**CSE 523 Machine Learning**

**Section 1**

**Group: Decision Makers**

**Project Number 6: Athlete profiling based on similar characteristics**

**Weekly Report**

**Week 2**

**Introduction:**

In todays’ time analysing data has occupied a central role in competing sports like basketball, football, cricket and more, which help in evaluating player at various levels, i.e., individual, team and conference level. By evaluating players, coaches can help players improve their performance of players by incorporating appropriate training methods like skill training or strength training based on their performance. Hence, our goal of the project is to cluster similar players and identify the characteristics of that cluster in order to improve their performance by giving appropriate training where the cluster lags.

**Progress Summary:**

We did yet another literature survey, by reviewing recent research paper, Impact of sleep and training on game performance and injury in division-1 women’s Basketball Amidst the Pandemic [1]. Here, we explored the influence of sleep data and training data on game performance and injury, which are used to predict injury risk and game performance. Similar to previous paper, we found MICE being used for data imputation, SMOTE used for K-means clustering, XGB for parameter optimisation, random forest, and correlation driven feature importance.

**Next Steps:**

We plan on developing ideas for model which can cluster similar athletes. We also plan to explore dataset and identifying the relevant data for building the model.

**Appendix:**

1. Impact of sleep and training on game performance and injury in division-1 women’s Basketball Amidst the Pandemic S Senbel, S Sharma, MS Raval, C Taber, J Nolan... - Ieee Access, 2022. https://digitalcommons.sacredheart.edu/cgi/viewcontent.cgi?article=1180&context=computersci\_fac