

# Lab -5 SVM

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From the dataset, 80% was training and the rest was for testing.

```
(100,)  
(100, 2)  
parameters: [[-1.88146645  1.39896647]]  
training accuracy: 1.0  
test accuracy: 1.0
```

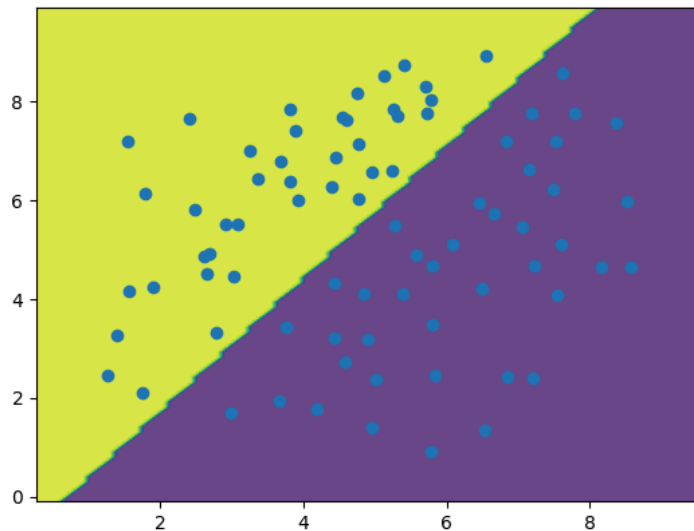
Accuracy:

- **Training: 100%**
- **Validation: 100%**

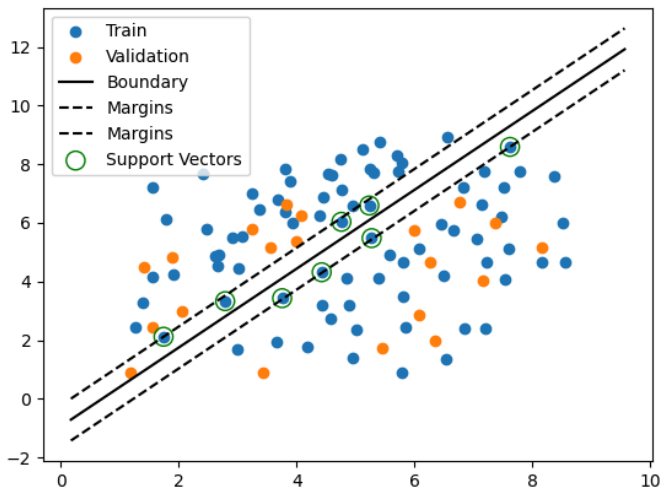
The data is linearly separable.

## 2. Plots

Figure 1: SVM Decision Boundary



**Figure 2: Margins and Support Vectors**



This plot shows the maximum-margin hyperplanes (dashed lines), and the support vectors (circled points). The support vectors are the data points that lie on the margin and are critical in defining the boundary's position.

### 3. Conclusion

The linear SVM algorithm successfully classified the dataset with 100% accuracy. Identifying the support vectors and margins properly.