Team Blue Jay *(Westminster College)*
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Title: ***"Building a Winning Rugby Team based on Wellness and Performance Indicators"***

Introduction:

Building a winning team is the long-term effort requiring countless hours of practise and preparation. But are athletes getting the right training? Are they performing their best? In this analysis, we will look at both the subjective and objective measures provided by Rugby Canada to propose a strong team for their future tournaments.

Description:

Goal

To build a winning team based on the athletic performances and their wellness level

Approach

Firstly we created a new feature column 'outcome' in the *GPS data* by matching with the GameID from the *game data* file. Then we compare the frequency distributions of winning and losing outcomes for each features in the *GPS data* to determine their variations.

We decided to have a closer look at the individual performances at their game days and determines which players has the potentials to contribute most to the winning team based on their speed and tackling prowess. We use the violin plot (similar to the box plot) that shows the summary record of the individual performance in their recent games.

After assessing the individual profiles, we determine which features are essential in improving their health and recovery during the training. We use *Naives Bayes Classifier* to predict the the 'Mornitering Score' from the variables of 'Pain', 'Illness', 'Menstruation', 'Nutrition', and 'Nutrition Adjustment'.

Result

-The Win-Loss comparison of features indicates that the speed and positioning of the team players played a crucial role in the Winning Team. (There is a large difference in AccelY and AccelZ between winning and losing matches)

-The second analysis indicates which players are top performers and who are not. Based on their records, Player 1, 3, 4 , and 7 are the key players at both sprints and agilities. It also suggests which team players need more training time.

- The third result shows that most team players have positive outlooks on their fitness. From the Naive Bayes model, we can predict how much the player is ready. It was indicated by the probability of the monitoring score given the other variables in the wellness data.

Conclusion:

- Based on our analysis, we suggest that we can give extra training for their defense team (to improve AccelZ and AccelY scores)

-Team Canada should keep their positivity in their wellbeing but they cannot ignore other important variables such as skills in determining the success of their team

-Based on the violin plots, we can provide individualized trainings for each team members based on their speed and tackling skills level.