**CSE 523 Machine Learning**

**Section 1**

**Group: Decision Makers**

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

**Weekly Report**

**Week 1**

**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 started off by doing the literature survey, which included reviewing recent research paper, A holistic approach to performance prediction in collegiate athletics: player, team, and conference perspectives [1]. Here, we explored the background of the problem, the important parameters at different levels like RSI Mod for individual level, Game Score Metric for team level and Player Efficiency Rating for conference level. Also, the paper discussed various methods employed like the XG Classifier and random forest for parameter optimizations on features, and algorithms like MICE for data imputation. Therefore, we studied the paper.

**Next Steps:**

We plan on continuing our literature survey and identifying the dataset features.

**Appendix:**

1. A holistic approach to performance prediction in collegiate athletics: player, team, and conference perspectives. Taber, C. B., Sharma, S., Raval, M. S., Senbel, S., Keefe, A., Shah, J., Patterson, E., Nolan, J., Sertac Artan, N., & Kaya, T. (2024)**.** https://www.nature.com/articles/s41598-024-51658-8