SVM_Exercise_Answers

March 1, 2021
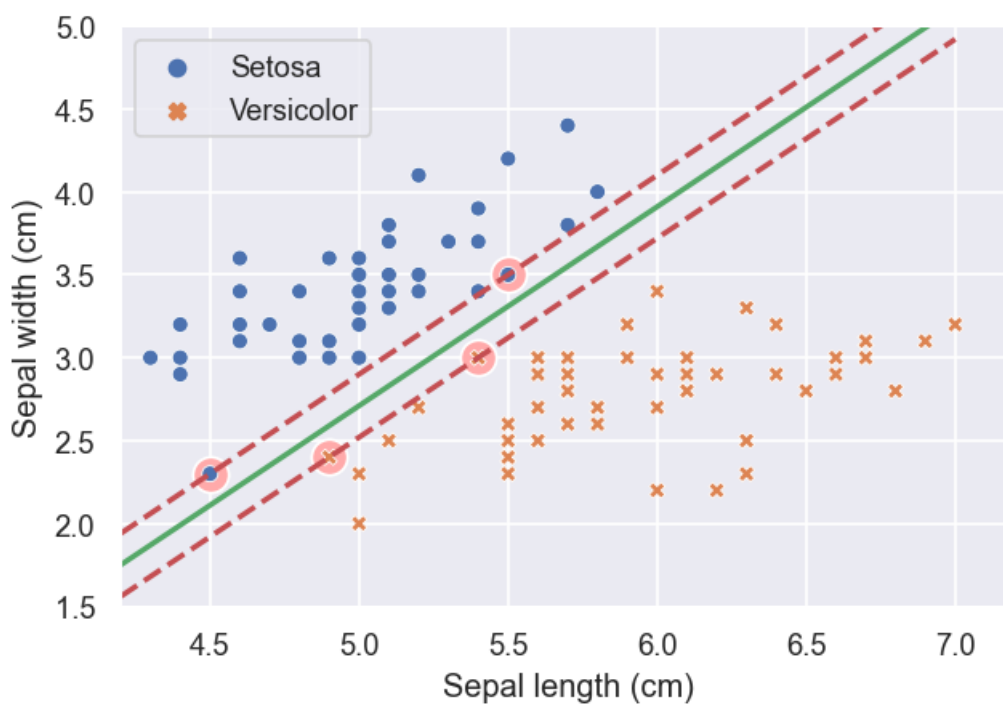
TODO - Go through Hands on Machine Learning and use some of the exersises on pg.174

1. What is a support vector?

A support vector is...

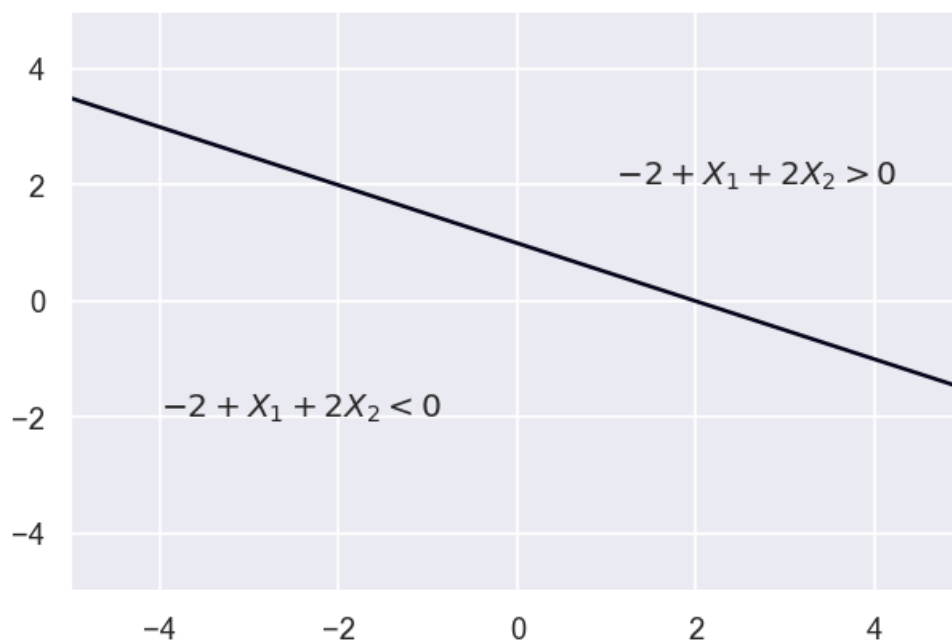2. In the plot below, which points are the "support vectors"?

It uses more than 1 here, although which ones are quite tricky to desern so dont worry if you got a few of the blue points wrong!

3. Sketch or code (using Python) the following two dimensional hyperplanes, indicating where $1 + 3X_1 - X_2 > 0$ and where $1 + 3X_1 - X_2 < 0$.

a. $1 + 3X_1 - X_2 = 0$

$$1 + 3X_1 - X_2 < 0$$

$$1 + 3X_1 - X_2 < 0$$

b. $-2 + X_1 + 2X_2 = 0$

$$-2 + X_1 + 2X_2 > 0$$

$$-2 + X_1 + 2X_2 < 0$$

4. If C is large for a support vector classifier, will there be more or less support vectors than if C is small? Explain your answer.

When the tuning parameter C is large, then there are **more** support vectors, as many observations are involve in determining the hyperplane.

TODO - write more exercises specific to SVC and SVM

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[NbConvertApp] Running bibtex 1 time: ['bibtex', 'notebook']
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