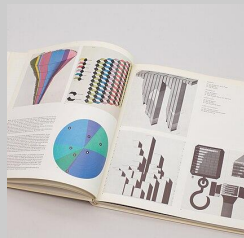


case study 2

DATA ANALYSIS

Jada Towner

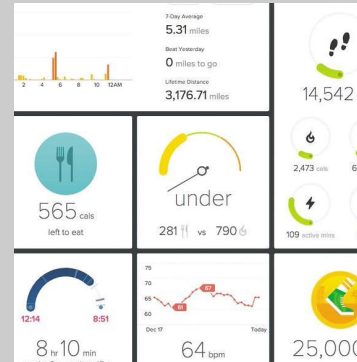


Agenda

- 1 Introduction
- 2 Business Task
- 3 Problem Statement
- 4 Data Sources
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- 6 Analysis Methodology
- 7 Key Insights
- 8 Recommendations
- 9 Conclusion

Introduction

- Bellabeat, founded in 2013, specializes in health-focused smart products.
- The company promotes healthy lifestyles, especially for women.
- This analysis evaluates usage data from non-Bellabeat smart devices, such as Fitbit.
- The goal is to understand user engagement with fitness trackers and apps, offering insights to improve Bellabeat's products and recommendations.



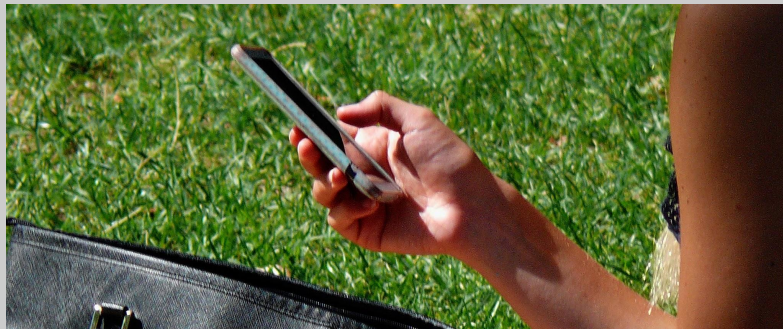
Business Task

- Evaluate how consumers use non-Bellabeat smart devices (specifically Fitbit).
- By understanding usage patterns, Bellabeat can enhance its offerings and design features that better meet user needs.



Problem Statement

- How can bellabeat leverage insights from non-Bellabeat device usage to enhance its products?
- Align products with user preferences for improved engagement and health outcomes.



Data Sources

Dataset:
Fitbit Fitness
Tracker Data
(Kaggle)

Includes data from 30
Fitbit users (March 12 -
May 12, 2016)

Metrics: Daily activity,
sleep, heart rate, and
step counts.

Credibility: Public
domain, provided by
Mobius (Data Scientist,
Healthcare Melbourne,
Australia)

Data Breakdown



dailyActivity_merged.csv



sleepDay_merged.csv



hourlySteps_merged.csv

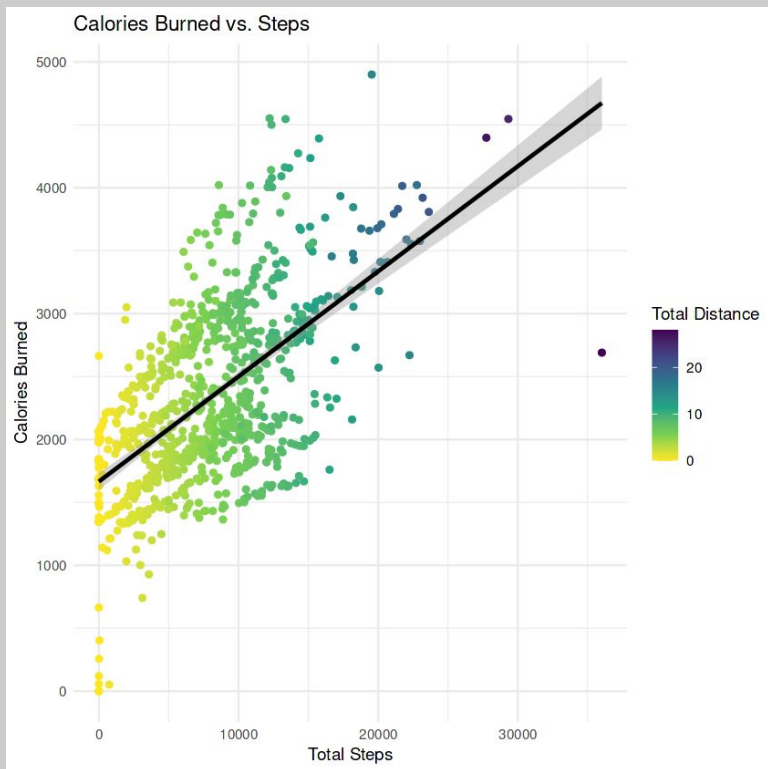
Analysis Methodology

- Tools: R, Tidyverse, dplyr, lubridate, ggplot2, tidyr.
- Steps:
 1. **Data Cleaning:**
Standardized date formats and cleaned columns.
 2. **Data Exploration:** Summary statistics on key insights (daily steps, calories burned).
 3. **Data merging:** Merged datasets by user ID and date for deeper analysis.



