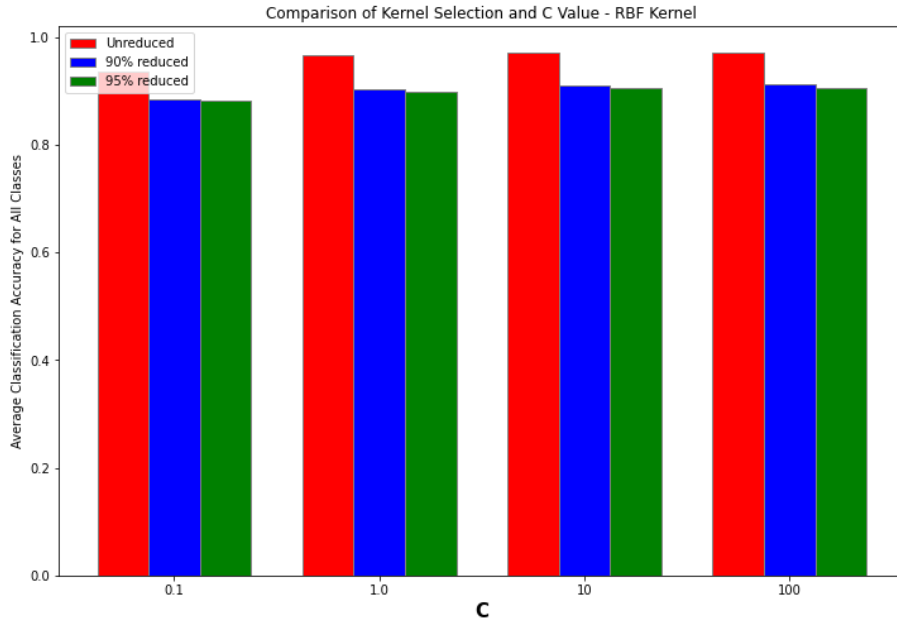
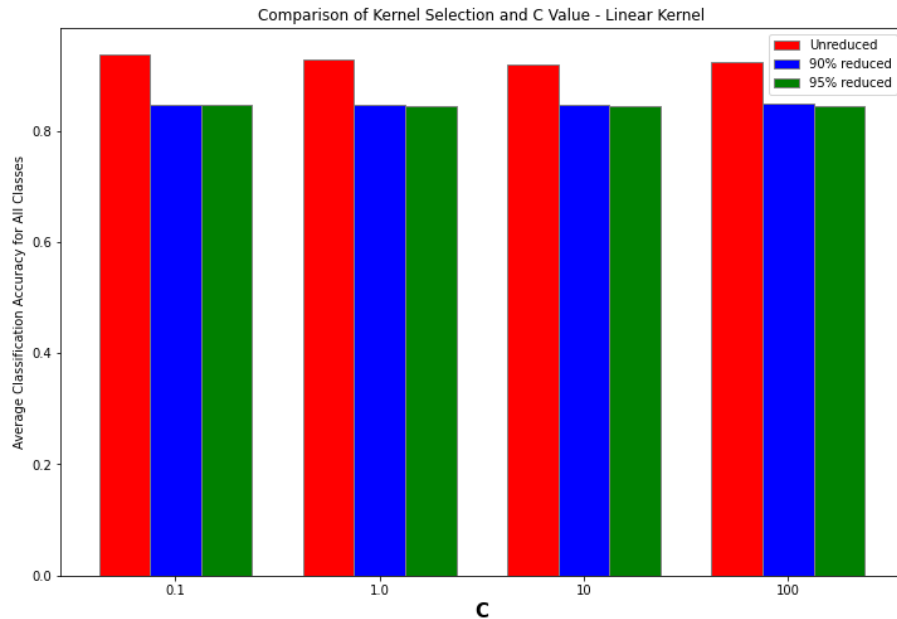
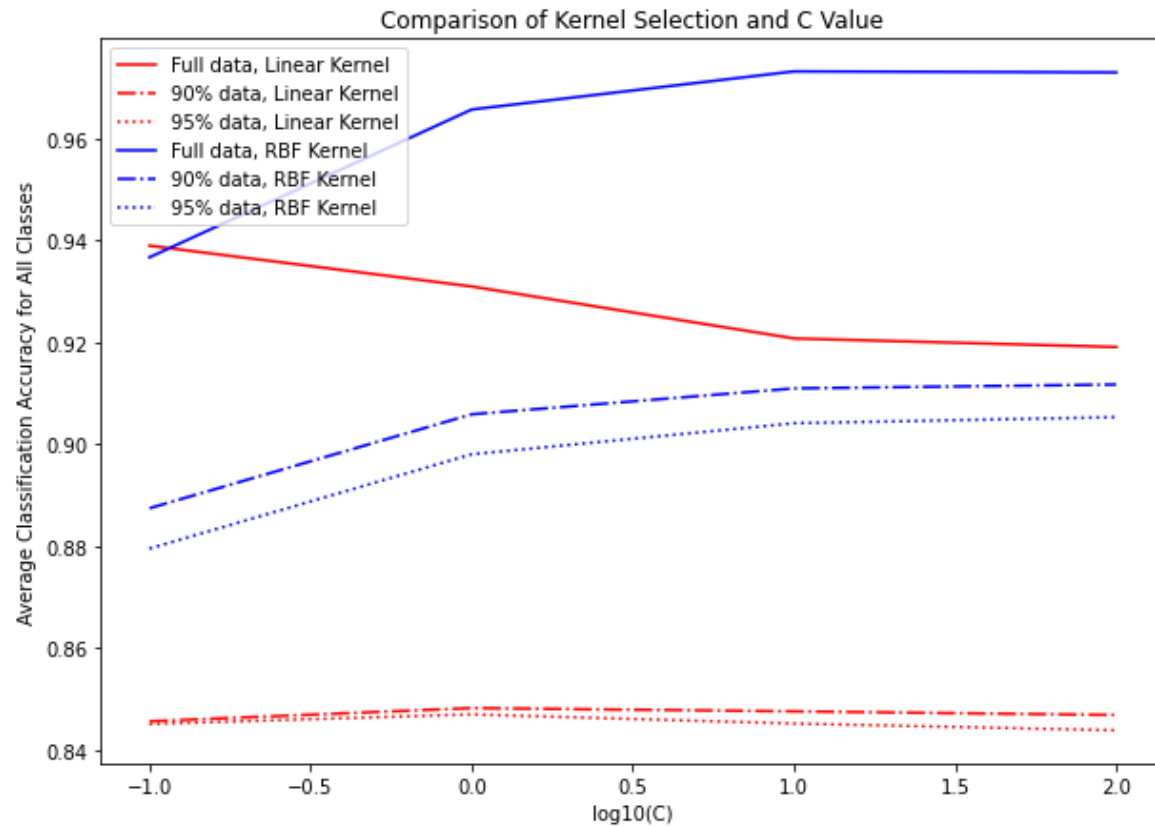


## Part 2: SVM

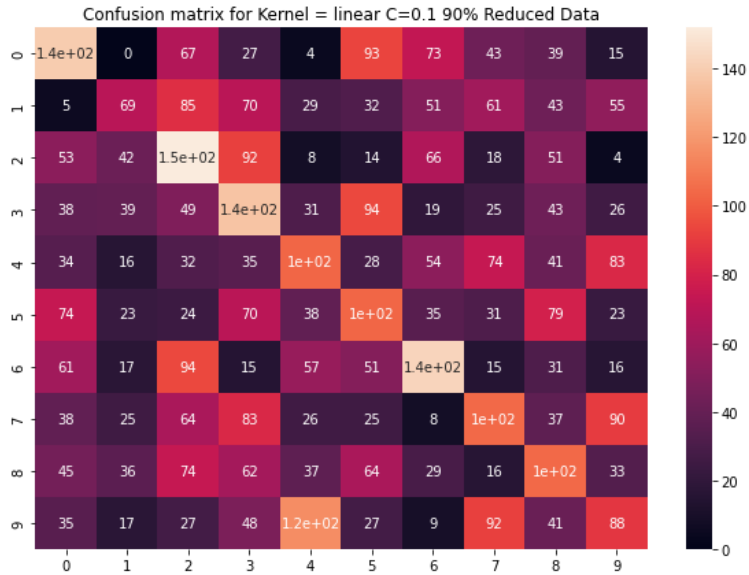
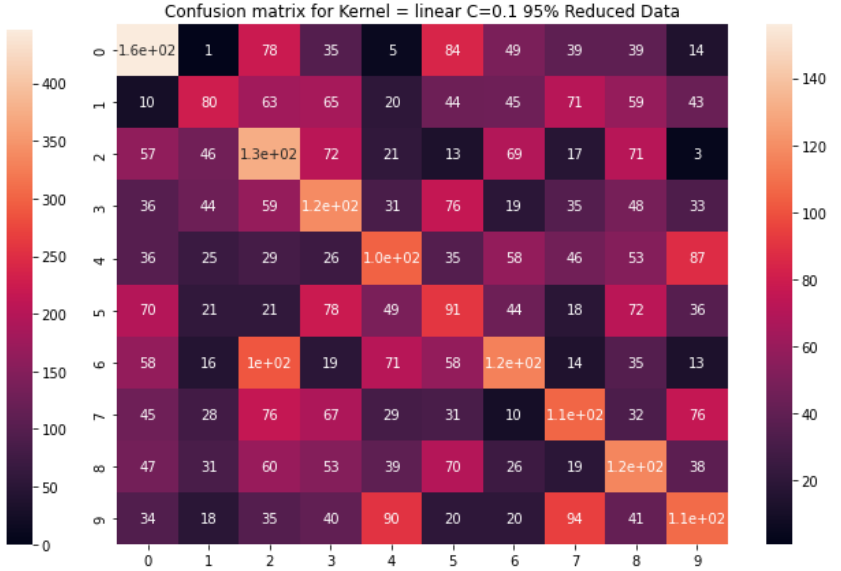
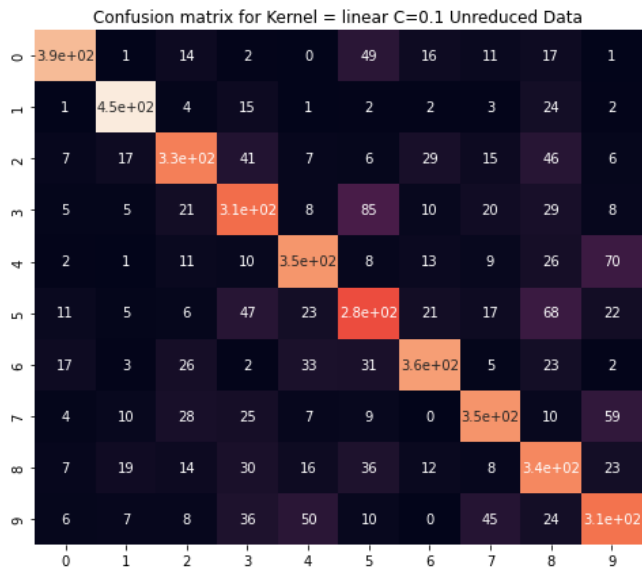
The RBF kernel on average performs better than the linear kernel. The unreduced dataset results in the best classification accuracy, the 90% performs the next best, and the 95% performs the worst. It was surprising to me that the 90% reduced data performed better than the 95%. This is PCA's ability to exclude nonimportant/noisy pixels in the testing and training data.



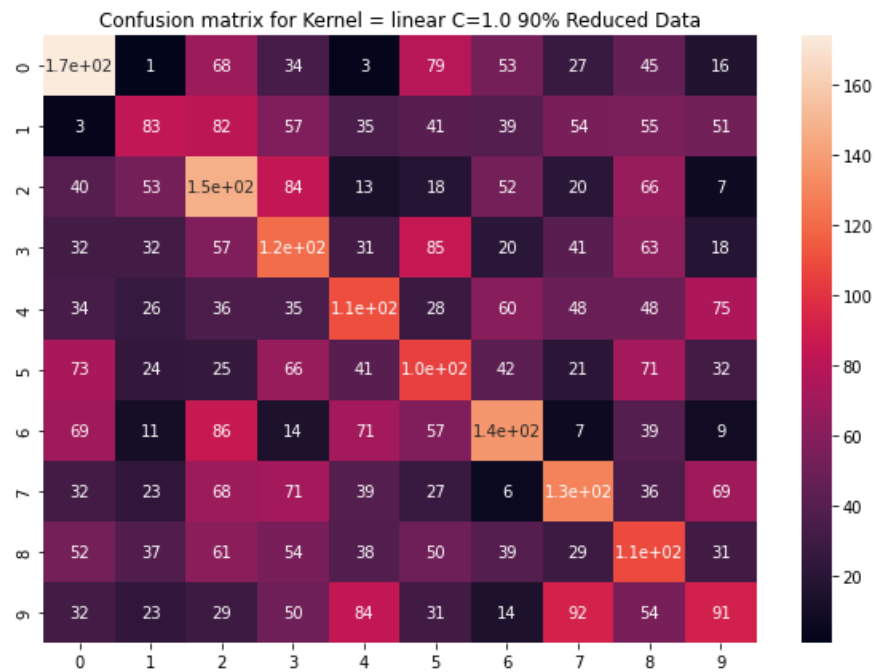
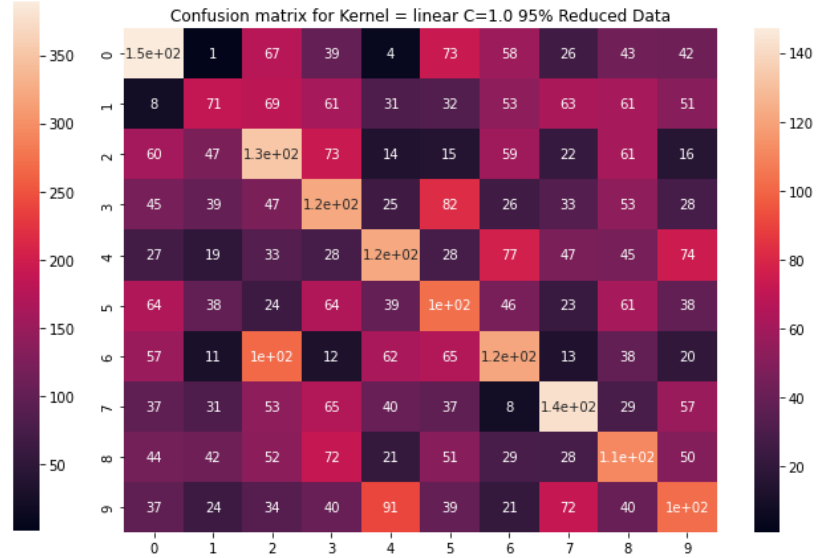
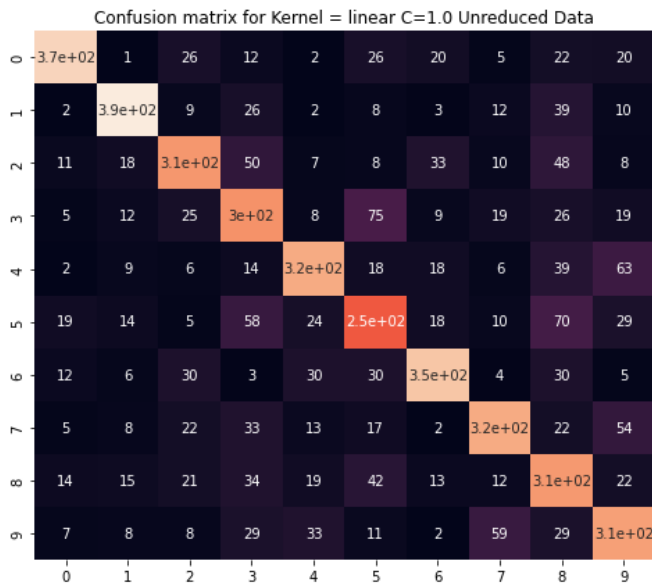


In this image, it's easier to see the trends of all the methods used for part 2. The RBF kernel outperforms most of the tests from the linear kernel. It's also easy to see how the 90% reduced dataset outperforms the 95% reduced dataset in all cases.

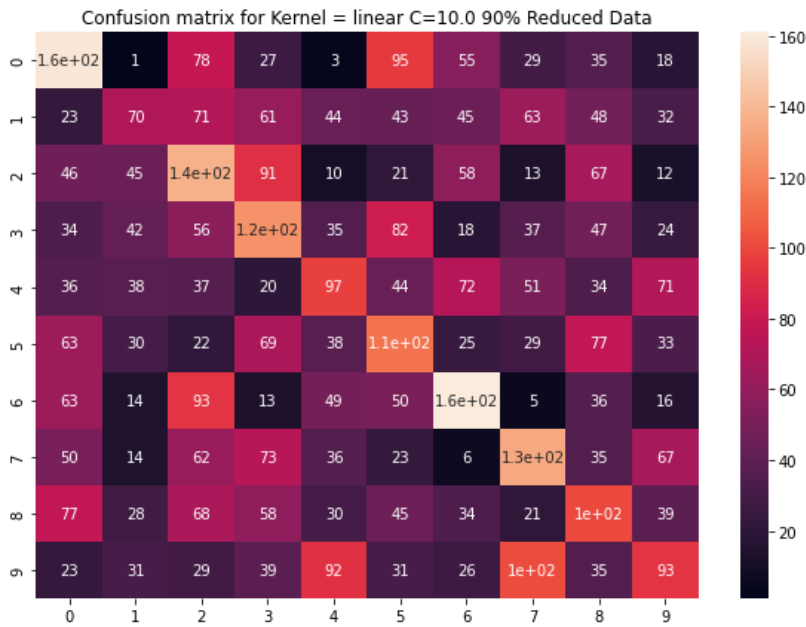
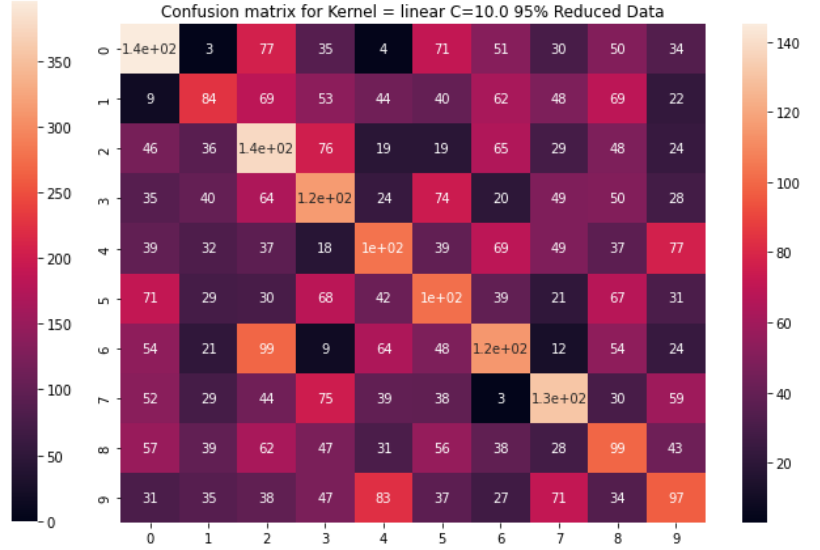
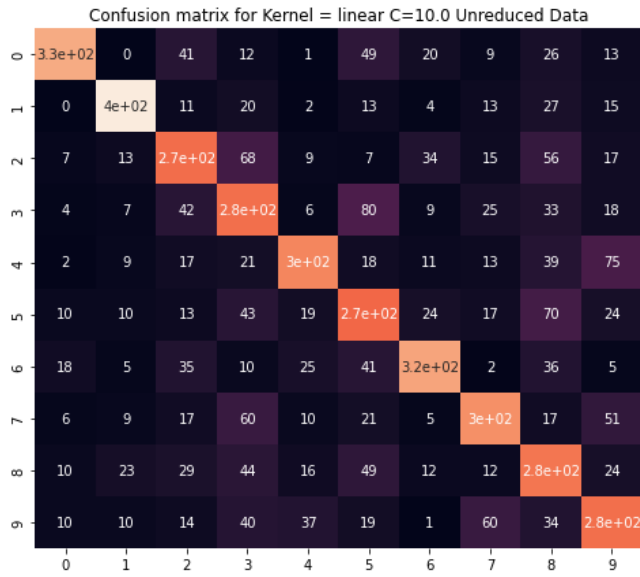
# Linear Kernel C = 0.1 Confusion Matrices



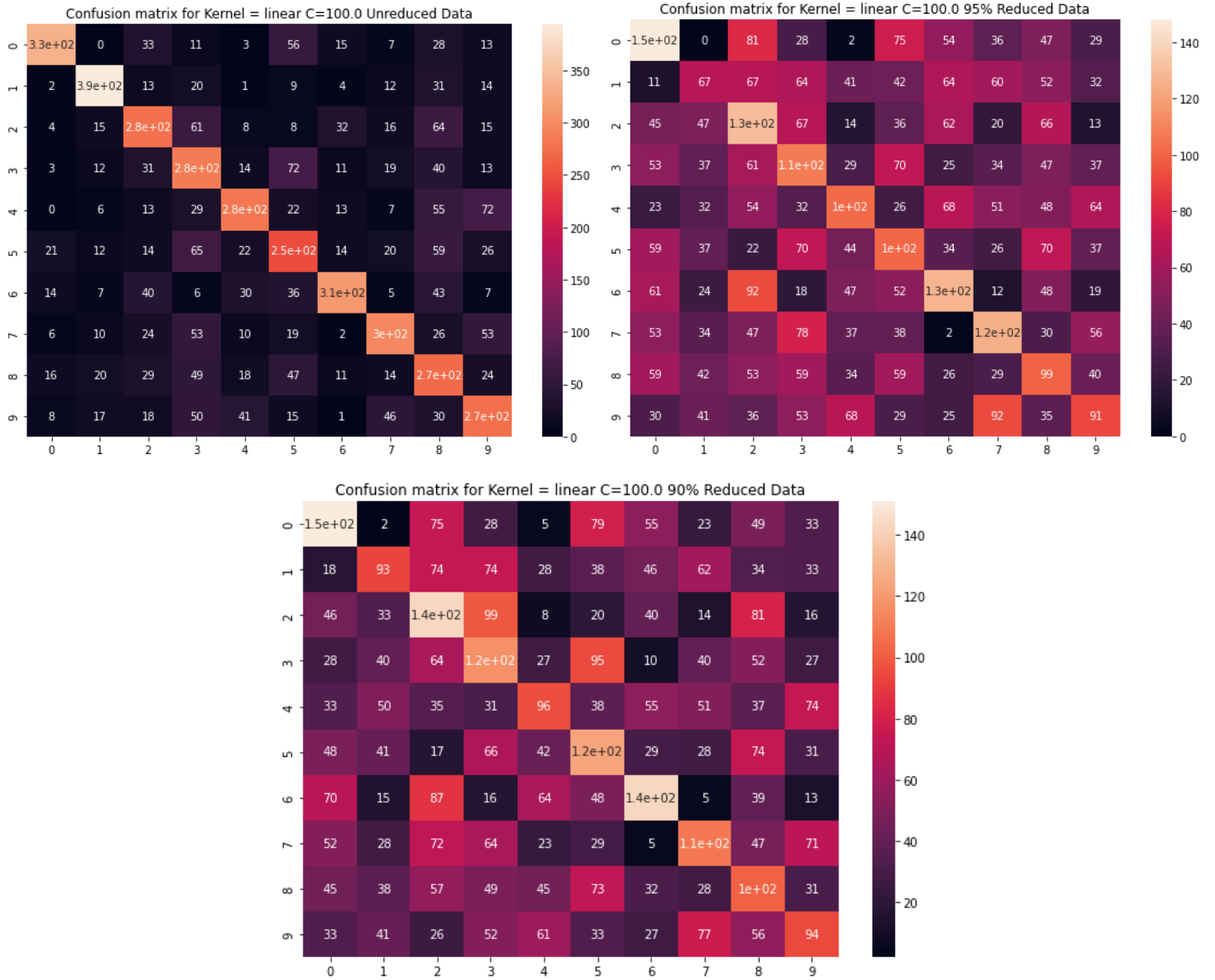
## Linear Kernel, C = 1.0 Confusion Matrices



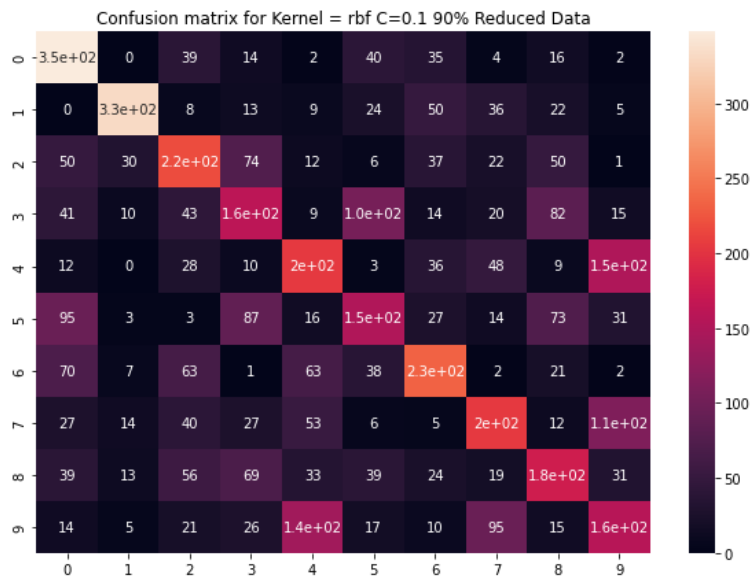
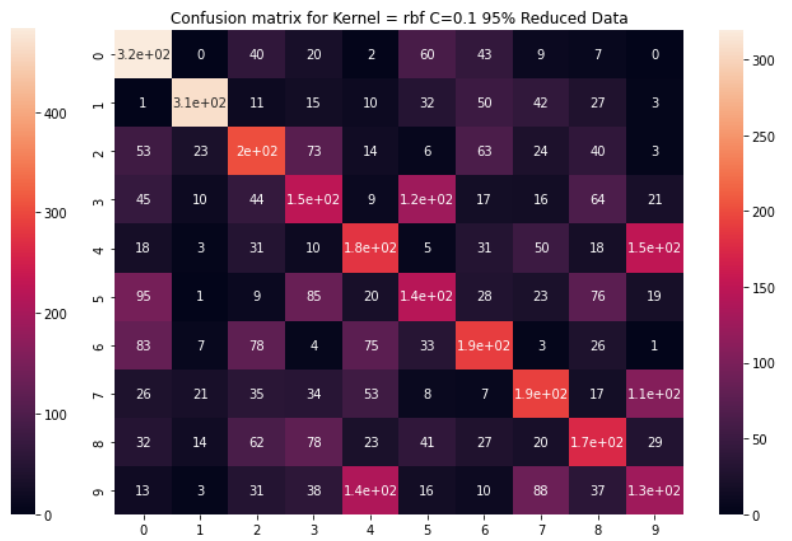
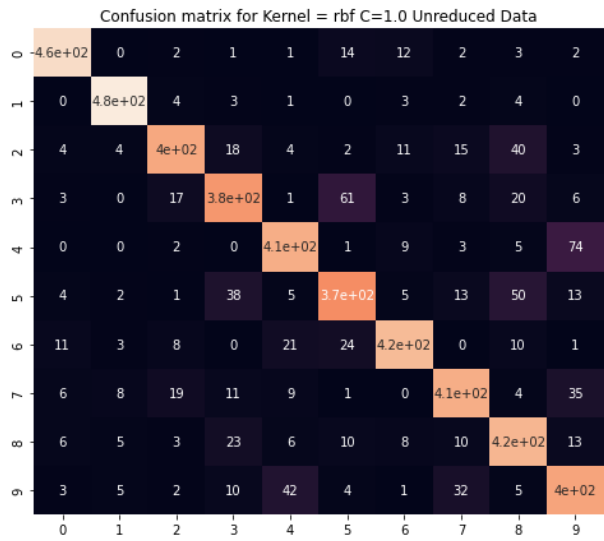
## Linear Kernel, C = 10.0 Confusion Matrices



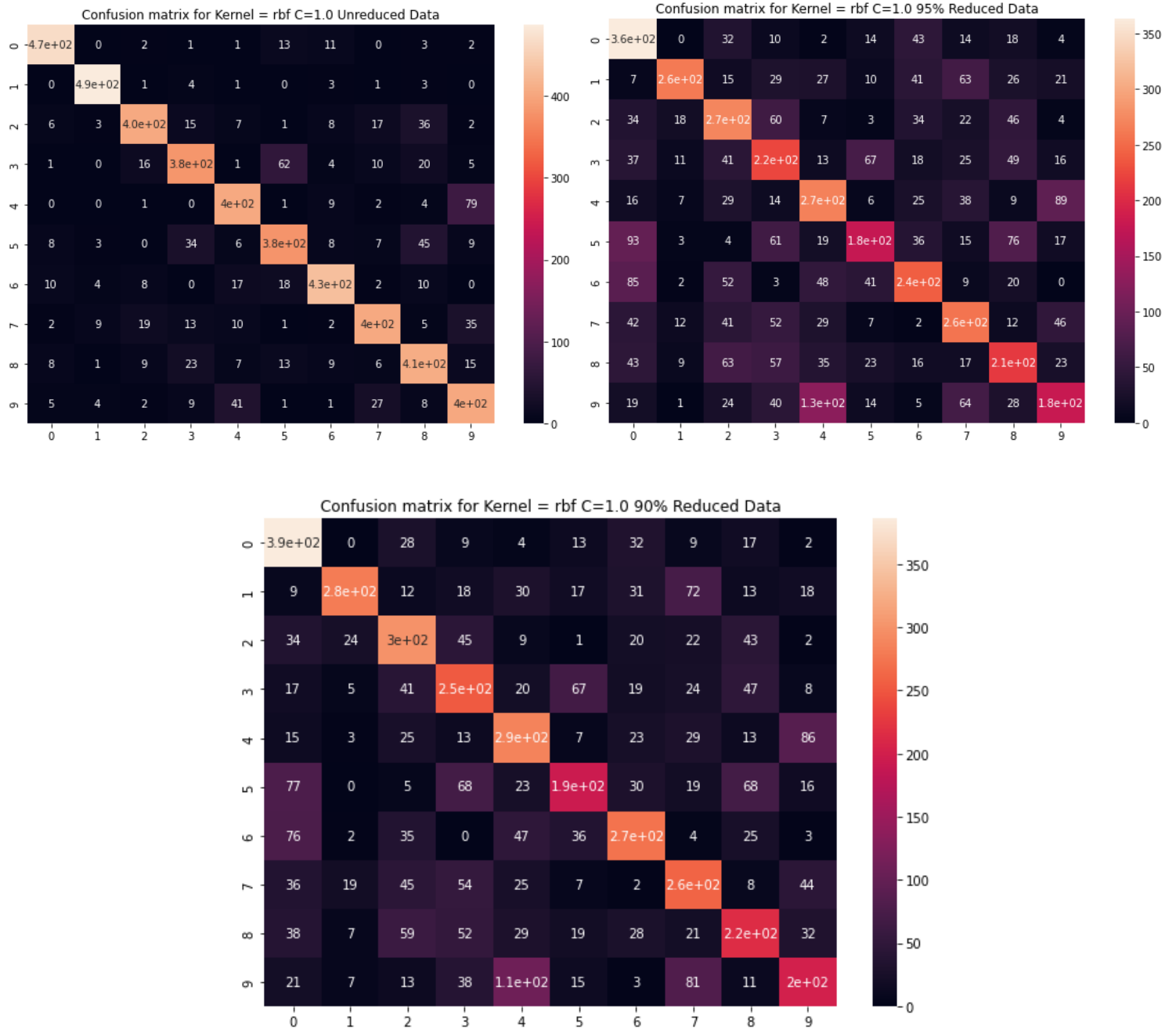
## Linear Kernel, C = 100 Confusion Matrices



## RBF Kernel, C = 1.0 Confusion Matrices

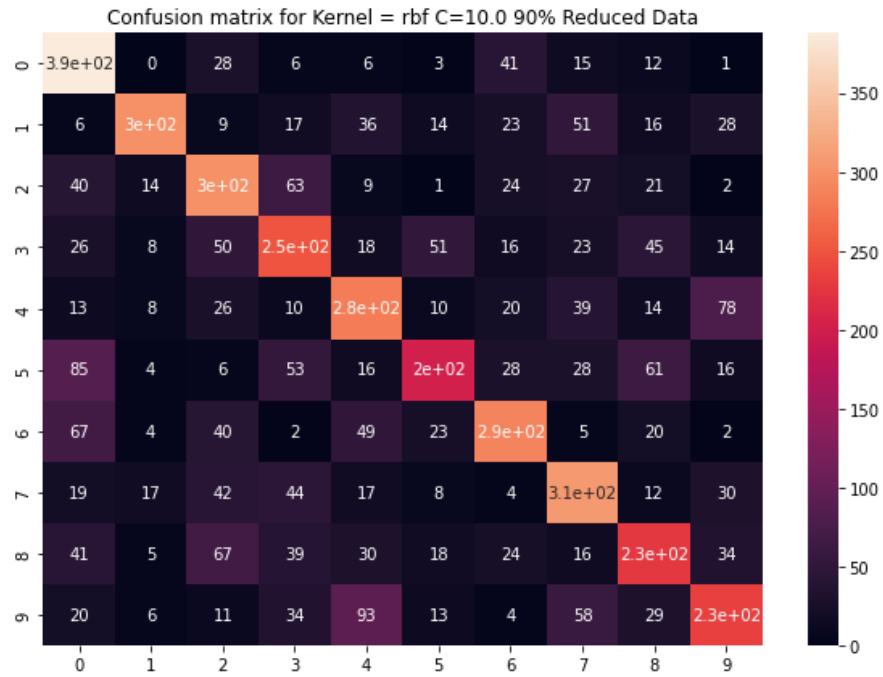
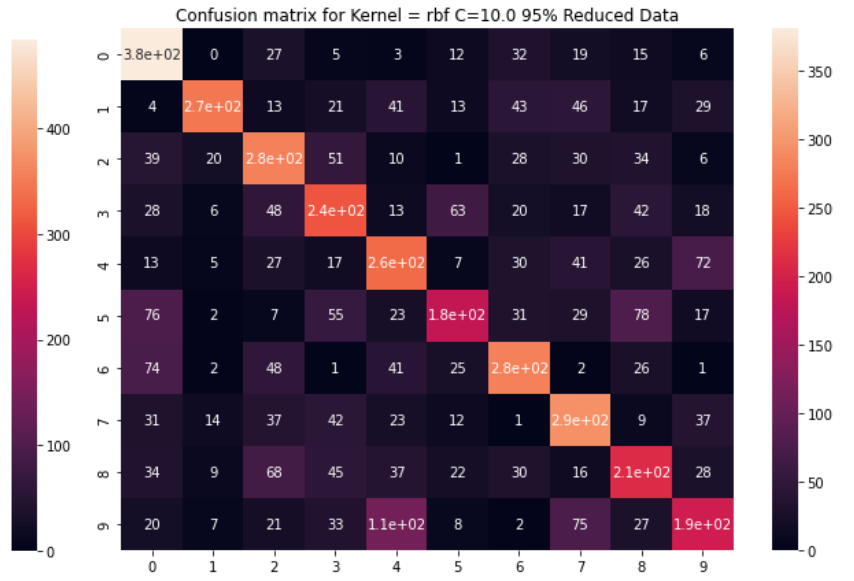
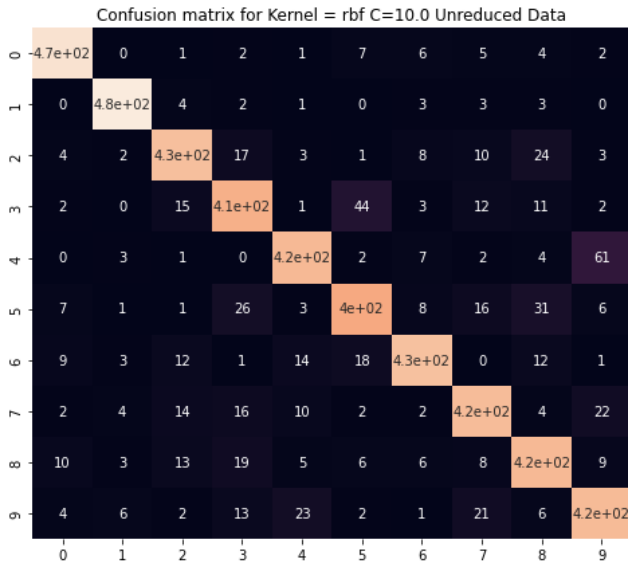


## RBF Kernel, C = 1.0

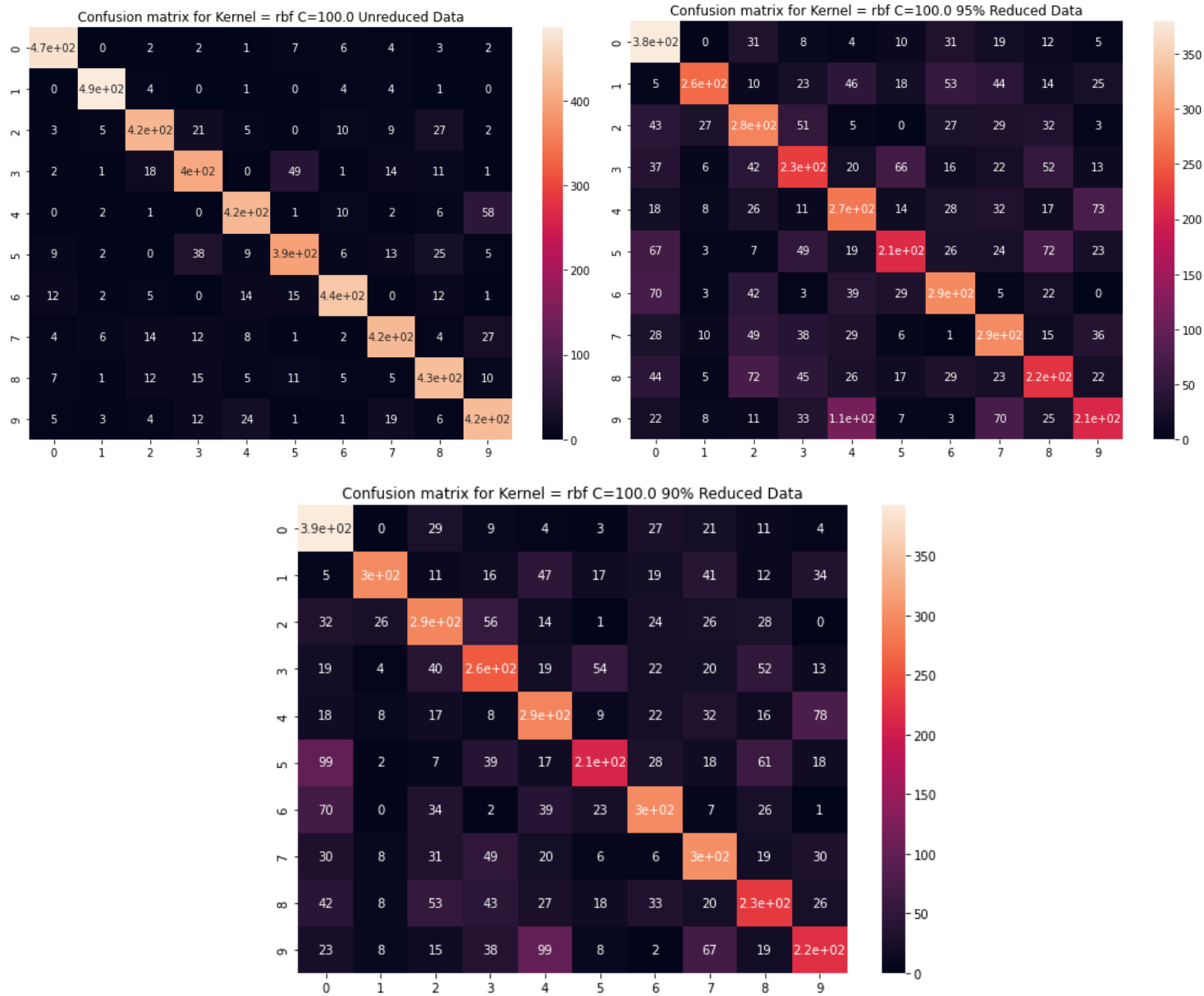




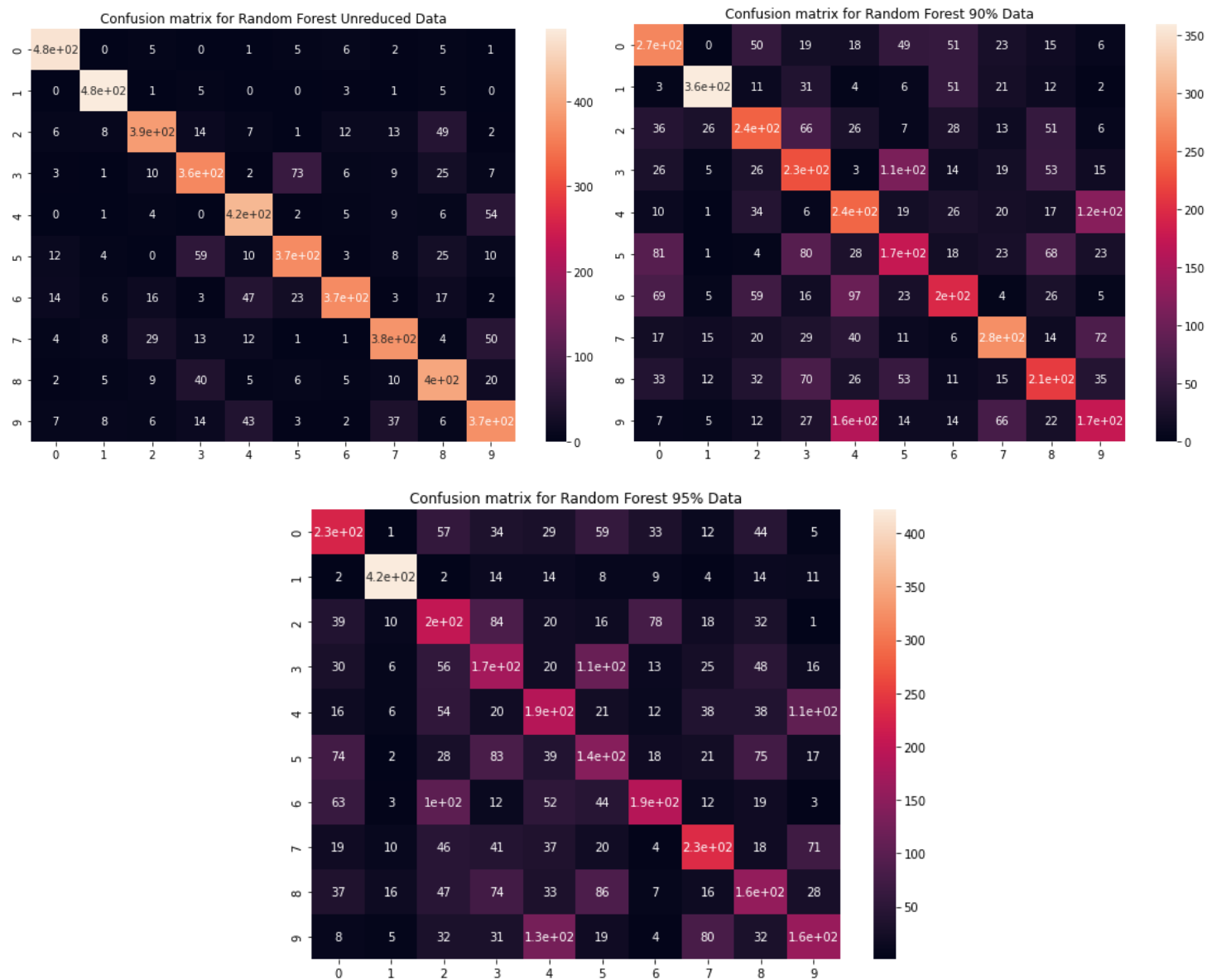
## RBF Kernel, C = 10



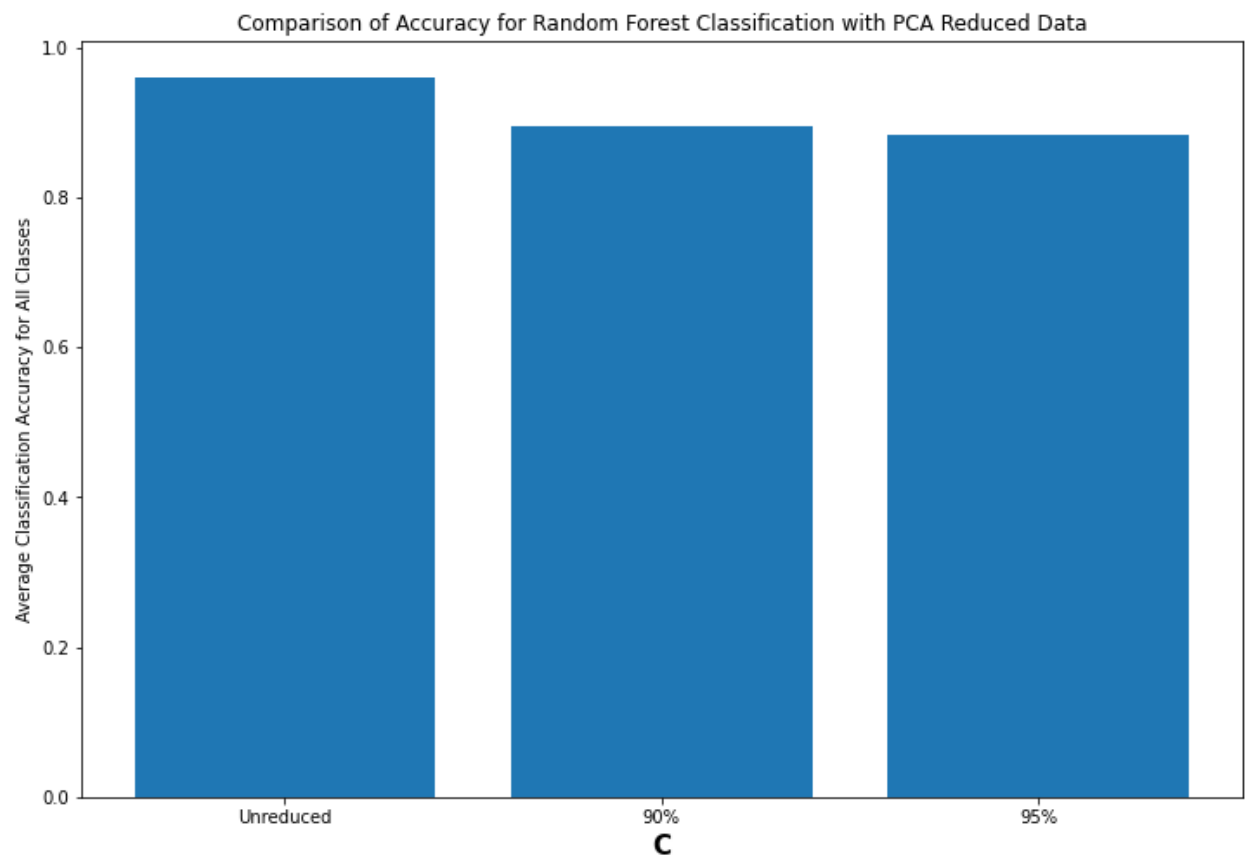
RBF Kernel, C = 100



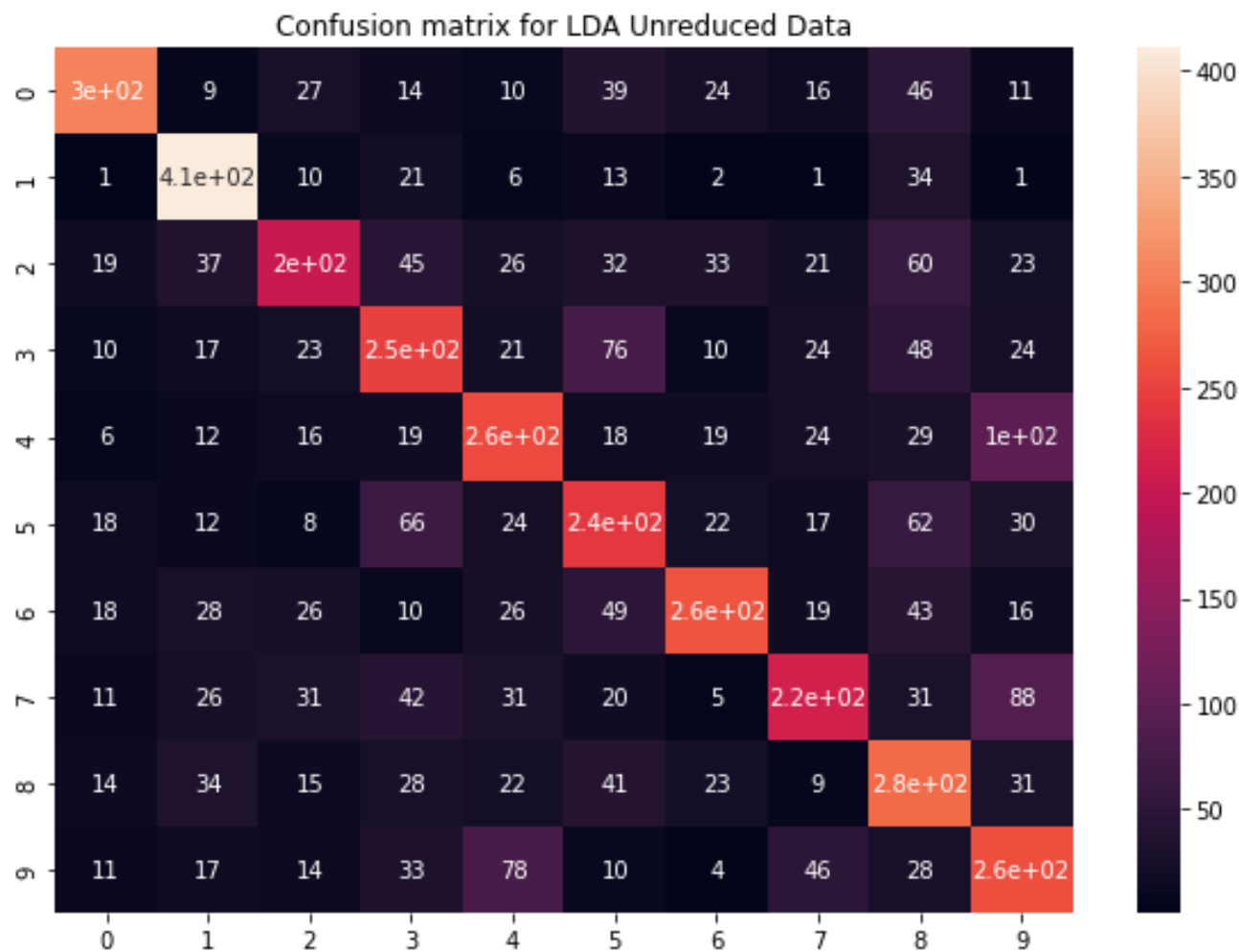
# Part 3: Random Forest Algorithm



	Unreduced	90% Reduced	95% Reduced
Average classification accuracy for all classes	0.96076	0.89496	0.88388



Part 4: LDA



Accuracy

	0	1	2	3	4	5	6	7	8	9
Accuracy	0.937	0.9424	0.9062	0.8898	0.911	0.8844	0.9254	0.9036	0.8854	0.8816