DAMA61 - 2nd assignment

The code for both exercises is in the attached .py file (named Kritikos-WA2.py) as requested by the tutor.

Exercise 1

3) The first and second coefficients are approximately 1.995 and 1.009 which are close to the linear term (2*X) and the quadratic term (X^2) respectively. The third and fourth coefficients are very close to zero, which means that Lasso regularization has succeeded in setting these coefficients to zero.

4) The first and second coefficients are approximately 2.002 and 1.012 which are close to the original coefficients for the linear and quadratic terms. The third and fourth coefficients are non-zero but smaller compared to the non-regularized case.

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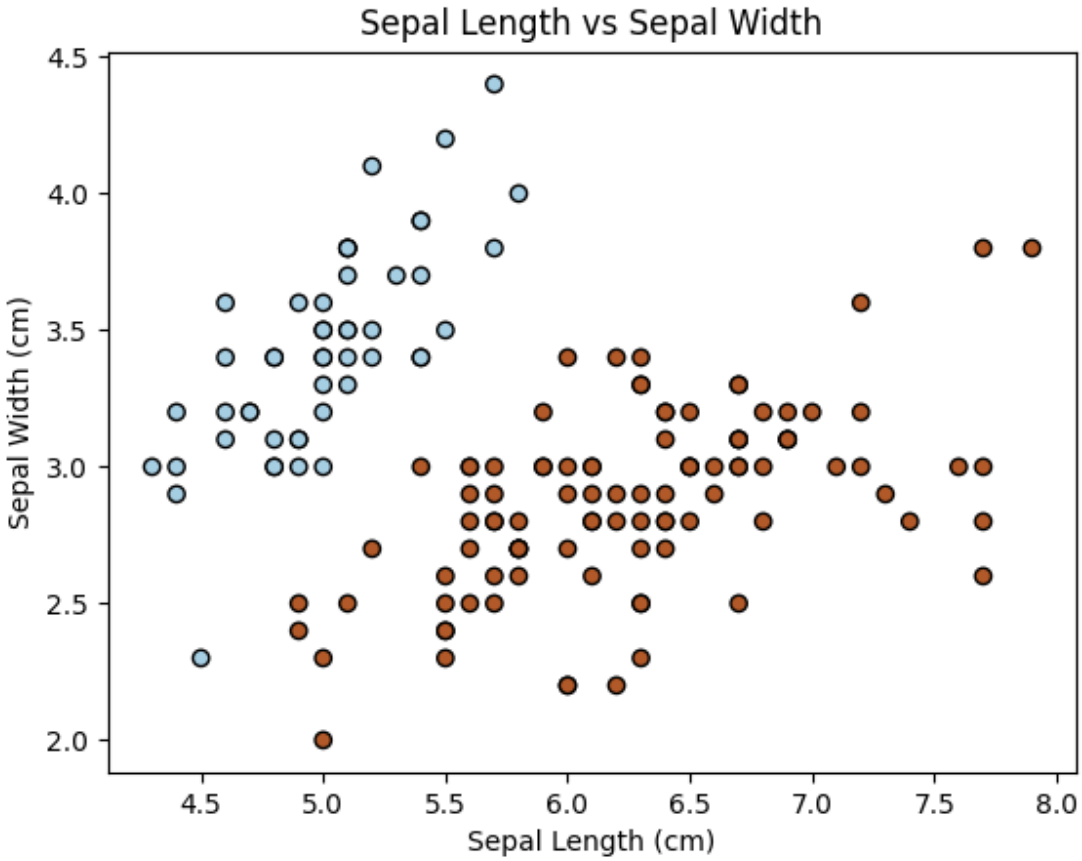
Exercise 2

2)



4) The grid search suggests that the optimal value of C is 100 for this specific dataset, and it leads to a more reliable model. This indicates that a stronger regularization is beneficial for capturing the underlying patterns in the data.

