BURUGU AJITH

MINI PROJECT

CODE:

```
import pandas as pd
iris = pd.read_csv('C:\\Users\\91809\\Downloads\\iris (1).csv')
print(iris)
iris.shape
iris.describe()
iris.head()
import matplotlib.pyplot as plt
iris.hist()
plt.show()
iris['species'].value_counts()
import numpy as np
species_name = {'Iris-versicolor':0,'Iris-virginica':1,'Iris-setosa':2}
color = [species_name[item] for item in iris['species']]
scatter = plt.scatter(iris['sepal_length'],iris['sepal_width'],c=color)
plt.xlabel('Sepal Length (in cm)')
plt.ylabel('Sepal Width (in cm)')
plt.legend(handles = scatter.legend_elements()[0],labels=species_name)
plt.show()
species_name = {'Iris-versicolor':0,'Iris-virginica':1,'Iris-setosa':2}
color = [species_name[item] for item in iris['species']]
scatter = plt.scatter(iris['petal_length'],iris['petal_width'],c=color)
plt.xlabel('Petal Length (in cm)')
plt.ylabel('Petal Width (in cm)')
plt.legend(handles = scatter.legend_elements()[0],labels=species_name)
```

plt.show()

OUTPUT:

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Run Code

In [6]:
```
import pandas as pd
iris = pd.read_csv('C:\\Users\\91809\\Downloads\\iris (1).csv')
print(iris)
```

```
     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
..            ...          ...           ...          ...             ...
145           6.7          3.0           5.2          2.3  Iris-virginica
146           6.3          2.5           5.0          1.9  Iris-virginica
147           6.5          3.0           5.2          2.0  Iris-virginica
148           6.2          3.4           5.4          2.3  Iris-virginica
149           5.9          3.0           5.1          1.8  Iris-virginica

[150 rows x 5 columns]
```

In [7]:
```
iris.shape
```

Out[7]: (150, 5)

In [8]:
```
iris.describe()
```

Out[8]:

	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

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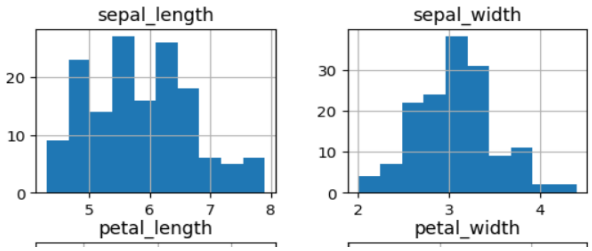
50%	5.800000	3.000000	4.350000	1.300000
75%	6.400000	3.300000	5.100000	1.800000
max	7.900000	4.400000	6.900000	2.500000

In [9]:
```
iris.head()
```

Out[9]:

	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 [10]:
```
import matplotlib.pyplot as plt
iris.hist()
plt.show()
```



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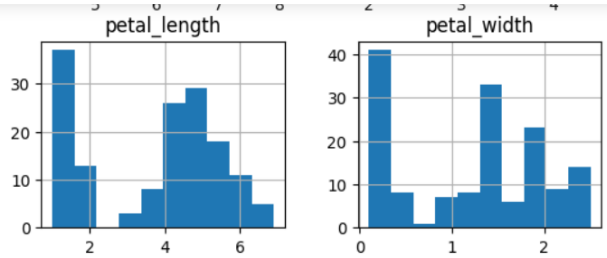
Run Code



In [11]:
```
iris['species'].value_counts()
```

Out[11]:
```
Iris-setosa        50
Iris-versicolor    50
Iris-virginica     50
Name: species, dtype: int64
```

In [12]:
```
import numpy as np
species_name = {'Iris-versicolor':0,'Iris-virginica':1,'Iris-setosa':2}
color = [species_name[item] for item in iris['species']]
scatter = plt.scatter(iris['sepal_length'],iris['sepal_width'],c=color)
plt.xlabel('Sepal Length (in cm)')
plt.ylabel('Sepal Width (in cm)')
plt.legend(handles = scatter.legend_elements()[0],labels=species_name)
plt.show()
```

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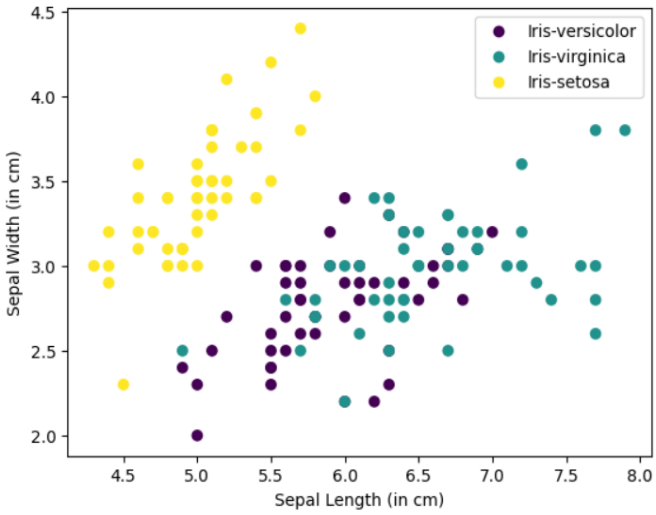
Run Code

In [12]:
```
import numpy as np
species_name = {'Iris-versicolor':0,'Iris-virginica':1,'Iris-setosa':2}
color = [species_name[item] for item in iris['species']]
scatter = plt.scatter(iris['sepal_length'],iris['sepal_width'],c=color)
plt.xlabel('Sepal Length (in cm)')
plt.ylabel('Sepal Width (in cm)')
plt.legend(handles = scatter.legend_elements()[0],labels=species_name)
plt.show()
```



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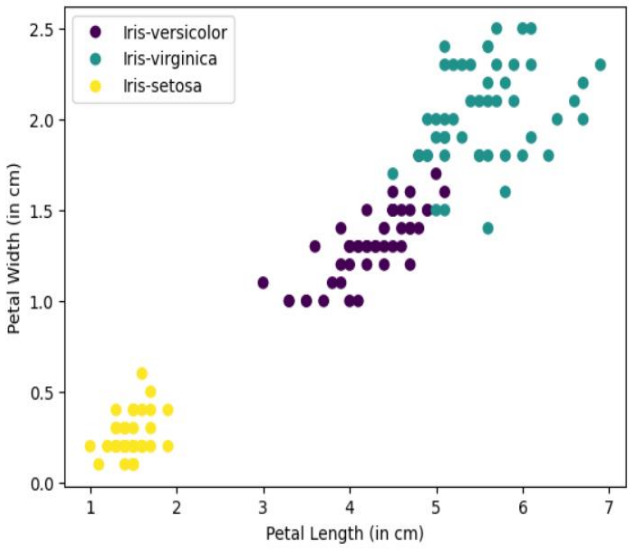
Run Code

In [13]:
```
species_name = {'Iris-versicolor':0,'Iris-virginica':1,'Iris-setosa':2}
color = [species_name[item] for item in iris['species']]
scatter = plt.scatter(iris['petal_length'],iris['petal_width'],c=color)
plt.xlabel('Petal Length (in cm)')
plt.ylabel('Petal Width (in cm)')
plt.legend(handles = scatter.legend_elements()[0],labels=species_name)
plt.show()
```



Conclusion:

The KNN algorithm is a powerful and straightforward classification technique that can be effectively used for various datasets, including the Iris flower dataset. With proper parameter tuning and evaluation, it can serve as a strong baseline for more complex classification tasks.