```
import numpy as np
import pandas as pd
from matplotlib import pyplot as plt
plt.rcParams['figure.figsize'] = (16, 9)
plt.style.use('ggplot')
print("Import Successful")
```

```
Import Successful
```

```
#This section deals with loading of iris datasets from sklearn

from sklearn import datasets
data_iris = datasets.load_iris()
X = np.array(data_iris.data)
print(X) #prints values of features, Sepal Length Sepal Width Petal Length Petal Width
# print(len(X))
Y = np.array(data_iris.target) #Prints the class values of above data
print(Y)
# print(len(Y))
```

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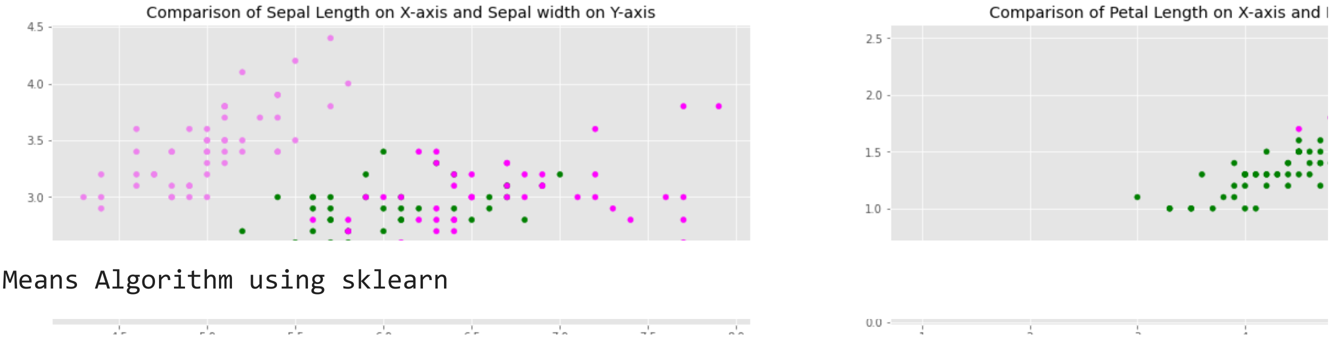
```
x=pd.DataFrame(data_iris.data, columns=['Sepal Length', 'Sepal Width', 'Petal Length', 'Pe
y=pd.DataFrame(data_iris.target, columns=['Target'])


plt.figure(figsize=(25,5))
c = np.array(['violet','green','magenta'])

plt.subplot(1,2,1)
plt.title('Comparison of Sepal Length on X-axis and Sepal width on Y-axis')
plt.scatter(x['Sepal Length'], x['Sepal Width'], c=c[y['Target']], s=25)


plt.subplot(1,2,2)
plt.title('Comparison of Petal Length on X-axis and Petal width on Y-axis')
plt.scatter(x['Petal Length'], x['Petal Width'], c= c[y['Target']], s=25)
```

```
<matplotlib.collections.PathCollection at 0x7f4d2feea0f0>
```



