Capstone Project One proposal

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The goal of my first capstone project is to recreate the results of researchers at the University of Ottawa in Ottawa, Canada who were attempting to predict the winner of National Hockey League (NHL) games using machine learning [1]. Using a variety of available statistics, they were able to determine the winner of a given game with approximately 60% accuracy. This information would be valuable to NHL teams as a way to adjust their player roster or playing style to maximize the potential to win a given game. Other interested clients would include gamblers who could use this information to place better bets. The data used in this project can be judged on correlation to successful prediction to provide NHL teams some insight as to which statistics likely have the largest impact on winning a single game. Then teams would be able to use or find players that had a greater impact on the given statistics, in an attempt to improve their league record. The data to be used for this project is available from the publishers of the original document. The authors state that the data they used is available through email contact with them. I will email the authors and obtain their dataset for use in my project. I will build a baseline model using regularized logistic regression with hyper-parameter tuning to predict a game winner. It is the logical model to use, because this problem is a binary classification problem, and the logistic regression model is built to classify that type of problem. After building the baseline model and analyzing the results, I will consider more advanced algorithms, in consultation with my mentor. As required, I will submit all Jupyter notebooks with the code I will develop, a final report, and a presentation slide deck, as well as a comparison of my results with the original document's.

References

1. Weissbock, J., Viktor, H., and Inkpen, D.: Use of Performance Metrics to Forecast Success in the National Hockey League. University of Ottawa, Ottawa, Canada (2013)