```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
import seaborn as sns
import warnings
warnings.filterwarnings("ignore")
```

```python
from sklearn.datasets import load_iris
irisdataset = load_iris()
```

```python
irisdataset.target_names
```

    array(['setosa', 'versicolor', 'virginica'], dtype='<U10')

```python
irisdataset.feature_names
```

    ['sepal length (cm)',
     'sepal width (cm)',
     'petal length (cm)',
     'petal width (cm)']

```python
df = pd.DataFrame(irisdataset.data,columns=irisdataset.feature_names)
```

```python
df['target'] = irisdataset.target
```

```python
df['flower_name'] =df.target.apply(lambda x: irisdataset.target_names[x])
```

```python
df
```

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_name
0	5.1	3.5	1.4	0.2	0	setosa
1	4.9	3.0	1.4	0.2	0	setosa
2	4.7	3.2	1.3	0.2	0	setosa
3	4.6	3.1	1.5	0.2	0	setosa
4	5.0	3.6	1.4	0.2	0	setosa
...	...	...	...	...	...	...
145	6.7	3.0	5.2	2.3	2	virginica
146	6.3	2.5	5.0	1.9	2	virginica
147	6.5	3.0	5.2	2.0	2	virginica
148	6.2	3.4	5.4	2.3	2	virginica
149	5.9	3.0	5.1	1.8	2	virginica

150 rows × 6 columns

```python
df[df['flower_name']=="setosa"].head()
```

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_name
0	5.1	3.5	1.4	0.2	0	setosa
1	4.9	3.0	1.4	0.2	0	setosa
2	4.7	3.2	1.3	0.2	0	setosa
3	4.6	3.1	1.5	0.2	0	setosa
4	5.0	3.6	1.4	0.2	0	setosa

```python
df[df['flower_name']=="virginica"].head()
```

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_name
100	6.3	3.3	6.0	2.5	2	virginica
101	5.8	2.7	5.1	1.9	2	virginica
102	7.1	3.0	5.9	2.1	2	virginica

```python
df[df['flower_name']=="versicolor"].head()
```

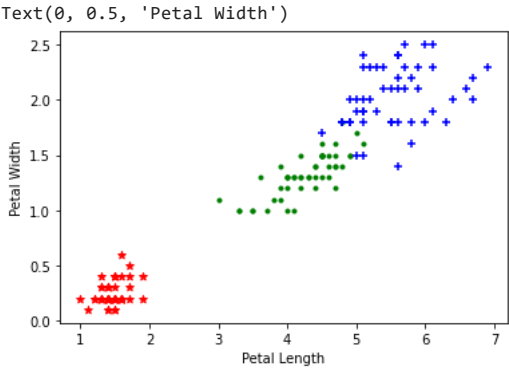|	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_name
50	7.0	3.2	4.7	1.4	1	versicolor
51	6.4	3.2	4.5	1.5	1	versicolor
52	6.9	3.1	4.9	1.5	1	versicolor
53	5.5	2.3	4.0	1.3	1	versicolor
54	6.5	2.8	4.6	1.5	1	versicolor

```python
df['flower_name'].unique()
```

```
array(['setosa', 'versicolor', 'virginica'], dtype=object)
```

```python
df0 = df[:50] #setosa
df1 = df[50:100] #versicolor
df2 = df[100:] #virginica
```

```python
plt.scatter(df0['sepal length (cm)'], df0['sepal width (cm)'],color="red",marker='*')
plt.scatter(df1['sepal length (cm)'], df1['sepal width (cm)'],color="green",marker='.')
plt.scatter(df2['sepal length (cm)'], df2['sepal width (cm)'],color="blue",marker='+')
plt.xlabel('Sepal Length')
plt.ylabel('Sepal Width')
```

```
Text(0, 0.5, 'Sepal Width')
```
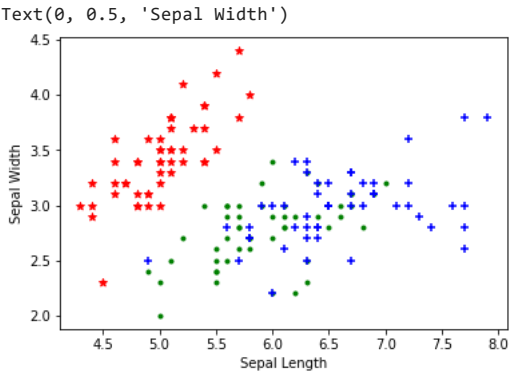


```python
plt.scatter(df0['petal length (cm)'], df0['petal width (cm)'],color="red",marker='*')
plt.scatter(df1['petal length (cm)'], df1['petal width (cm)'],color="green",marker='.')
plt.scatter(df2['petal length (cm)'], df2['petal width (cm)'],color="blue",marker='+')
plt.xlabel('Petal Length')
plt.ylabel('Petal Width')
```

```
Text(0, 0.5, 'Petal Width')
```



```python
x = df.drop(['target','flower_name'], axis='columns')
y = df.target
```

```python
x
```

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)
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

y

```
0      0
1      0
2      0
3      0
4      0
      ..
145    2
146    2
147    2
148    2
149    2
Name: target, Length: 150, dtype: int64
```

```python
from sklearn.model_selection import train_test_split
xtrain,xtest,ytrain,ytest = train_test_split(x,y,test_size=0.25)
```

RANDOM FOREST CLASSIFIER

```python
from sklearn.ensemble import RandomForestClassifier
model = RandomForestClassifier()
model.fit(xtrain,ytrain)
```

```
RandomForestClassifier()
```

```python
#Accuracy
model.score(xtest,ytest)
```

```
0.9473684210526315
```

```python
model = RandomForestClassifier(n_estimators=60)
model.fit(xtrain,ytrain)
model.score(xtest,ytest)
```

```
0.9473684210526315
```