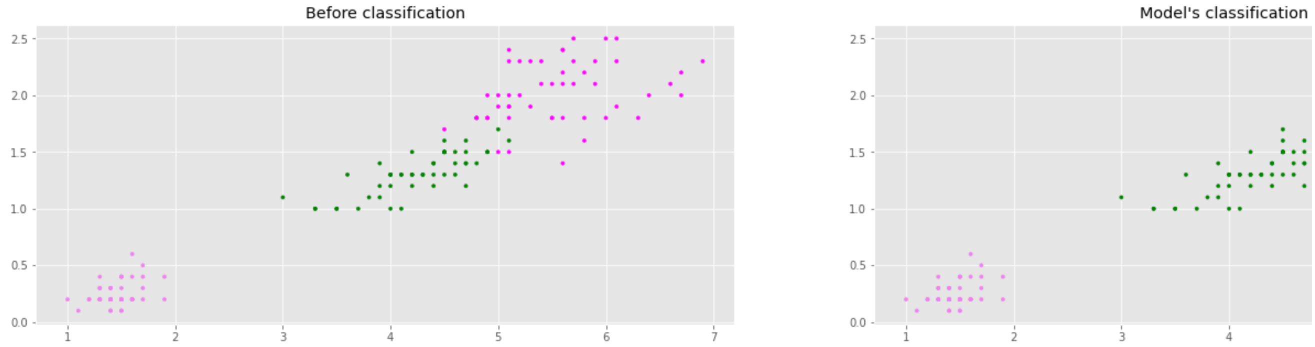
```
# K-Means Algorithm using sklearn
```

```
from sklearn.cluster import KMeans
data_model = KMeans(n_clusters=3) #The number of clusters is 3 because, we have 3 classes.
data_model.fit(x) # Fits the iris_data
```

```
KMeans(algorithm='auto', copy_x=True, init='k-means++', max_iter=300,
       n_clusters=3, n_init=10, n_jobs=None, precompute_distances='auto',
       random_state=None, tol=0.0001, verbose=0)
```

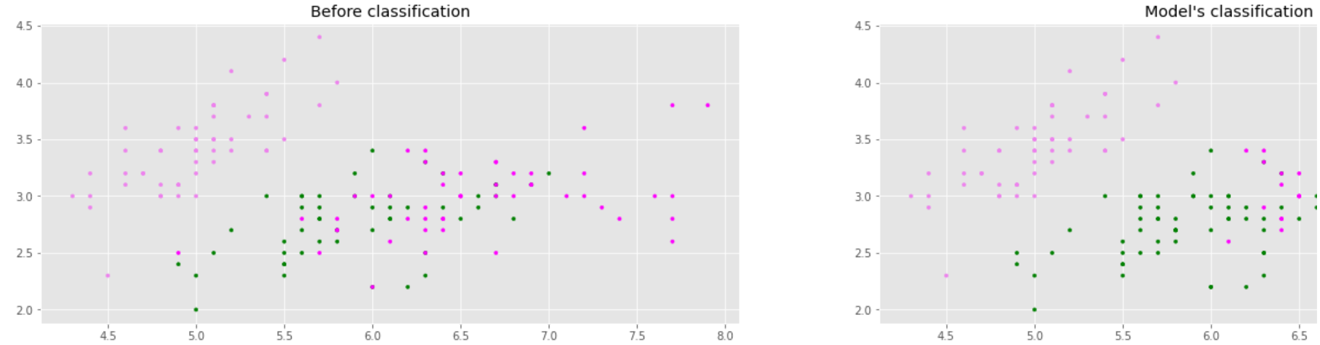
```
plt.figure(figsize=(25,5))
colors = np.array(['violet','green','magenta'])

pred_Y = np.choose(data_model.labels_, [1, 0, 2]).astype(np.int64)

plt.subplot(1, 2, 1)
plt.scatter(x['Petal Length'], x['Petal Width'], c=c[y['Target']], s=10)
plt.title('Before classification')
plt.subplot(1, 2, 2)
plt.scatter(x['Petal Length'], x['Petal Width'], c=c[pred_Y], s=10)
plt.title("Model's classification")
```

```
Text(0.5, 1.0, "Model's classification")
```



```
plt.figure(figsize=(25,5))
plt.subplot(1, 2, 1)
plt.scatter(x['Sepal Length'], x['Sepal Width'], c=c[y['Target']], s=10)
plt.title('Before classification')
plt.subplot(1, 2, 2)
plt.scatter(x['Sepal Length'], x['Sepal Width'], c=c[pred_Y], s=10)
plt.title("Model's classification")
```

```
Text(0.5, 1.0, "Model's classification")
```



Double-click (or enter) to edit

```
# Code
```

```
points = np.vstack(X) #Stacks sequence of arrays vertically
print(points)
```

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