CSE474/574 Introduction to Machine Learning

Programming Assignment 3

Classification and Regression

Report

GROUP NO: **33**

Vishwaksen Mane

Abhijeet Deshpande

Mayur Tale

Logistic Regression:

Training Set Accuracy: 86.39%

Validation Set Accuracy: 85.30%

Testing Set Accuracy: 85.52%

Support Vector Machine:

1. Using Linear Kernel with all other parameters kept default
   Training Set Accuracy: 97.28%
   Validation Set Accuracy: 93.64%
   Testing Set Accuracy: 93.78%

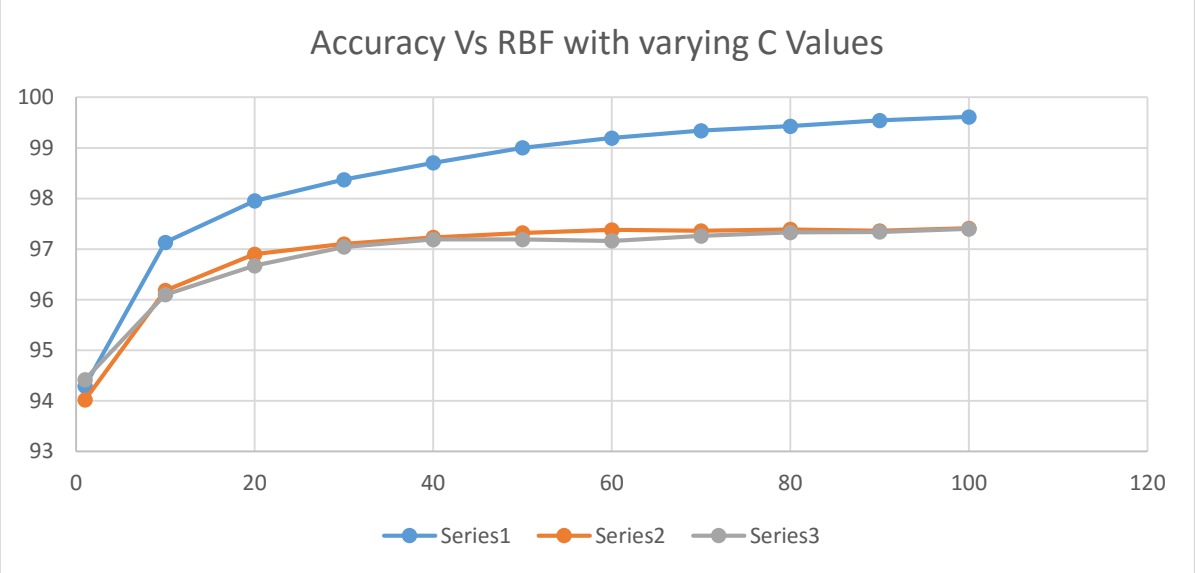
2. Using RBF kernel and Gamma = 1 with all other parameters default
   Training Set Accuracy: 100%
   Validation Set Accuracy: 15.48%
   Testing Set Accuracy: 17.14%

3. Using RBF kernel and Gamma and all Other parameters default
   Training Set Accuracy: 94.29%
   Validation Set Accuracy: 94.02%
   Testing Set Accuracy: 94.42%

4. Using RBF Kernel with all other parameters default and C values as

C	Training Set Accuracy	Validation Set Accuracy	Testing Set Accuracy
1	94.29	94.02	94.42
10	97.132	96.18	96.1
20	97.952	96.9	96.67
30	98.3	97.1	97.04
40	98.706	97.23	97.19
50	99.002	97.321	97.19
60	99.196	97.38	97.16
70	99.34	97.36	97.26
80	99.43	97.39	97.33
90	99.542	97.36	97.34
100	99.612	97.41	97.4

5. Graph of Accuracy with respect to values:



Inference: The Accuracy for RBF increases with increasing values of C first but then remains constant after a certain point. While the Accuracy for training set is very high, Accuracy for validation and Testing sets is almost same for C greater than or equal to 30.