

Bellabeat Project Analysis
Capstone Project for
Google Data Analytics Professional Certificate

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Tool used: Power BI

Date: April 2025

Project overview

This project presents a detailed analysis of user data collected by Bellabeat, focusing on lifestyle and wellness patterns such as physical activity, sleep behavior, and overall health indicators.

Company Overview

Bellabeat is a high-tech company that manufactures health-focused products as an a its to develop beautifully designed technology that informs and inspires women around the world. Collecting data on activity, sleep, stress, and reproductive health has allowed Bellabeat to empower women with knowledge about their own health and habits. Bellabeat that an analysis of Bellabeat's available consumer data would reveal more oppo unities for growth

Analysis Process (Based on the Data Analysis Lifecycle)

1. Ask

- Defined the business objective: What trends in user activity, sleep, and health can help Bellabeat improve its product strategy?
- Identified key questions:
 - What are the trends identified?
 - How could these trends apply to Bellabeat customers?
 - How could these trends help influence Bellabeat marketing strategy?

Key Stakeholders:

- Urška Sršen: The Chief Creative Officer
- The Company's Mathematician and key member of the Bellabeat executive team
- Bellabeat marketing analytics team

2. Prepare

Data Source

[FitBit Fitness Tracker Data](#) (CC0: Public Domain, dataset made available through Mobius)
The datasets consist of secondary data collected through a distributed survey conducted via Amazon Mechanical Turk between March 12th, 2016, and May 12th, 2016. The data, available as an open-source resource on Kaggle, was provided by thirty eligible Fitbit users who consented to share their personal tracker data. It includes information about activity, calories, intensities, steps, sleep and heart rate measured on a daily, hourly and minutely

basis. This information offers valuable insights into users' fitness habits and behavioral trends.

Data Quality Assessment – ROCCC Framework

To evaluate the quality of the Bellabeat dataset, we applied the ROCCC framework, which includes five key criteria: Reliable, Original, Comprehensive, Current, and Cited.

ROCCC Evaluation Summary

1. **Reliable** – Partially Met

The data originates from Fitbit devices, which are generally considered reliable, though potential tracking biases may exist.

2. **Original** – Mostly Met

The dataset is sourced from wearable device data, though it was pre-processed and shared through a case study, not as raw data.

3. **Comprehensive** – Partially Met

While the dataset includes sleep, steps, and calories, some important features like height are missing. Certain columns have significant null values, and the user sample is relatively small.

4. **Current** – Not Met

The data is from 2016, which is outdated for a modern health tech analysis.

5. **Cited** – Partially Met

The data source is mentioned (Fitbit), but there is no direct citation or official dataset link provided.

Conclusion

Overall, the dataset provides a useful foundation for exploratory analysis but has limitations in terms of recency and completeness. These should be considered when interpreting results and making strategic recommendations.

3. Process

- Performed data transformation in Power Query and Excel
- Calculated new columns such as sleep efficiency, BMI, and activity classifications
- Filtered out outliers and irrelevant data

4. Analyze

- Created visualizations in Power BI for daily activity, sleep, BMI, and monthly trends
 - Explored correlations between metrics (e.g., steps vs. sleep)
 - Segmented users based on activity levels and BMI
- Finding the average number of steps per day, average distance covered per day, average duration of being sedentary per day and average calories burned per day

5. Share

- Built an interactive dashboard using Power BI
- Generated summary report with insights and recommendations for Bellabeat

6. Act

- Recommended the Leaf device as the most suitable product
- Provided actionable insights to help Bellabeat personalize wellness offerings for women