Bellabeat Analysis by Dakota Cassidy

Ask

Bellabeat is a high-tech manufacturer of health-focused products for women. The analysis will be conducted on one of Bellabeat's smart device data to gain insight into how customers are using their non-Bellbeat smart devices. The insights from this analysis will be applied to the Bellabeat product: Bellabeat app, which provides users with health data related to their activity, sleep, stress, menstrual cycle and mindfulness habits. This data can help users better understand their current habits and make healthy decisions. The Bellabeat app connects to their line of smart wellness products. Questions considered during the analysis were:

1. What are some trends in smart device usage?
2. How could these trends apply to Bellabeat customers?
3. How could these trends help influence Bellabeat marketing strategy?

Prepare

The data source used for this analysis is: FitBit Fitness Tracker Data (CC0: Public Domain, dataset made available through Mobius): This Kaggle data set contains personal fitness tracker from thirty fitbit users. Thirty eligible Fitbit users consented to the submission of personal tracker data, including minute-level output for physical activity, heart rate, and sleep monitoring. It includes information about daily activity, steps, and heart rate that can be used to explore users' habits.

This data is open data stored on Kaggle for public use. Kaggle is a highly credible database. This structured data is organized into different spreadsheets for daily, hourly, and per minute for different categories being tracked. Some are in wide format and some are in long format. The data is quantitative. The data is reliable, original, comprehensive, current, and cited. The data is accurate, complete, and unbiased. The sample group is a good representation of the population being studied. The sample group provided consent for their data to be used. Aspects of their data are protected and private, like their personal information. The data has gone through anonymization. The data is comprehensive, it includes all the critical information needed to answer the question and find a solution. The data can help answer how users use non-Bellabeat smart devices to track their data, to create a strong marketing strategy for Bellabeat products. There are no issues with the data. Sorting and filtering of the data involved only viewing relevant data to help answer the question. Three sheets were used in the analysis, Daily activity data, Sleep data, and Hourly intensities data. The weight data sheet was not used for further analysis, due to a sample size that was too small.

Process

A changelog was kept to track all versions of the data during cleaning and manipulation. Using a programming language like R makes it easy to reproduce the work because all the steps of analysis are being stored. This is good for verifying work and checking for errors. Data integrity was ensured through data cleaning. Data integrity is the accuracy, completeness, consistency, and trustworthiness of the data. Everything was changed to a common format for dates and times. The data was checked for duplication, common formats. The data is complete with no missing entries, sources of errors, null data search,

misspelled words, mistyped numbers, extra spaces and characters, mismatched data types, inconsistent strings, misleading variable labels, and business logic. To verify the data was clean and ready to analyze, a recheck of the clean dataset was required, manual clean ups if needed, and taking a step back to think about the original purpose of the project. Confirmation of the business problem, the goal of the project, and verification that the data can solve the problem and is aligned to the goal.

Analyze

Two data sheets containing sleep and daily activity data were merged to analyze for any correlations. To merge the data sheets, they needed to follow the same format and variable names. One trend found was the negative correlation between the number of sedentary minutes and minutes of sleep seen in Figure 1. This means that the more time spent being sedentary, the less sleep the user gets. Another trend found seen in Figure 2, was the most active times during the day for users being between 11:30am and 7:30pm with a peak between 4:30pm and 7:30pm. This is highly useful in developing a strong marketing strategy, to cut down on ad-time to a specific time block.
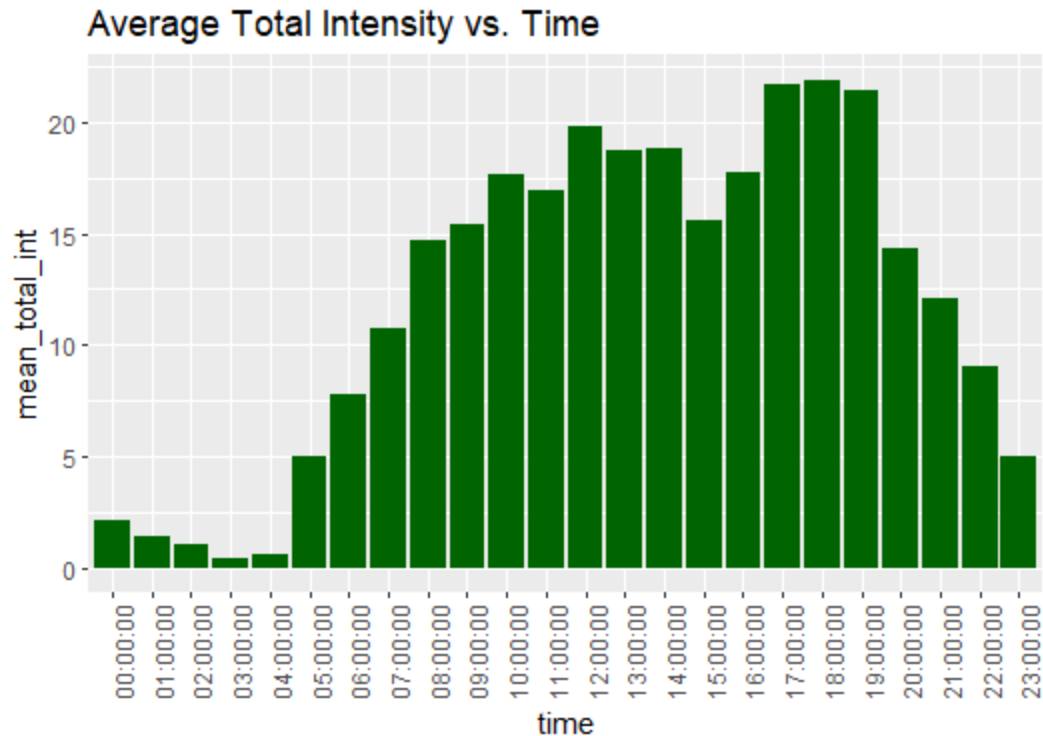
Figure 1

