Coding Sathi Data Science Internship july-2023

Iris Flower Classification using Python

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In [1]:
```
import pandas as pd
import matplotlib.pyplot as plt
import numpy as np
```

In [2]:
```
import pandas as pd
iris=pd.read_csv("C:\\Users\\admin_a\\Downloads\\archive\\IRIS.csv")
```

In [3]:
```
print(iris.head())
```

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

In [4]:
```
print(iris.describe())
```

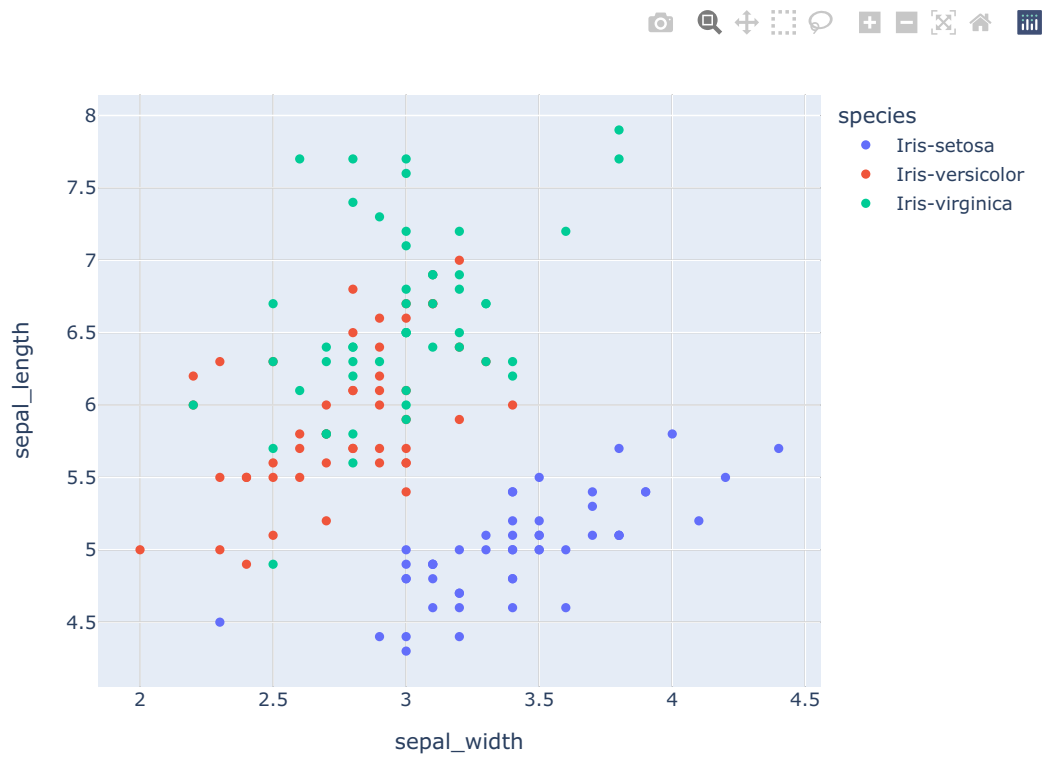
```
       sepal_length  sepal_width  petal_length  petal_width
count    150.000000   150.000000    150.000000   150.000000
mean       5.843333     3.054000      3.758667     1.198667
std        0.828066     0.433594      1.764420     0.763161
min        4.300000     2.000000      1.000000     0.100000
25%        5.100000     2.800000      1.600000     0.300000
50%        5.800000     3.000000      4.350000     1.300000
75%        6.400000     3.300000      5.100000     1.800000
max        7.900000     4.400000      6.900000     2.500000
```

In [5]:
```
print("Target Labels", iris["species"].unique())
```

```
Target Labels ['Iris-setosa' 'Iris-versicolor' 'Iris-virginica']
```

In [6]:
```
import plotly.express as px
fig = px.scatter(iris, x="sepal_width", y="sepal_length", color="species")
fig.show()
```

```
C:\ProgramData\Anaconda3\lib\site-packages\scipy\__init__.py:146: UserWarning: A NumPy version >=1.16.5 and <1.
23.0 is required for this version of SciPy (detected version 1.24.3
  warnings.warn(f"A NumPy version >={np_minversion} and <{np_maxversion}"
```



In [7]:
```
x = iris.drop("species", axis=1)
```

In [7]:
```
x = iris.drop("species", axis=1)
y = iris["species"]
from sklearn.model_selection import train_test_split
x_train, x_test, y_train, y_test = train_test_split(x, y,
                                                    test_size=0.2,
                                                    random_state=0)

from sklearn.neighbors import KNeighborsClassifier
knn = KNeighborsClassifier(n_neighbors=1)
knn.fit(x_train, y_train)
```

Out[7]:
```
KNeighborsClassifier(n_neighbors=1)
```

In [8]:
```
x_new = pd.DataFrame([[5, 2.9, 1, 0.2]], columns=['sepal_length', 'sepal_width', 'petal_length', 'petal_width']
prediction = knn.predict(x_new)

print("Prediction: {}".format(prediction))
```

```
Prediction: ['Iris-setosa']
```

In [ ]: