PA-3 Classification & Regression

CSE 574 – INTRODUCTION TO MACHINE LEARNING

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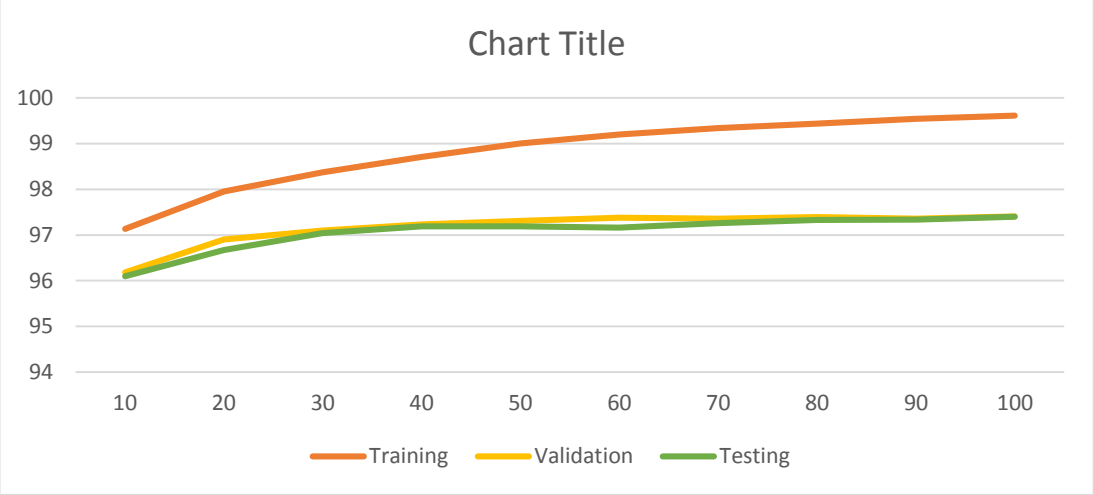
1. **Experiment 1 – Experimental Results using Support Vector Machine toolbox with Gamma = 0 and different C values.**

C	Training Accuracy	Validation Accuracy	Test Accuracy
10	97.132	96.18	96.1
20	97.952	96.9	96.67
30	98.372	97.1	97.04
40	98.706	97.23	97.19
50	99.002	97.31	97.19
60	99.196	97.38	97.16
70	99.34	97.36	97.26
80	99.438	97.39	97.33
90	99.542	97.36	97.34
100	99.612	97.41	97.4

Plot of Various Values of C (X-axis) versus various Accuracies (Y-Axis)



Inference: The prediction accuracies increases for some initial values of C but grows slowly after that. The Validation and Testing accuracies are almost same after C greater than 40 and almost converges to same point at the end.

2. **Experiment 2 – Experimental Results using Support Vector Machine toolbox with Gamma = 0 and C = Default.**

Training set Accuracy: 94.294%

Validation set Accuracy: 94.02%

Testing set Accuracy: 94.42%

3. **Experiment 3 – Experimental Results using Support Vector Machine toolbox with Gamma = 1.**

Training set Accuracy: 100.0%

Validation set Accuracy: 15.48%

Testing set Accuracy: 17.14%

4. **Experiment 4 – Logistic Regression and its results.**

Training set Accuracy: 92.328%

Validation set Accuracy: 91.46%

Testing set Accuracy: 91.92%