**Supervised Learning**

**Abstract**

This assignment explores the various supervised learning algorithms by comparing and contrasting their properties while training on two different datasets.

**Methods**

All algorithms were trained on two datasets. The sets were split into a training set and validation set.

**Decision Tree**

A Decision Tree utilizes a tree of decisions to make a final classification on a data point.

**Hyperparameters**

The algorithm is trained with hyperparameters as follows

**KNN**

KNN, or K-Nearest Neighbors, uses a distance metric between a cloud of points to classify a given data point.

**Hyperparameters**

The algorithm is trained with hyperparameters as follows

**SVM**

SVM, or Support Vector Machine, draws hyperplanes on a dataset and divides the data.

**Hyperparameters**

The algorithm is trained with hyperparameters as follows

**Boosting**

Boosting is a variant on Decision Trees in which the training places weights on whether the data is classified correctly or not.

**Hyperparameters**

The algorithm is trained with hyperparameters as follows

**Neural Network**

Neural Networks, in this case MLP, or multilayer perceptron, uses a network of functions that takes in inputs and changes weights iteratively.

**Hyperparameters**

The network is trained with hyperparameters as follows

**Analysis**

Below is a plot of the aggregate performance on a test dataset.

**Aggregate Learning Curve Graph**