EXP NO:6	**SVM CLASSIFIERS**
DATE:26/04/2022	

AIM:

To apply support vector machine algorithm to find the hyperplane for the given dataset.

ALGORITHM:

Step 1 : Start

Step 2 : Import the required packages, from sklearn import svm.

Step 3 : Import the dataset.

Step 4 : Shape the data for training the model.

Step 5 : Define and train the model.

Step 6 : Get the weight value for linear equation from the trained SVM model

Step 7 : Get the y- offset value for the linear equation and make the x-axis space for the data points.

Step 8 : Plot the decision boundary by getting the y- value

Step 9 : Plot the decision boundary

Step10: Display the output

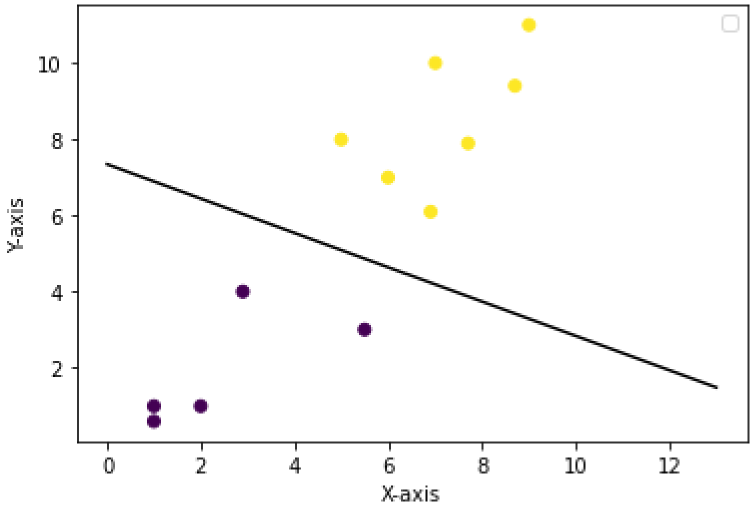
Step11: Stop

PROGRAM:

```
import matplotlib.pyplot as plt

import numpy as np

from sklearn import svm

X = np.array([2, 5, 1, 6, 1, 9, 7, 8.7, 2.9, 5.5, 7.7, 6.9])

y = np.array([1, 8, 1, 7, 0.6, 11, 10, 9.4, 4, 3, 7.9, 6.1])

training_X = np.vstack((X, y)).T
```

```
training_y = [0, 1, 0, 1, 0, 1, 1, 1, 0, 0, 1, 1]

clf = svm.SVC(kernel='linear', C=1.0)

clf.fit(training_X, training_y)

w = clf.coef_[0]

a = -w[0] / w[1]

XX = np.linspace(0, 13)

yy = a * XX - clf.intercept_[0] / w[1]

plt.plot(XX, yy, 'k-')

plt.scatter(training_X[:, 0], training_X[:, 1], c=training_y)

plt.xlabel("X-axis")

plt.ylabel("Y-axis")

plt.legend()

plt.show()
```

OUTPUT:



RESULT:

Thus the program to apply support vector machine algorithm to find the hyperplane for the given dataset is successfully completed and the output is obtained.