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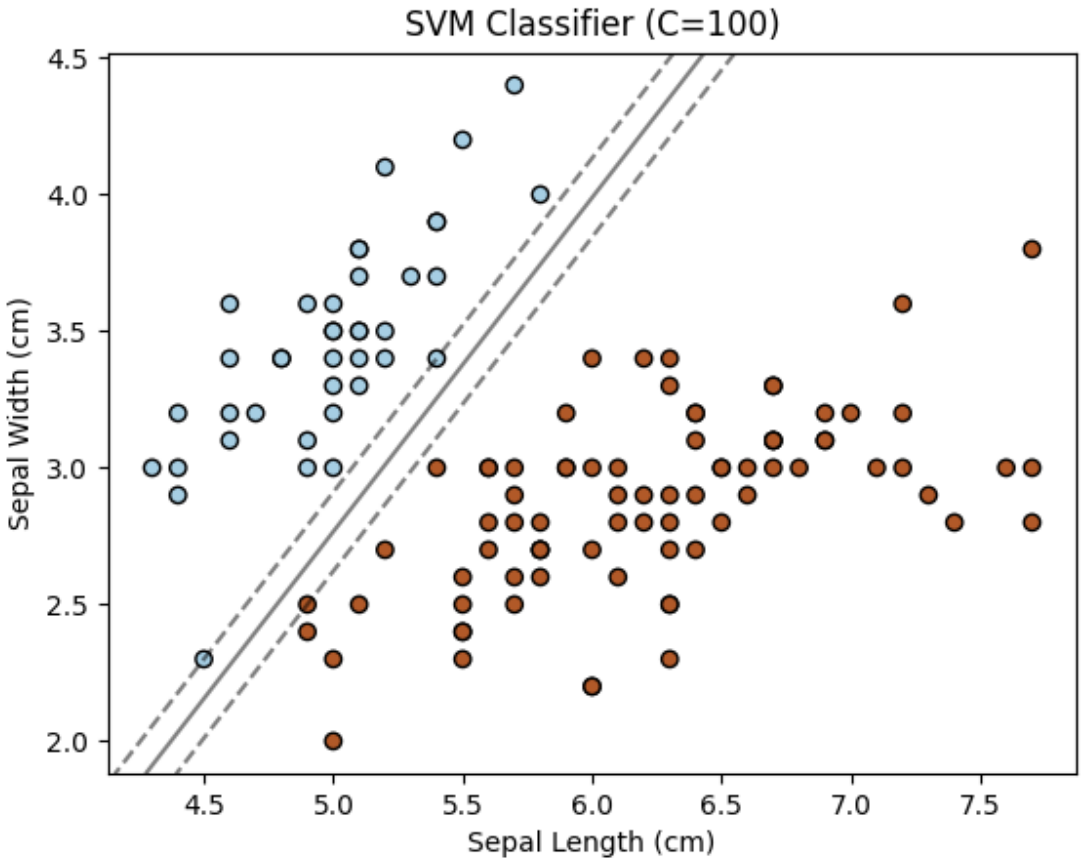
5)



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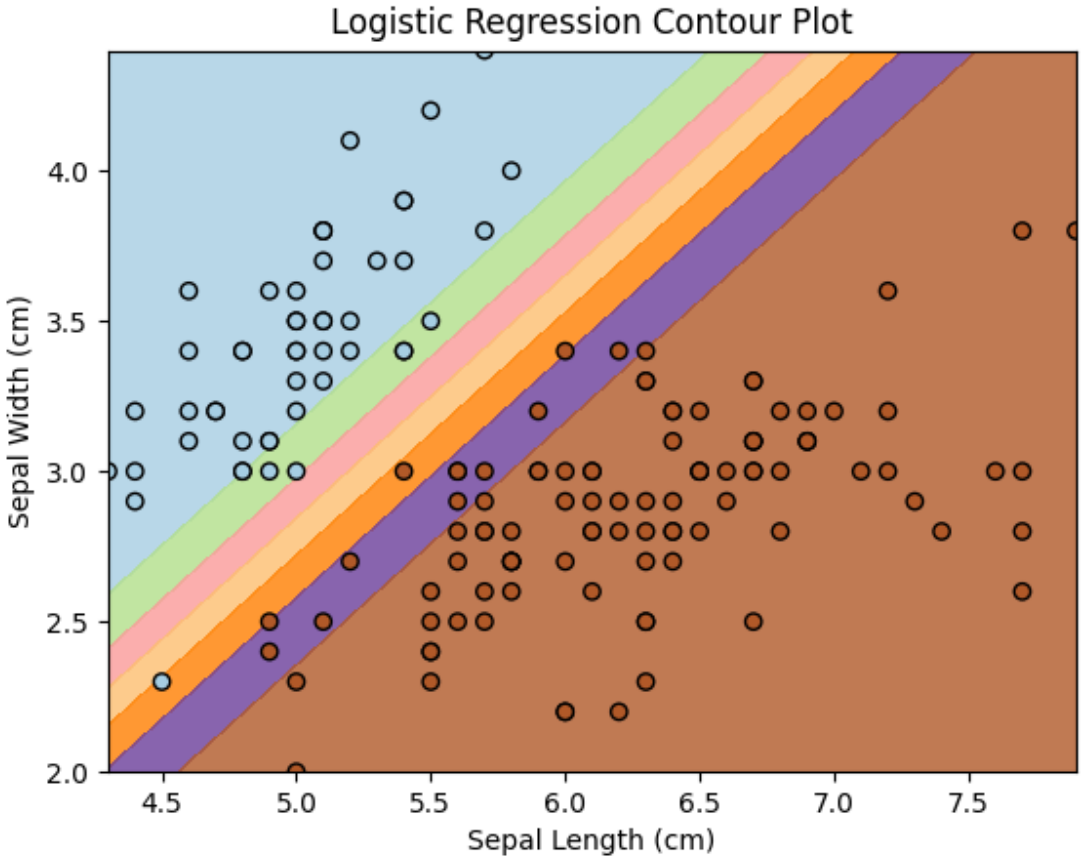
6)



7) The logistic regression model predicts a probability of approximately 0.4478 for a sample with a sepal length of 5.5 cm and sepal width of 3.25 cm being Iris-Setosa. Having the highest value of accuracy it is safe to assume that the models prediction is as accurate as it gets.