Negative correlation between sedentary minutes and total minutes asleep
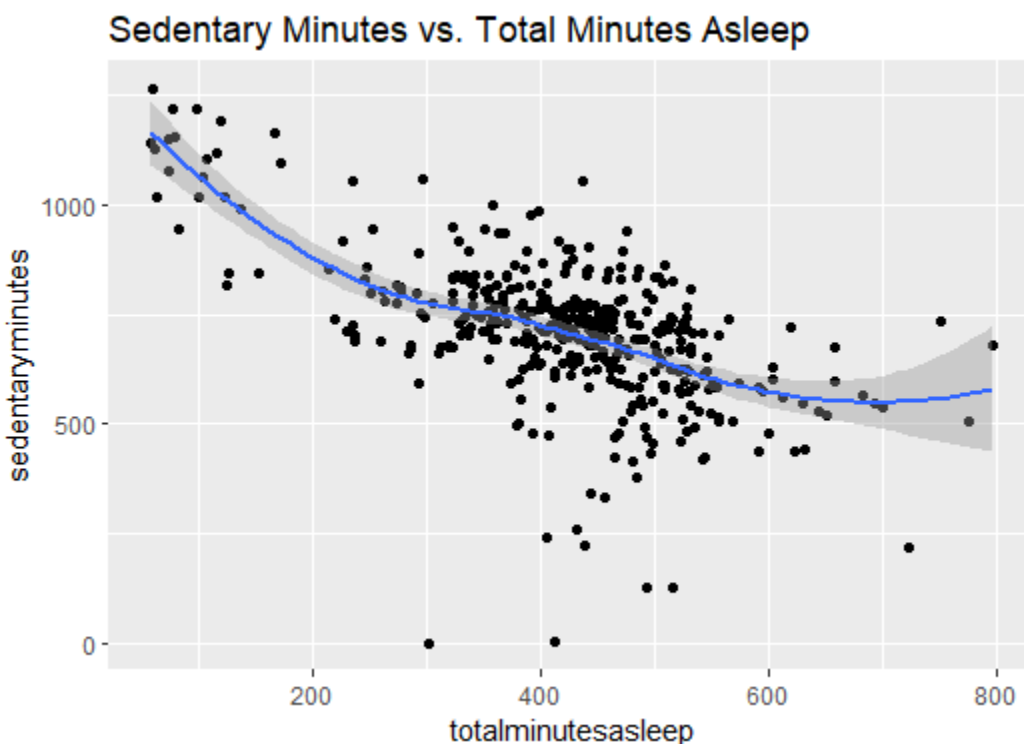
Figure 2

Graph showing peak times for activity of users

Average Total Intensity vs. Time

Share

The business question of how the Fitbit tracker data can be used to help develop a strong marketing strategy for the Bellabeat app, was answered. The data findings show a story about the lives of high-tech health product users. The most useful being the most active times for users, and the correlation found about the users' sleep patterns, because sleep is very important for health. The Bellabeat marketing team can use the sleep pattern information in advertisements, by informing potential customers of the benefits good sleep has on health, and how the Bellabeat app can help users stay on track to getting great sleep. The audience is the Bellabeat marketing team, and the best way to communicate these findings is through a PowerPoint presentation with clear and easy to follow visualizations of the data.

Act

In conclusion, to create a strong marketing strategy for the Bellabeat app, the Bellabeat marketing team should consider the key findings from this analysis of how potential customers use non-Bellabeat products. The marketing team could use the finding of the negative correlation between sedentary minutes and total minutes asleep, by informing potential customers how important sleep is for overall health, how the more sedentary a user is the less sleep they will get, and how using the Bellabeat app can help them achieve better sleep, and therefor better health. The Bellabeat app could incorporate alerts to the user when they are spending too much time being sedentary, as well as notifications for when they should be getting sleep. The finding of the most active time for users being between 11:30am and 7:30pm with a peak between 4:30pm and 7:30pm, can be used by the Bellabeat marketing team by targeting ads to potential customers during this time. They are likely more interested in health-related products at this time when they are focused on being active. They can also use

location-based ads during this time in locations that are likely experiencing potential customers being active, such as a gym.

References

FitBit Fitness Tracker Data. (2016). Kaggle. Retrieved April 10, 2023, from
https://www.kaggle.com/datasets/arashnic/fitbit?datasetId=1041311&sortBy=voteCount