DSA210 PROJECT
DAILY STEP NUMBER ANALYSIS

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Project Overview and Motivation:

- The motivation behind my project is to understand how my physical activity, as measured by daily step count, is influenced by external factors like academic workload and weekly routines. By exploring correlations with exam seasons and distinguishing activity levels on weekdays versus weekends, I uncover patterns in my behavior and identify potential areas for lifestyle changes. I achieve this by analyzing this semester.
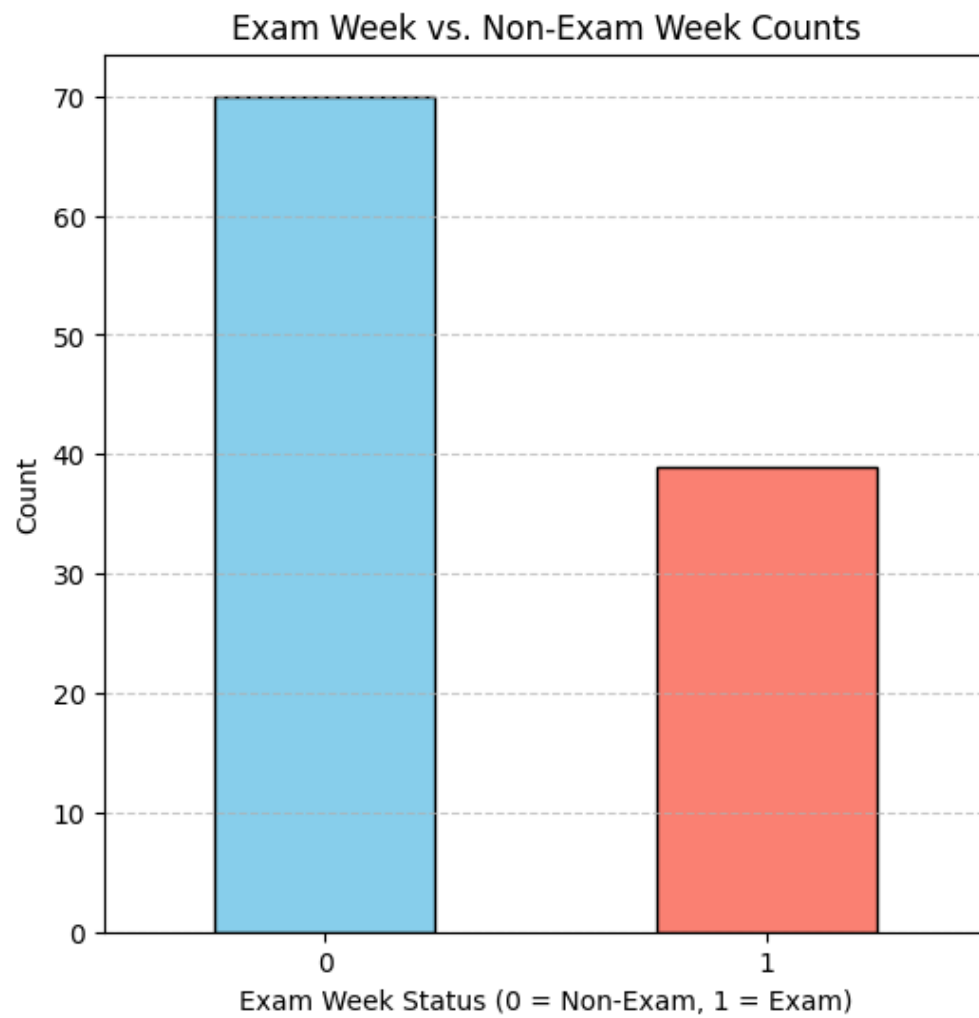
Where did i get the data?

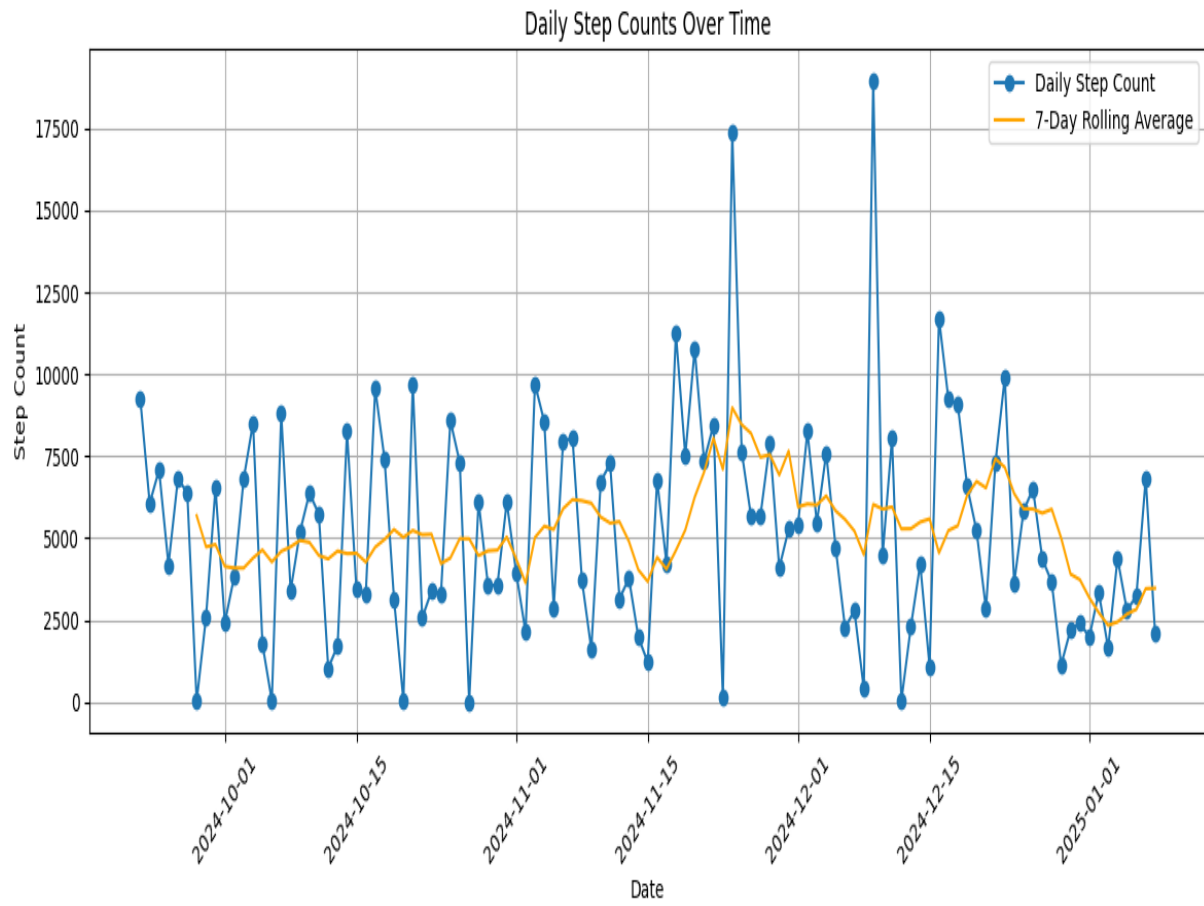- I get the data from the health application in my phone. My