**SVM for Image Classification Reflection**

Initially when I first encountered this assignment I thought it was going to be easy because a notebook was involved. After further examination I realized that the notebook was just an exercise to introduce us to SVM. I felt intrigued to learn how this was going to play out. Because I did not have any previous knowledge with classification or SVM, my approach to the exercise was to follow and understand every cell in the notebook that was provided to execute this as well as possible. Working through the notebook of course I found downloading and importing the libraries the easiest because I just had to type in the cell what I wanted to be downloaded then imported. The example in the notebook was very helpful. The code examples were very helpful because it gave me an idea of what needed to be inputted in my notebook so for me the notebook that was provided was like a recipe with a set of instructions except more informative about the concepts. The explanations were like my personal google because not only did it describe the keyword but gave an example to receive a further understanding of the concept. For example, during step three I needed to train the machine learning model, after giving me the explanation of SVM I immediately connected the concepts given supporting it. I could visualize and connect Hyperplane, Support Vector, and Margin. In addition, the code examples were only one part of what needed to be done to successfully train the model so if there was an error message it was up to me to figure out what I inputted wrong and fix it.

On the other hand, I could count one or two parts I did get stuck on even though I had what I needed right in front of me. When I was first importing the libraries I did it incorrectly because I wrote in one cell each line to that was given to me in the example so I ended up with seven cells instead of one cell with seven lines. I then realized my notebook was looking odd compared to the example notebook because I had so many cells when I then realized it and fixed it then ran the cell. In step two I had a few grammar errors and my output came out as an error because it was unable to identify the name for my cell 68 line 22 where I wrote “print(“Testing set size:”, X\_train\_gray\_flat.shape)” instead of “print(“Testing set size:”, X\_test\_gray\_flat.shape)” causing an error. After carefully going though each line to make sure nothing was spelled wrong or had the wrong word I ran the cell again and it was successful. A download had started which led to a sample image downloaded with x, y axis on a gray scale. It was nice to see the outcome of what was inputted in each cell to receive the output meaning you are successfully training the machine learning model. I learned that I needed to be precise and thorough when writing code and making sure I checked it before running it. I need to proofread my code before running it to get the desired output.

Overall, I feel like this exercise was effective in giving me an understanding of image classification because I was able to write code then run it to receive a certain image based on the type of code I was writing. The code for each cell worked in my favor depending on what I was wanted the output to be. It is all like a big algebra equation where the answer is the image you needed to produce. I feel like as long as I have an example I could teach a machine learning model until I familiarize myself with certain codes and formats. The pattern I learned with this exercise was how a code in a cell is written it is carried down until you run the cell. Then for the next cell, the one above part of that code is carried down and so forth. I learned to actually stop and think what it is that I am trying to write and how to make sense of it because in this model training it matters. I wonder if we can train a model with a more complicated exercise to create a more thorough training model.