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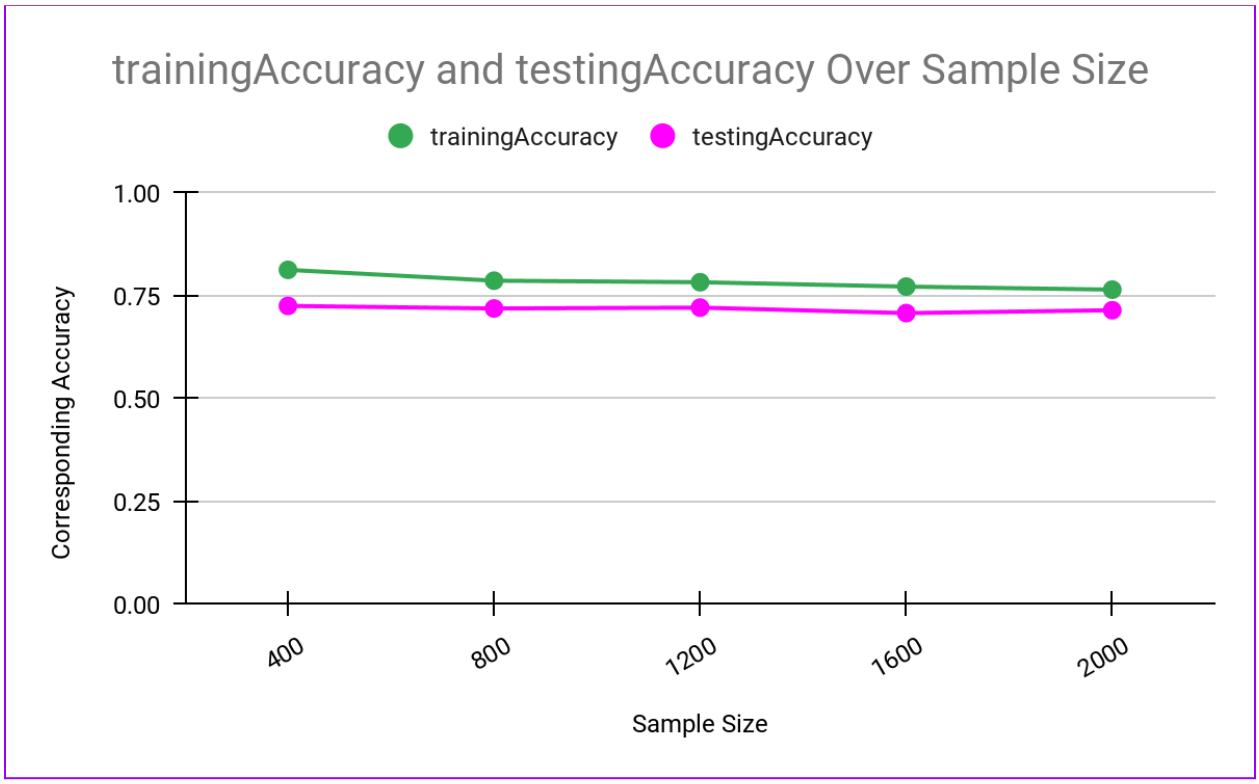
CS 4342 D21
Assignment 1

4) Results from training and testing:

n	trainingAccuracy	testingAccuracy
400	0.8125	0.725
800	0.78625	0.71875
1200	0.7825	0.7208333333333333
1600	0.771875	0.7075
2000	0.7645	0.7145



As is expected or typical for the machine, the training accuracy of the machine was higher in all cases when compared to the testing accuracy, and able to reach an accuracy of at

least 75% with the training model, though this was not the case for the testing accuracy. As discussed in lecture, this could be due to the tendency of the mean squared error to **over**fit in regression, accounting for additional or excess data that it is not working with. As the size increases, the training accuracy continues to decrease as a result of trying to fit an increasing sample set while the testing accuracy increases slightly. This could be because a higher number of images leads to more accurate classification from a machine. Due to the volatility of the images as well as the difficulties in assessing an image with so few discernible features, specifically color and size, the corresponding accuracy gradually decreases over time. This was not always the case with the testing accuracy, which could be due to a greater difference in the images fed to the machine, as there is no consistent decrease or increase in testing accuracy as the set size increases.

5) Visualization of the learned features on the third image in the data set: