1. OVERVIEW

This case study is based on the Google Data Analytics capstone project.

In this case study the analyst will work for a fictional company, Bellabeat, and meet different characters and team members. In order to answer the key business questions, the analyst will follow the steps of the data analysis process: **ask**, **prepare**, **process**, **analyse**, **share**, and **act**.

2. THE SCENARIO

You are working in the marketing analyst team at Bellabeat, a high-tech manufacturer of health-focused products for women. Bellabeat is a successful small company, but they have the potential to become a larger player in the market. The co-founder and Chief Creative Officer of Bellabeat, believes that analysing smart device fitness data could help unlock new growth opportunities for the company. ***You have been asked to focus on one of Bellabeat's products and analyse smart device data to gain insight into how consumers are using their smart devices***. The insights you discover will then help guide marketing strategy for the company. You will present your analysis to the Bellabeat executive team along with your high-level recommendations for Bellabeat's marketing strategy

3. THE BUSINESS TASK

To analyse smart device usage data in order to gain insight into how consumers use non-Bellabeat smart devices.

4. THE DATA

The data for this case study was downloaded from the Kaggle dataset found at https://www.kaggle.com/datasets/arashnic/fitbit. This Kaggle dataset 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.

Twelve tables were downloaded consisting of health informing in daily, hourly and minute timeframes.

5. DATA MANIPULATION

RStudio was the main platform used for analysing the data.

The full code for this case study can be found at https://github.com/Kgothatso-K/Case-Study-Wellness-Technology.

The twelve tables were combined into three datasets consisting of daily, hourly, and minute data.

In the daily tables, the date columns were transformed into the desired format. The tables were merged into one daily table. The daily table consisted of 18 columns, and 943 rows. Three columns relating to sleep-data had 530 empty rows. The three columns were removed since 56% of the required information was missing.

In the hourly tables, the date-time columns were transformed into the desired format. The tables were merged into one hourly table. The hourly table consisted of 7 columns and 22,099 rows.

In the minute tables, the date-time columns were transformed into the desired format. The tables were merged into one minute table. The minute table consisted of 9 columns and 1,388,741 rows. Two rows had 1,200,220 empty rows. The rows were removed since 86% of the required information was missing. A further four columns had 62,618 empty rows. These rows and adjacent rows were removed from the table. The impact was that all columns had 4.5% of their data removed.

6. SUMMARY OF ANALYSIS

The analysis was conducted separately on the three tables. The minutes tables was excluded from the final analysis as it did not produce information that was not in the daily and hourly tables.

7. KEY FINDINGS

7.1. From the data cleaning and transformation, it was found that 56% of participants took off or deactivated their smart devices when sleeping,

7.2. There exists a direct proportionality between the amount of calories burnt and the level of activity the user engages in,

7.3. The net daily average activeness of the participants remained somewhat unchanged throughout the study period. On the last day of the study, there was a significant drop in user participation. See the below figures,

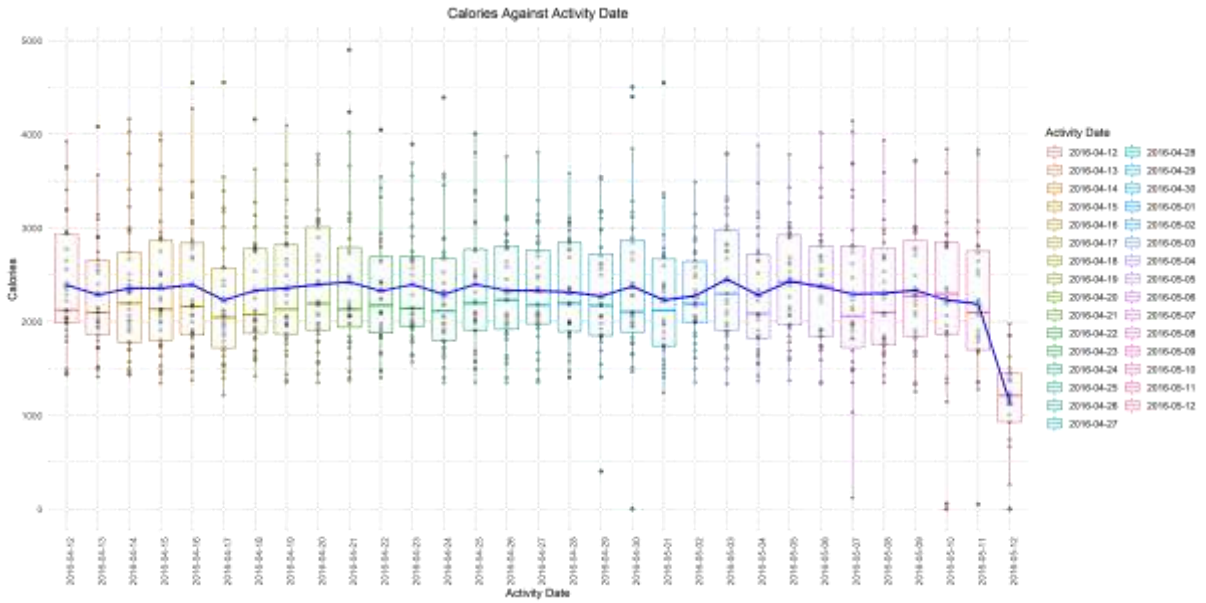

Figure 7.3.1 – Boxplot Calories Against Activity Date

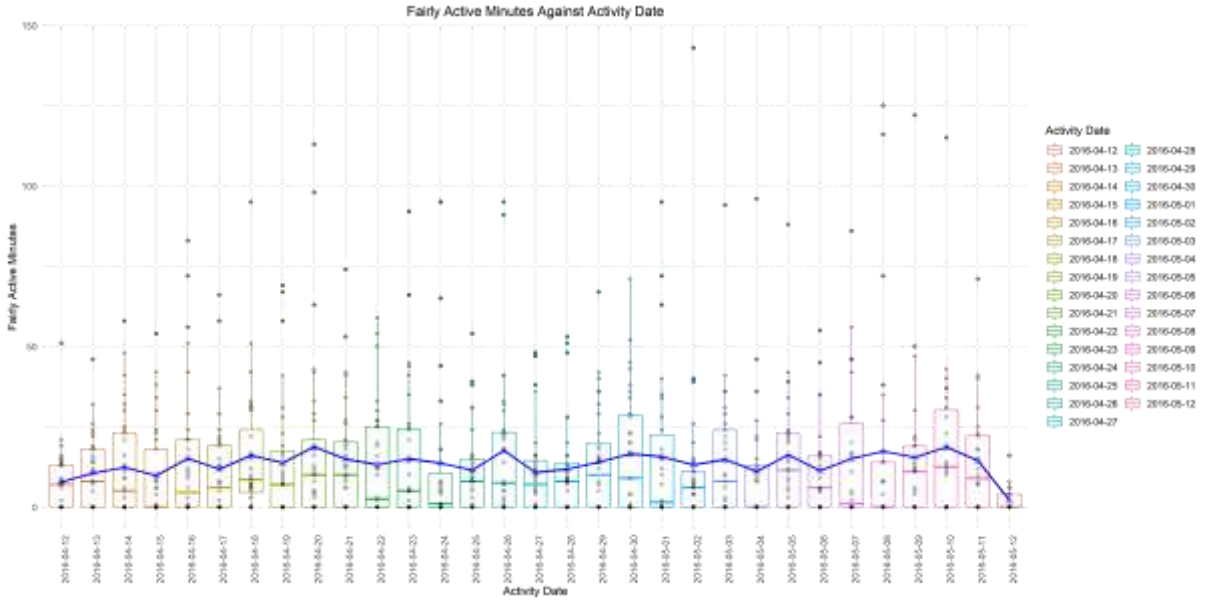

Figure 7.3.2 – Boxplot Fairly Active Minutes Against Activity Date

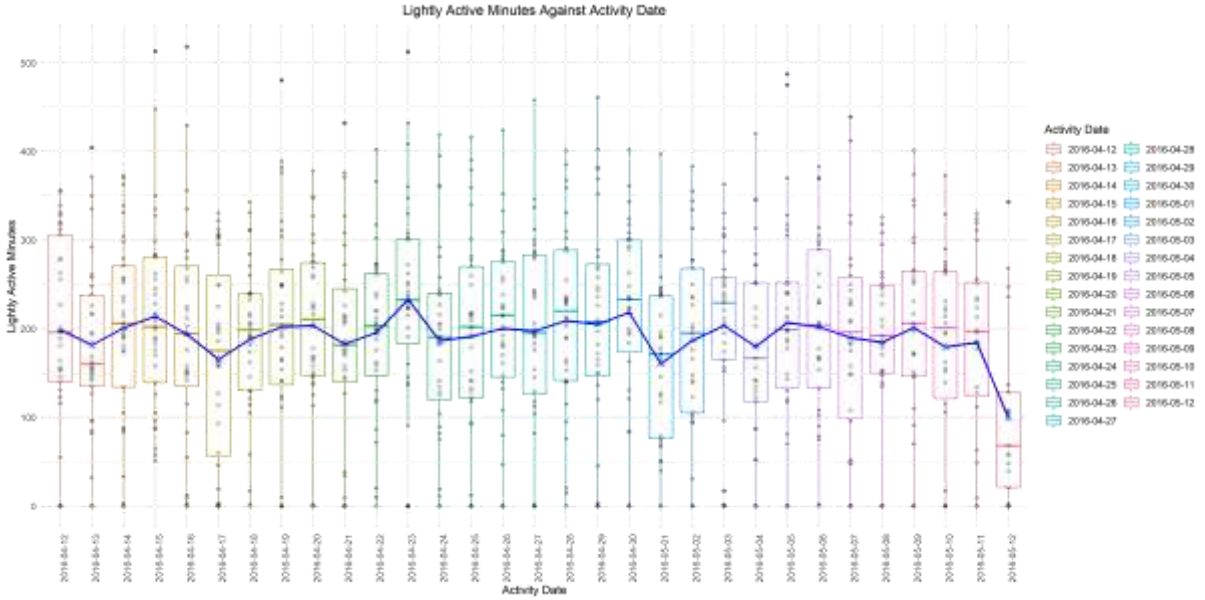

Figure 7.3.3 – Boxplot Lightly Active Minutes Against Activity Date

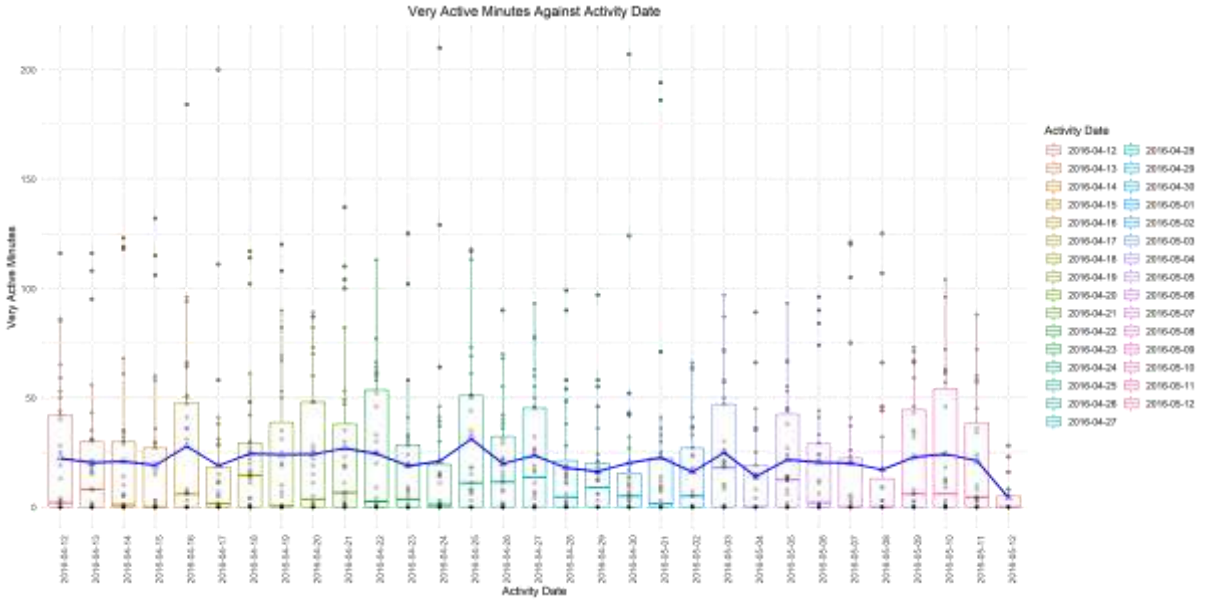

Figure 7.3.4 – Boxplot Very Active Minutes Against Activity Date

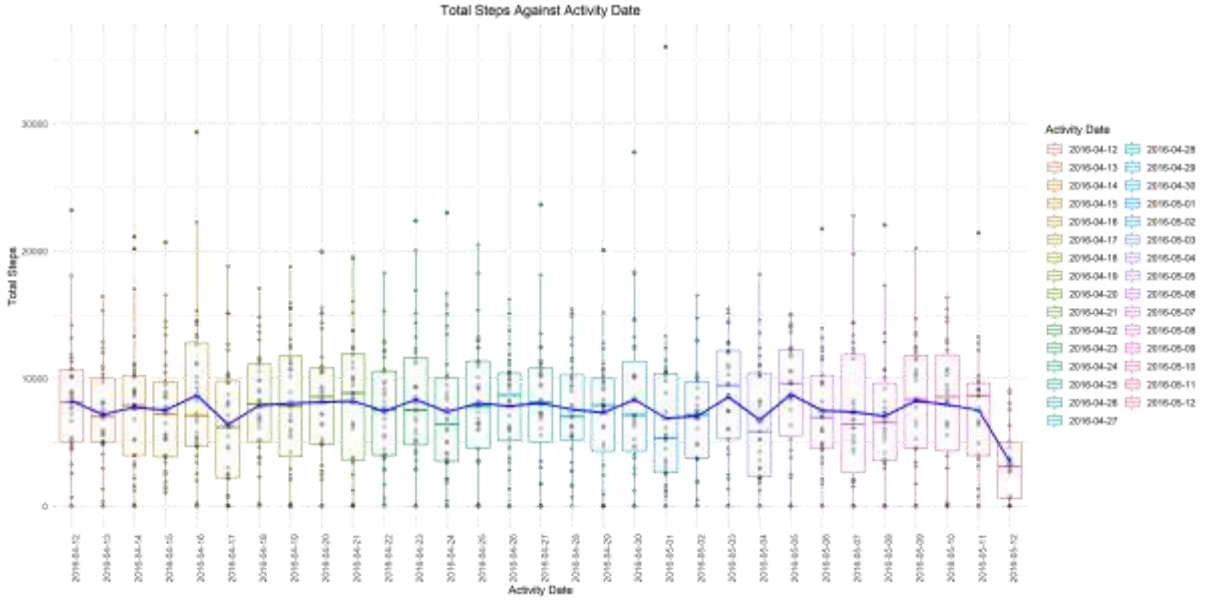

Figure 7.3.5 – Boxplot Total Steps Against Activity Date

7.4. The activeness and intensity of activity of the participants increased as the day progressed. See the below figures,

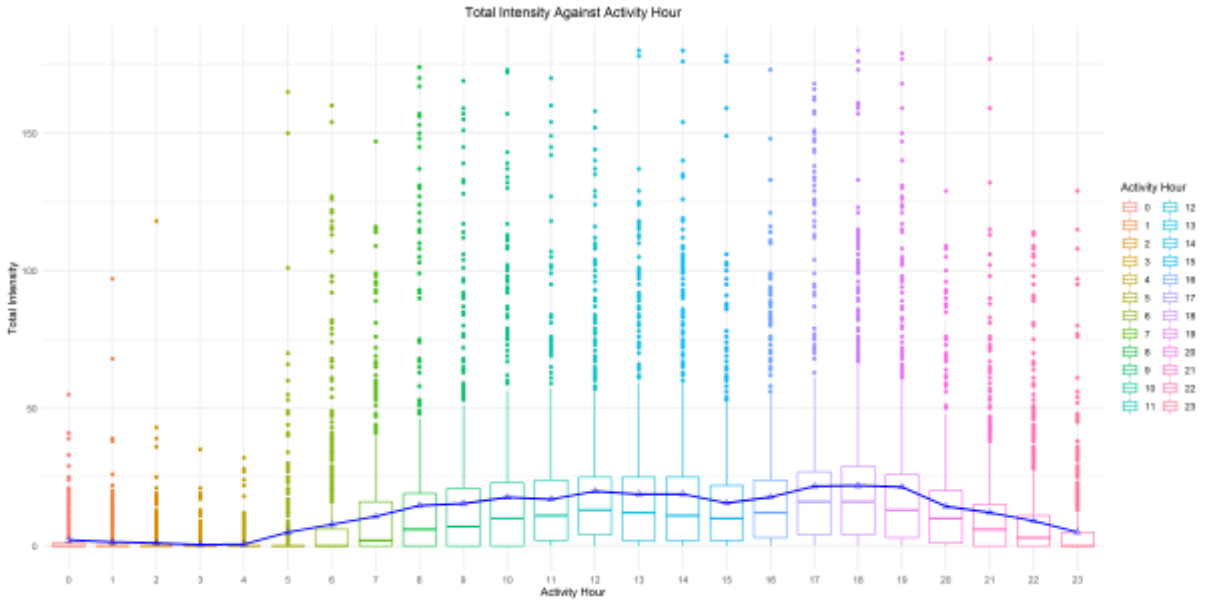

Figure 7.4.1 – Boxplot Total Intensity Against Activity Hour

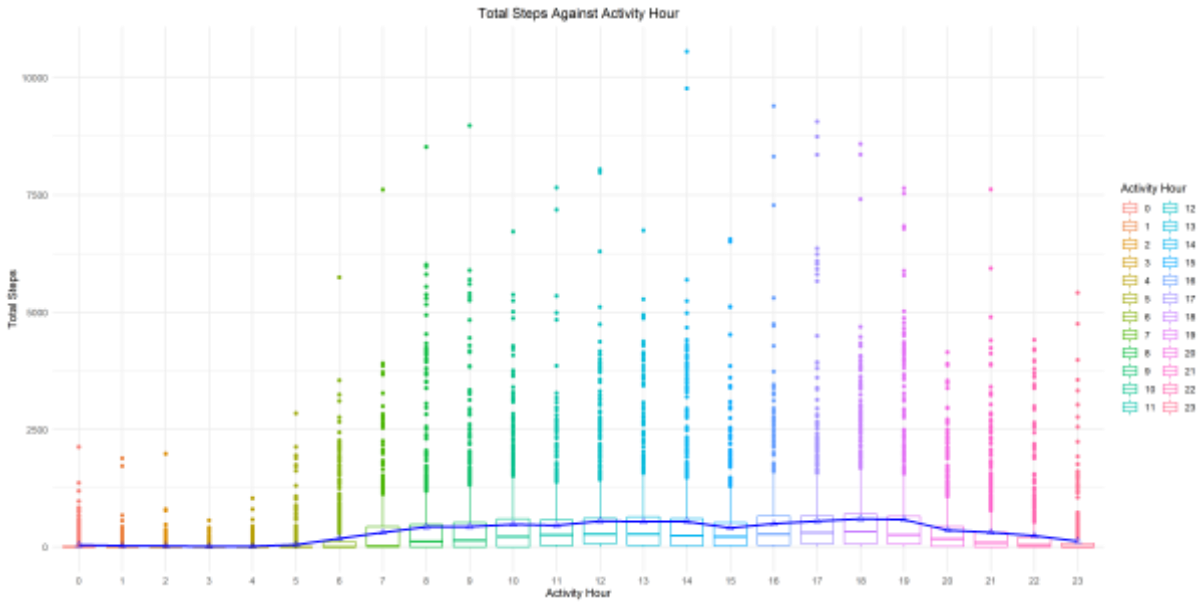

Figure 7.4.2 – Boxplot Total Steps Against Activity Hour

8. RECOMMENDATIONS

8.1. The time period for this study did not produce valuable daily information. The study should be conducted again with a high number of participants over a longer period,

8.2. The smart devices should include a workout routine or exercise plan with varying intensities as time progresses,

8.3. The smart device should include some sort of warning for when the user deactivates or takes-off the device,

8.4. The smart devices should be able to track average variables over a set period.