In [40]:
```
import pandas as pd
from sklearn.datasets import load_iris
iris=load_iris()
```

In [41]:
```
dir(iris)
```

Out[41]:
```
['DESCR',
 'data',
 'data_module',
 'feature_names',
 'filename',
 'frame',
 'target',
 'target_names']
```

In [42]:
```
iris.feature_names
```

Out[42]:
```
['sepal length (cm)',
 'sepal width (cm)',
 'petal length (cm)',
 'petal width (cm)']
```

In [43]:
```
df=pd.DataFrame(iris.data, columns=iris.feature_names)
df.head()
```

Out[43]:

	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

In [44]:
```
df['target']=iris.target
df.head()
```

Out[44]:

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

In [45]:
```
iris.target_names
```

Out[45]:
```
array(['setosa', 'versicolor', 'virginica'], dtype='<U10')
```

In [46]:
```
df[df.target==2].head()
```

Out[46]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target
100	6.3	3.3	6.0	2.5	2
101	5.8	2.7	5.1	1.9	2
102	7.1	3.0	5.9	2.1	2
103	6.3	2.9	5.6	1.8	2
104	6.5	3.0	5.8	2.2	2

In [47]:
```
df['flower_names']=df.target.apply(lambda x: iris.target_names[x])
df.head()
```

Out[47]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_names
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

In [48]:
```
from matplotlib import pyplot as plt
```

In [49]:
```
%matplotlib inline
```

In [50]:
```
df0=df[df.target==0]
df1=df[df.target==1]
df2=df[df.target==2]
```

In [51]:
```
df2.head()
```

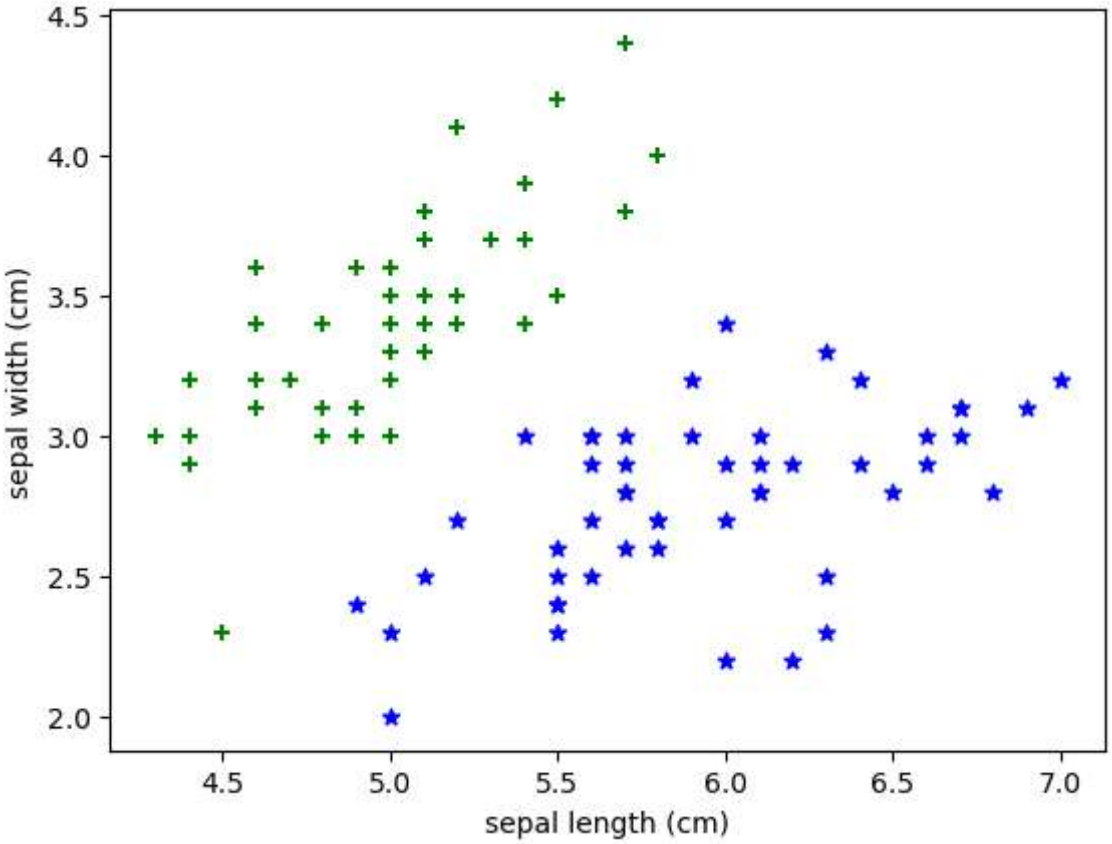
Out[51]:

	sepal length (cm)	sepal width (cm)	petal length (cm)	petal width (cm)	target	flower_names
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
103	6.3	2.9	5.6	1.8	2	virginica
104	6.5	3.0	5.8	2.2	2	virginica

In [52]:
```
plt.xlabel('sepal length (cm)')
plt.ylabel('sepal width (cm)')

plt.scatter(df0['sepal length (cm)'], df0['sepal width (cm)'],color='green'
plt.scatter(df1['sepal length (cm)'], df1['sepal width (cm)'],color='blue',
```

Out[52]:
```
<matplotlib.collections.PathCollection at 0x1d4406a5000>
```



In [53]:
```
from sklearn.model_selection import train_test_split
```

In [54]:
```
x=df.drop(['target','flower_names'],axis='columns')
x.head()
```

Out[54]:

	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

In [55]:
```
y=df.target
y
```

Out[55]:
```
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: int32
```

In [56]:
```
x_train,x_test,y_train,y_test=train_test_split(x,y,test_size=0.2)
```

In [57]:
```
len(x_train)
```

Out[57]:
```
120
```

In [58]:
```
len(x_test)
```

Out[58]:
```
30
```

In [59]:
```
from sklearn.svm import SVC
model=SVC(kernel='linear')
```

In [60]:
```
model.fit(x_train,y_train)
```

Out[60]:
```
SVC(kernel='linear')
```

In [61]:
```
model.score(x_test,y_test)
```

Out[61]:
```
0.9666666666666667
```

In [ ]: