CS 210 Introduction to Data Science

Fall 2023-24

Course Project

Prepared by
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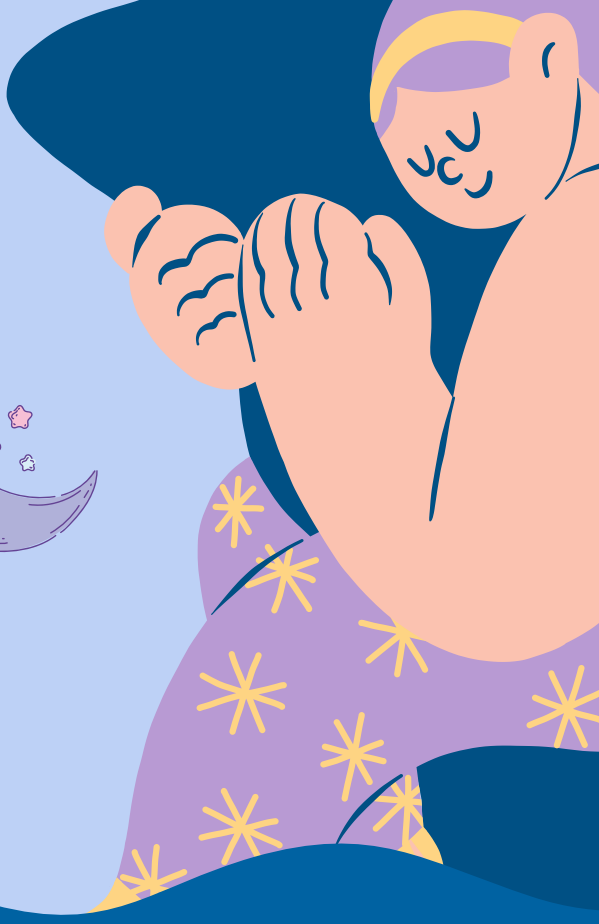
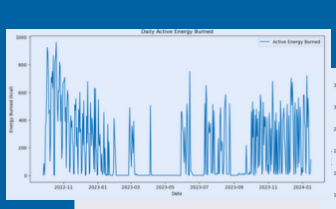
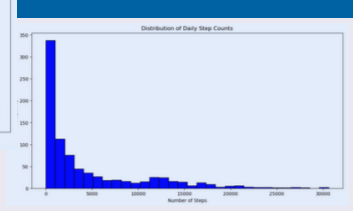


Hypothesis

The total number of daily steps taken, as measured by an Apple Watch, has a significant impact on the subsequent day's resting heart rate.

Result: Hypothesis is CORRECT!!



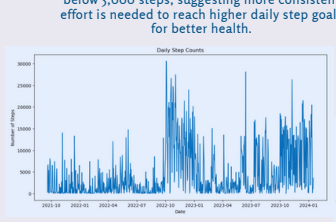


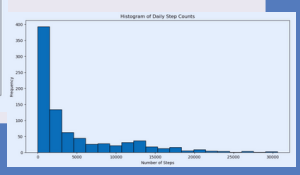
The lower graph shows a common trend of low daily step counts, with most days under 5,000 steps, indicating that my daily movement needs to be increased. The upper graph displays the fluctuating energy burned day-to-day, reflecting inconsistent activity levels. Together, these patterns highlight the importance of regular physical activity for maintaining health.

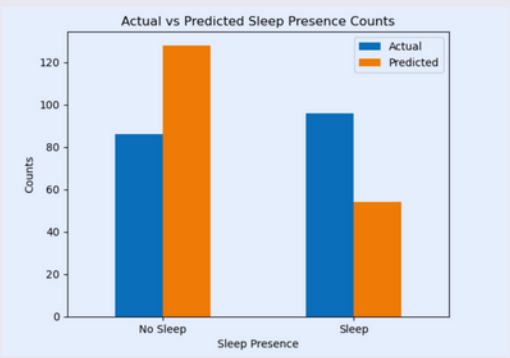
From these patterns, it can be concluded that my daily activity is not actually that much and therefore I am not tired most days.

This activity data will help us when examining whether physical activity affects sleep.

The step count graph shows daily steps vary widely, with some days reaching over 20,000 steps. The histogram indicates most days fall below 5,000 steps, suggesting more consistent effort is needed to reach higher daily step goals for better health.

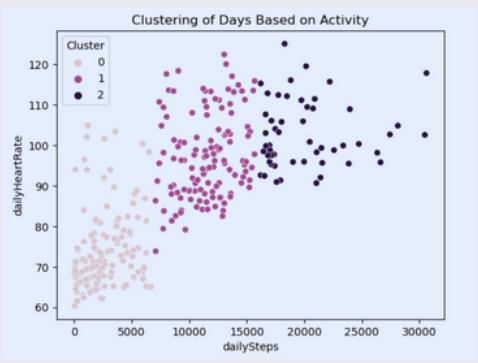


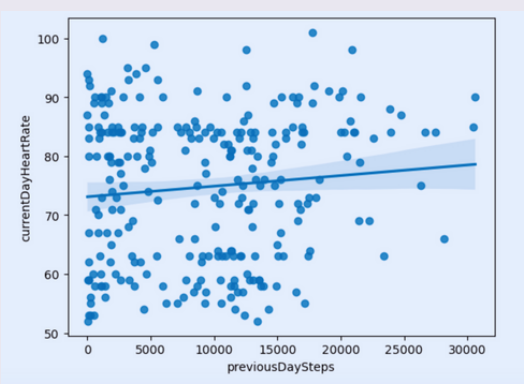




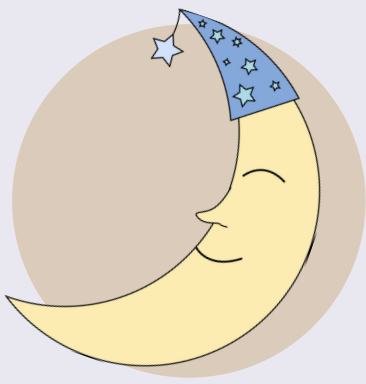
The graph compares actual and predicted sleep presence. It shows that sleep was correctly predicted more often than no sleep. This suggests that the prediction model is more accurate when identifying sleep than its absence, which could be useful for improving sleep tracking technology.

This scatter plot illustrates the clustering of days based on activity, showing three distinct groups. Cluster 0 represents days with lower steps and heart rate, cluster 1 shows moderate activity, and cluster 2 corresponds to days with the highest steps and heart rate. This suggests that more active days are associated with a higher heart rate.





The scatter plot shows a slight positive trend between the number of steps taken the previous day and the current day's heart rate. As daily steps increase, there's a trend toward a higher heart rate the following day, suggesting a potential correlation between recent activity levels and cardiovascular response.



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For advanced review, please check out this GitHub repository:

https://github.com/krmttr/CS-210-Project.git