

Task 3 - Nathan Morales
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SVM Model

SVM Experiments	
Kernel Function	Accuracy
Linear	0.5738 ~ 57%
Sigmoid	0.5410 ~ 54%
RBF	0.4754 ~ 48%

Linear Training-set accuracy : 0.7261

Sigmoid Training-set accuracy : 0.6100

RBF Training-set accuracy : 0.7676

MLP Model

MLP Experiments - relu		
Optimizer	Learning Rate	Accuracy
SGD	0.01	0.48
SGD	0.001	0.49
Adam	0.01	0.54
Adam	0.001	0.56

MLP Experiments - tanh		
Optimizer	Learning Rate	Accuracy
SGD	0.01	0.48
SGD	0.001	0.54
Adam	0.01	0.44
Adam	0.001	0.59

Analysis:

From the obtained data from the MLP experiments and SVM experiments. We can clearly see that the Adam optimizer and smaller learning rates obtained the highest accuracies out of all the experiments. The linear kernel function performed the best in the SVM experiments. The training sets however for SVM received very high accuracies. MLP is better suited for larger sets of data while SVM is better suited for smaller sets of data. SVM is very effective in cases where the amount of dimensions exceeds the number of samples within the data and is relatively memory efficient. However as said before struggles when dealing with large sets of data, data with more noise, and data where the number of features exceeds the number of training data samples. As for MLP it is capable of handling large data quantities and they can be applied to complex non-linear problems. However, some disadvantages of MLP is that its functioning does require high quality training and it is hidden as to how each independent variable is affected by the dependent variable.