Assign 4

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Thought Question 1

Chapter 9
Subsection 9.1

Question

I was wondering why we use L_2 norm and not L_P for regularization?

Solution

I think its due to the fact that the gradient of a L_2 norm is easier as well as the fact that it is an inner product of a self dual norm.

Also in the cases of Hilbert Spaces L_2 norm is the only norm which where all the series converges as its a 2 - norm and with L_2 regularization, the weights tends to reduce in proportional to weights. Hence L_2 regularization penalizes the bigger weights more as compared to the smaller weights.

Thought Question 2

Chapter 10
Subsection 10.1

Question

I was curious to know what are the disadvantages of Logistic Regression ? Clearly a Neural Network can outperform it.

Solution

I think the obvious disadvantage is that it can only be used to predict discrete functions.

Another major limitation of Logistic Regression is the assumption of linearity between the dependent variable and the independent variables plus it constructs linear boundaries.

I think also that if the number of observations is lesser than the number of features then it may lead to an overfit model.