print(" correct prediction",accuracy_score(y_test,y_pred))

print(" wrong prediction",(1-accuracy_score(y_test,y_pred)))
```

```
[[19  0  0]
 [ 0 15  0]
 [ 0  1 15]]
correct prediction 0.98
wrong prediction 0.0200000000000000018
```

C:\Users\Madhu Mohan Vamsi\anaconda3\lib\site-packages\sklearn\neighbors_classification.py:228: FutureWarning: Unlike other reduction functions (e.g. `skew`, `kurtosis`), the default behavior of `mode` typically preserves the axis it acts along. In SciPy 1.11.0, this behavior will change: the default value of `keepdims` will become False, the `axis` over which the statistic is taken will be eliminated, and the value None will no longer be accepted. Set `keepdims` to True or False to avoid this warning.

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In []: