

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
%matplotlib inline
from sklearn.datasets import load_iris
```

```
In [4]: iris=load_iris()
dir(iris)
```

```
Out[4]: ['DESCR', 'data', 'feature_names', 'filename', 'target', 'target_names']
```

```
In [5]: iris.feature_names
```

```
Out[5]: ['sepal length (cm)',
'sepal width (cm)',
'petal length (cm)',
'petal width (cm)']
```

```
In [7]: df=pd.DataFrame(iris.data,columns=iris.feature_names)
df.head()
```

```
Out[7]:
```

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

Out[11]:

	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 [12]: iris.target_names
```

Out[12]: array(['setosa', 'versicolor', 'virginica'], dtype='<U10')

```
In [18]: df[df.target==2].head()
```

Out[18]:

	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 [22]: df['Flower_name']=df.target.apply(lambda x:iris.target_names[x])
```

```
In [24]: df0=df[df.target==0]
df1=df[df.target==1]
df2=df[df.target==2]
```

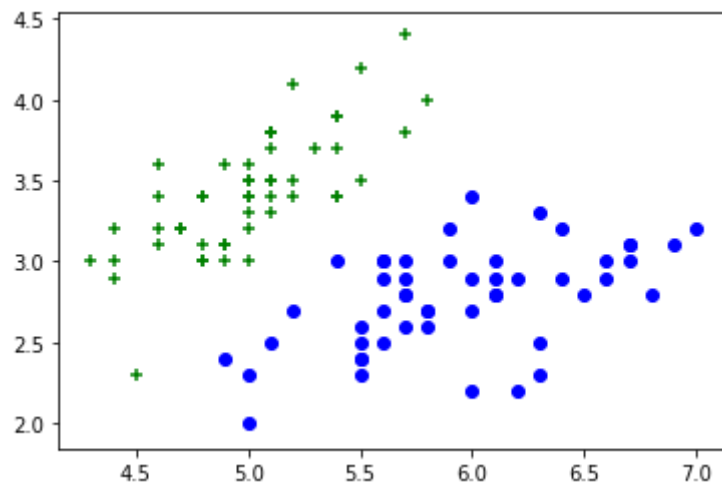
```
In [27]: df2.head()
```

```
Out[27]:
```

	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
103	6.3	2.9	5.6	1.8	2	virginica
104	6.5	3.0	5.8	2.2	2	virginica

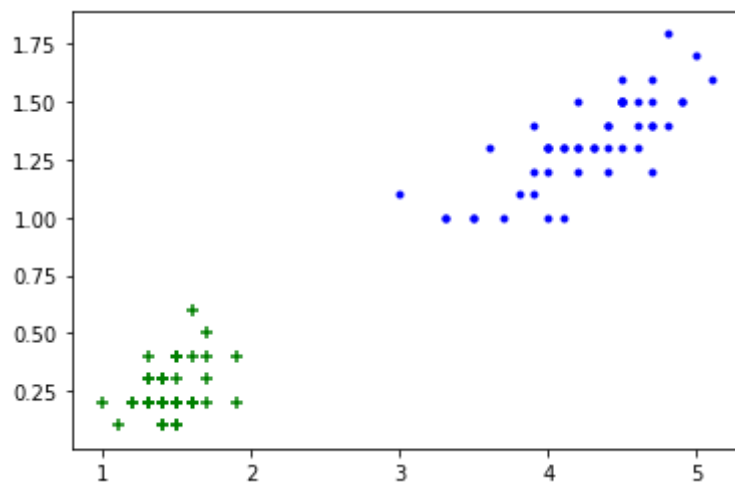
```
In [35]: plt.scatter(df0['sepal length (cm)'],df0['sepal width (cm)'],color='green',marker='+')
plt.scatter(df1['sepal length (cm)'],df1['sepal width (cm)'],color='blue',marker='o')
```

```
Out[35]: <matplotlib.collections.PathCollection at 0x1be66fe6688>
```



```
In [36]: plt.scatter(df0['petal length (cm)'],df0['petal width (cm)'],color='green',marker='+')  
plt.scatter(df1['petal length (cm)'],df1['petal width (cm)'],color='blue',marker='.')
```

Out[36]: <matplotlib.collections.PathCollection at 0x1be670544c8>



```
In [40]: from sklearn.model_selection import train_test_split  
X=df.drop(['target','Flower_name'],axis='columns')  
df.head()  
y=df.target  
y.head()  
X_train,X_test,y_train,y_test=train_test_split(X,y,test_size=0.2)
```

```
In [46]: from sklearn.svm import SVC  
model=SVC()  
model.fit(X_train,y_train)
```

C:\Users\Akshay\AppData\Local\Continuum\anaconda3\lib\site-packages\sklearn\svm\base.py:193: FutureWarning: The default value of gamma will change from 'auto' to 'scale' in version 0.22 to account better for unscaled features. Set gamma explicitly to 'auto' or 'scale' to avoid this warning.
"avoid this warning.", FutureWarning)

```
Out[46]: SVC(C=1.0, cache_size=200, class_weight=None, coef0=0.0,  
            decision_function_shape='ovr', degree=3, gamma='auto_deprecated',  
            kernel='rbf', max_iter=-1, probability=False, random_state=None,  
            shrinking=True, tol=0.001, verbose=False)
```

```
In [44]: model.score(X_test,y_test)
```

```
Out[44]: 0.9333333333333333
```

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In [ ]:
```