

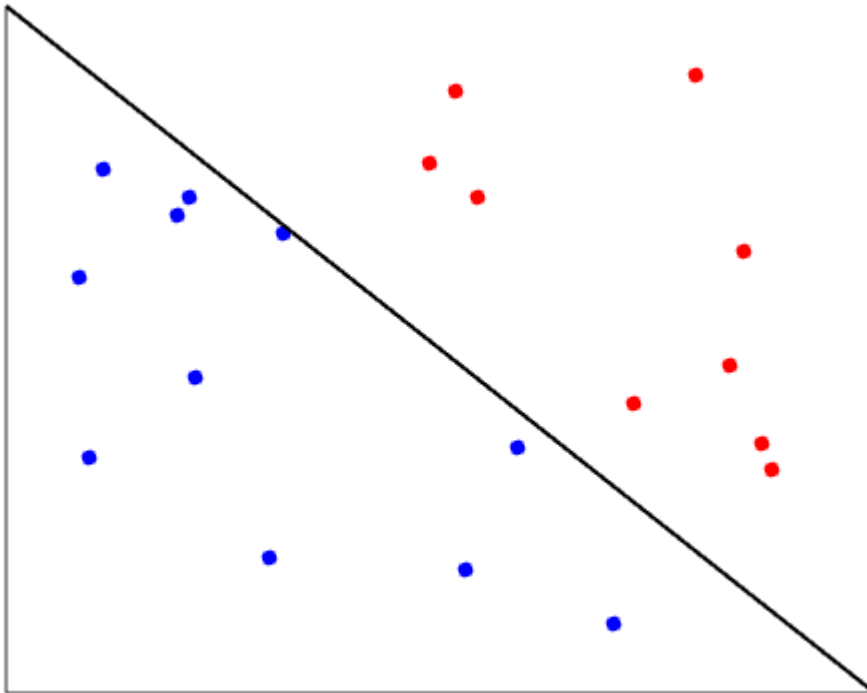
```

% Gerarem dades artificials
numPoints = 20;
seed = 12;
rng(seed);

points = rand([numPoints, 2]);
w = [1,1];
b = -1;
[points_classes,class1,class2] = classifyPoints(w,b,points);

plotSVM(points, w, b)

```



```

disp(min(abs(w*points' + b)/norm(w)));

```

0.0096

```

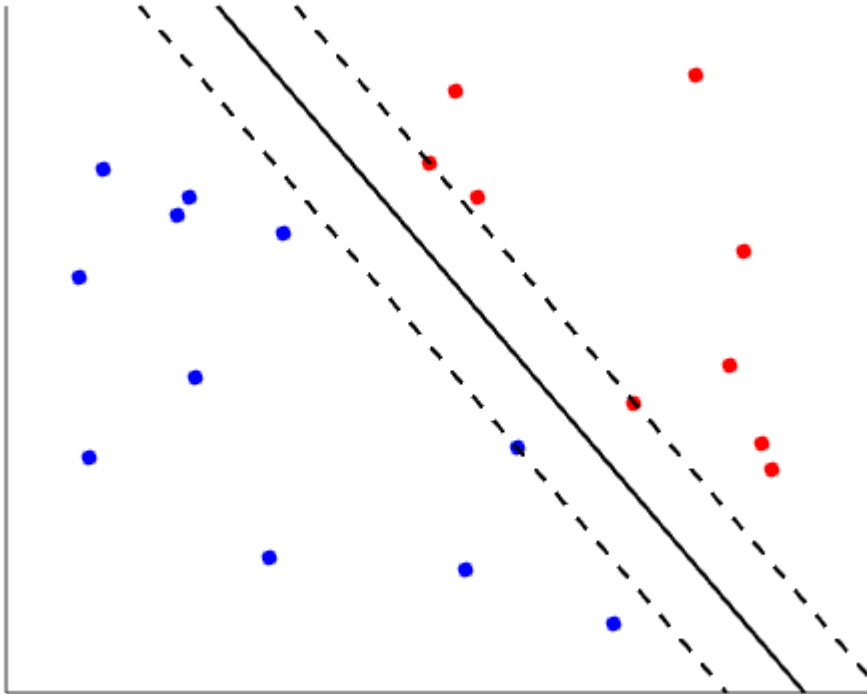
% Hard margin
[wo, bo] = trainSVM(points, points_classes);
plotSVM(points, wo, bo)

```

12

18

19



```
disp(min(abs(wo*points' + bo)/norm(wo)));
```

```
0.0893
```

```
% Soft margin
% Margin violation penalty
C = 1;
[wos, bos, xi] = trainSoftSVM(points, points_classes, C);
plotSoftSVM(points, points_classes, class1, class2, wo, bo)
```