daily step number data was recorded in that application.
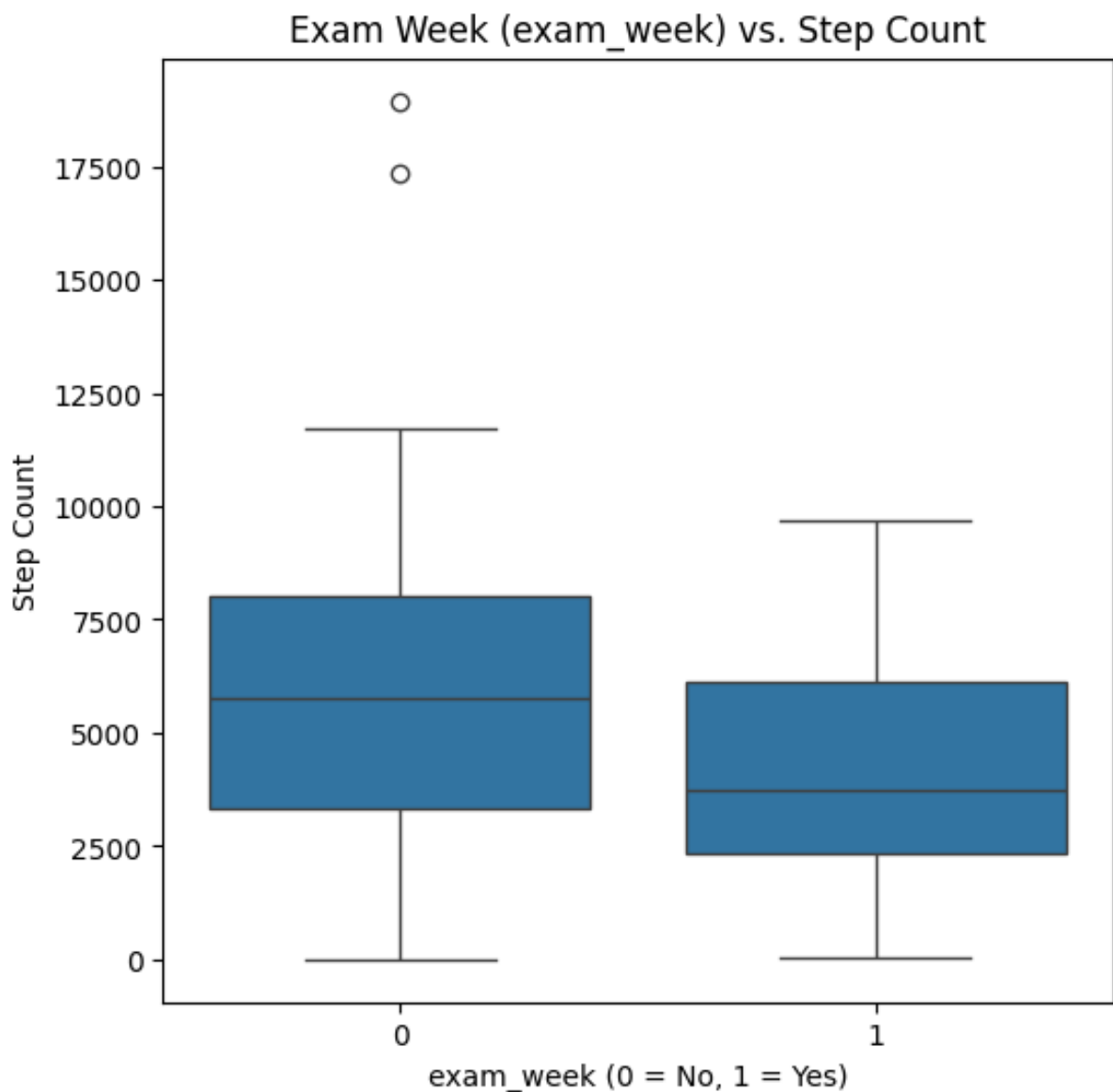
Health

- My data distribution is like this:

Exam Week vs. Non-Exam Week Counts

- This is my daily step count data:

Daily Step Counts Over Time

- Box plot to visually compare step count distributions during exam weeks and non-exam weeks to identify patterns or differences in physical activity levels.

Exam Week (exam_week) vs. Step Count

- Box plot to visually compare step count distributions during weekdays and weekends to identify patterns or differences in physical activity levels.

Weekdays (0) vs. Weekend (1) Step Count
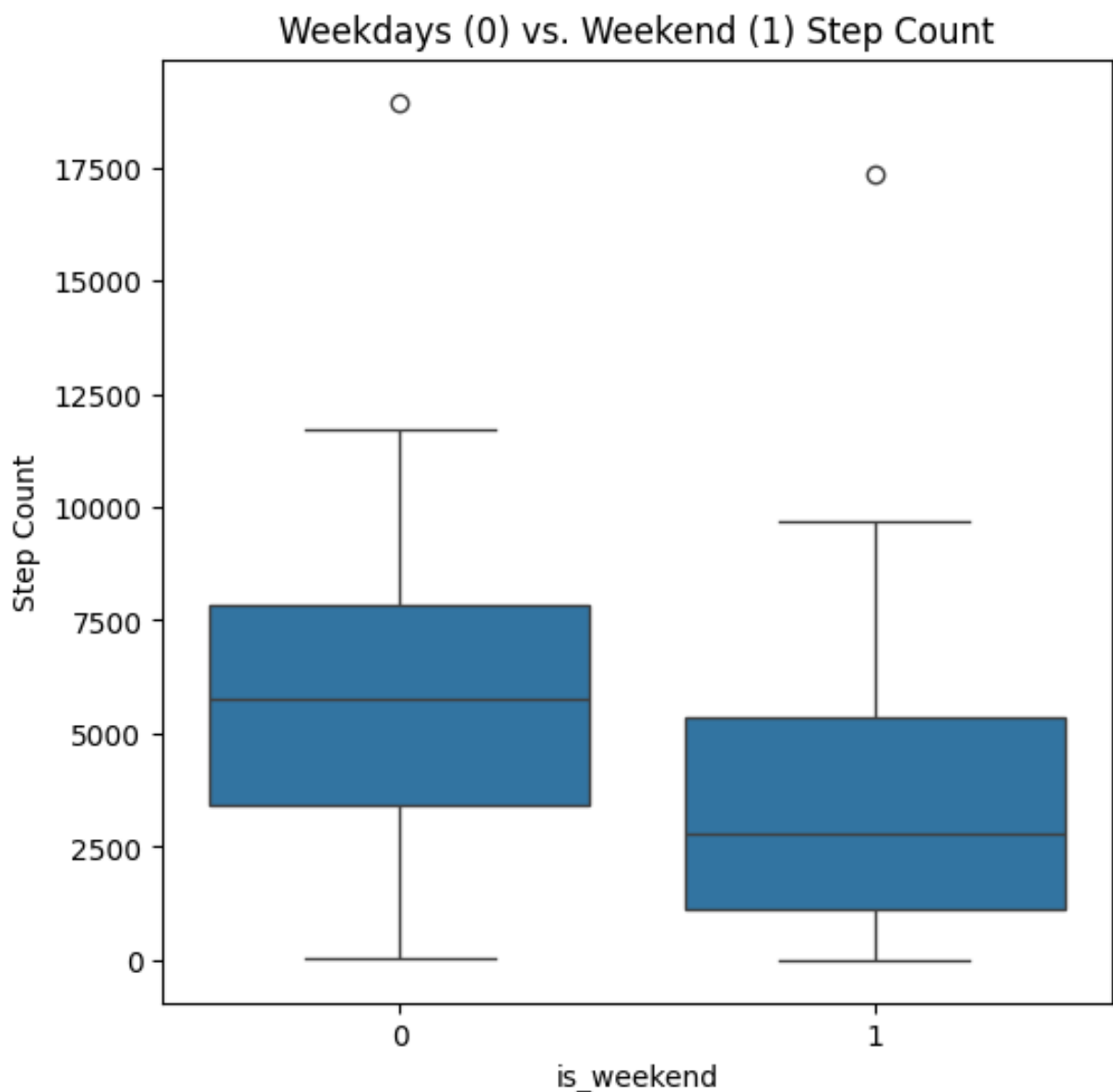
The Result

My expectation was to see significant decrease in my step counts in exam weeks. Also, I was thinking that my step counts would decrease in weekends compared to weekdays similar to the exam week data. The result that I got from my data is like this:

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T-test (Exam vs. Non-exam): t_stat = -2.604, p_val = 0.011
Reject the null hypothesis: Significant difference between exam and non-exam weeks.
T-test (Weekday vs. Weekend): t_stat = 2.710, p_val = 0.009
Reject the null hypothesis: Significant difference between weekday and weekend steps.
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Conclusion

The t-test results indicates that:

1. Exam vs. Non-Exam Weeks:

   - The t-statistic is -2.604 with a p-value of 0.011.

   - Since the p-value is less than 0.05 (common significance level), we reject the null hypothesis.

   - This implies that there is a significant difference in step counts between exam weeks and non-exam weeks, suggesting that physical activity levels are noticeably different during these periods.

2. Weekday vs. Weekend:

   - The t-statistic is 2.710 with a p-value of 0.009.

   - Again, since the p-value is less than 0.05, we reject the null hypothesis.

   - This indicates a significant difference in step counts between weekdays and weekends, suggesting that activity patterns vary meaningfully based on the day of the week.

So, from the result it can be concluded that my assumptions about my step count data in the beginning was correct. My step count number decreases in exam weeks and it also decreases in weekends.