**AccelData\_Processing (Steps Group)**

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*Brief Summary Report*

*Advanced R*

To start, Chris Moore deserves to be recognized for his overall contributions to the group. The resulting outcomes from this project would not have been achieved without his assistance. In addition to supporting the other group members with troubleshooting broken code, he took the time to explain the solutions. For our completed project, we followed the goals outlined in our project proposal. We processed and analyzed a small data set (n=4) of 7-day, 24-hour accelerometer PA data, using the ‘PhysicalActivity’ R package and custom R functions. The breakdown of each step is outlined below.

Step 1) **Prepare data for analysis using ‘PhysicalActitvity’ package:**

The data preparation and filtering was completed by Chris, with the changes merged to the master via a Github pull request to Brent. The List.files function was very helpful in this step due to the "pattern" and "recursive" arguments. The PhysicalActivity package functions were incorporated into more customizable functions including: acceldata\_1sec$TimeStamp, acceldata\_reint, acceldata\_days. Each of these functions expanded upon the imported data frames.

Step 2) **Examine PA using counts (proprietary units) with ‘PhysicalActitvity’:**

This step, completed by Colleen, summarized the imported data. During this step, the pai function was created to indicate physical activity intensity (sedentary, light, moderate or vigorous). Then, the minutes/day for each intensity were classified. Following that step, the average pai minutes were found for weekend versus weekdays, and for the total overall week. The use of the dplyr functions that were learned in class were essential to the data manipulation in this step. Additionally, the use of ifelse() simplified the classification of weekday vs weekend days.

Step 3) **Examine PA using steps with custom functions**:

This step, completed by John, created the custom functions for this task. The main obstacle was to calculate steps/day for each day of the week, then to summarize those into a weekday vs weekend output. Again, dplyr functions learned in class helpful in made data the arrangement and manipulation of data.

Step 4) **Visualize the data with ggplot2:**

Brent worked on modelling new ggplots after the visual style of those already in the PhysicalActivity package and other published data. Ggplot code was used to create functions. Use of themes() was helpful in changing text and axis aesthetics.