PROJECT TITLE: Predicting Opioid Addiction Likelihood Using Neural Nets

PROJECT SUMMARY: Utilize artificial and convolutional neural networks in TensorFlow to classify individuals at risk for opioid addiction based off socioeconomic, familial, and personal health data.  Datasets include US Census Data, Center for Disease Control, and National Institute on Drug Abuse.

MILESTONES:

* Data collection - DONE
* Data exploration – DONE
* Feature Exploration - DONE
* Build models: ANN, CNN - DONE
* Model Tuning – TO BE DONE
* Result visualization - TO BE DONE

PROPOSED ‘TO DO’ FROM THE LAST WEEK (Copy & Paste from your previous week’s TO DO)

*This week I will continue to build and tweak my neural nets. As mentioned above, I am running into issues with processing power, where my models are running for hours before failing. I am going to spend this week discovering alternative options.*

THIS WEEK’S PROGRESS

I continue to ran into issues with processing power, so given the amount of time left in the class, I needed to reduce the size of the data that I was testing. This, fortunately, allowed for my models to run in an efficient amount of time, thus allowing for further testing and analysis. Additionally, while neural nets will automatically choose the best features in the model, I ran my own Random Forest variable importance to get a better understanding of which features may impact the response variable the most. Results are found at the bottom.

ISSUES AND DISCUSSION:

As mentioned above, despite my efforts, I continues to run into issues with processing power. Also, with such a large number of predictors in the neural net, the visuzlations, while interesting, are proving to not necessarily be very useful.

TO DO:

This week I want to finalize my neural net composition and begin analyzing the results. I also want to begin my final report/presentation, as it helps force me to organize my code and think about my whole process in a more comprehensive way.