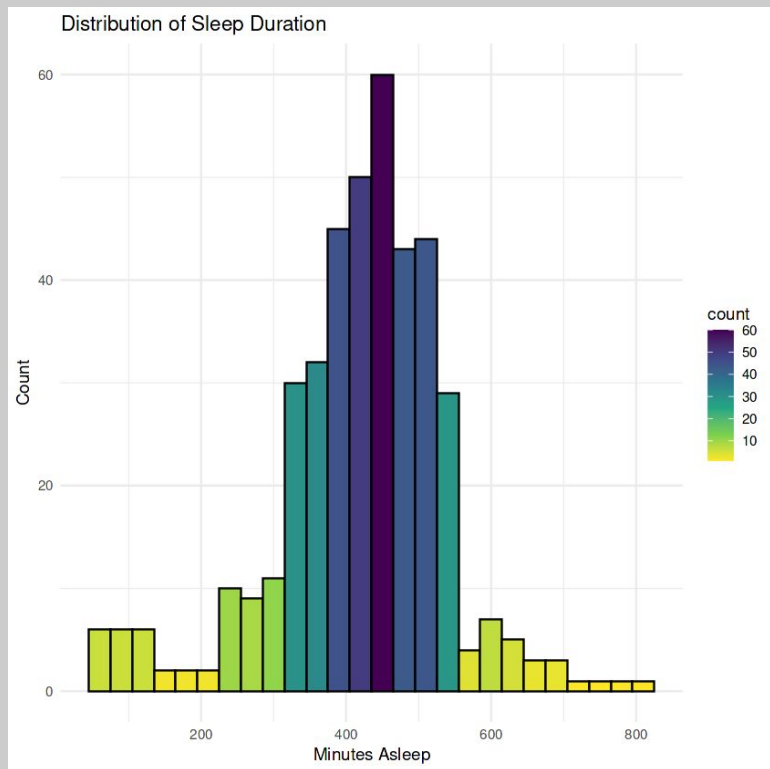
```
string input;  
int ilength, iN;  
double dblTemp;  
bool again = true;  
  
while (again) {  
    iN = -1;  
    again = false;  
    getline(cin, sInput);  
    system("cls");  
    stringstream(sInput) >> dblTemp;  
    stringstream(sInput) >> ilength;  
    if (ilength < 4) {  
        again = true;  
        continue;  
    } else if (sInput[ilength - 3] != '.') {  
        again = true;  
        continue;  
    } while (++iN < ilength) {  
        if (isdigit(sInput[iN])) {  
            continue;  
        } else {  
            break;  
        }  
    }  
    if (iN == (ilength - 3)) {  
        break;  
    }  
}
```


Key Insights - Activity Data



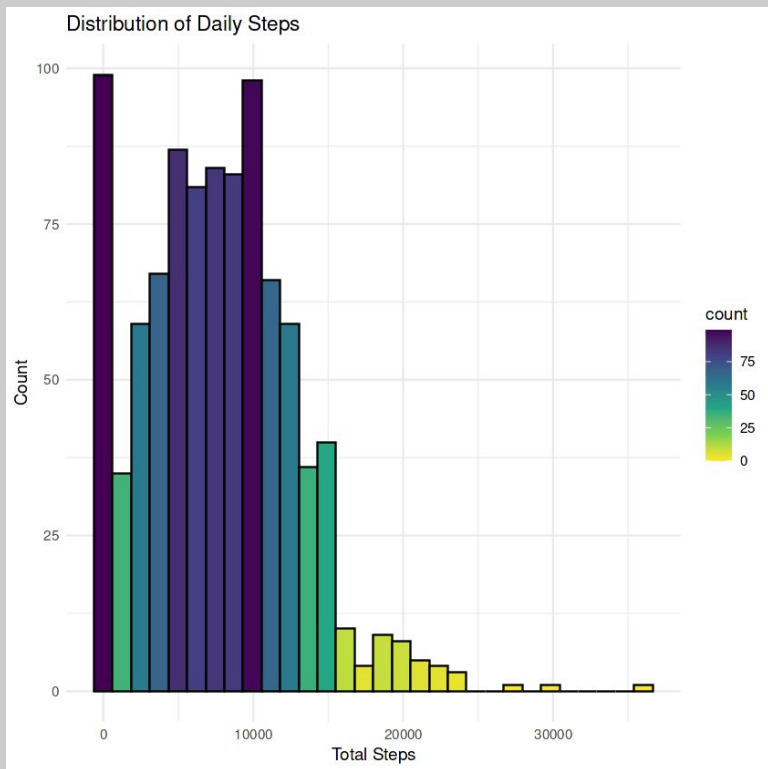
- The average steps per day: 7,638, below the recommended 10,000 steps.
- The average calories burned per day: 2,304, aligning with recommended intake for active individuals.
- Users spend an average of 991.2 minutes sedentary, much higher than the recommended 4 hours of inactivity.

Key Insights - Sleep Data



- Users sleep an average of 419.5 minutes (≈ 7 hours), which is on the lower end of the recommended 7-9 hours per night.
- Users spend 458.6 minutes in bed, meaning they are in bed longer than they actually sleep.
- There is variation in sleep duration among users, with some falling well below the recommended range.

Key Insights - Step Data



- Many users do not meet the 10,000-step recommendation.
- The total steps recorded show trends in activity but highlight gaps in reaching fitness goals.

Recommendations



1. Personalized Activity Goals

Set tailored step goals, encourage with challenges and motivational features.



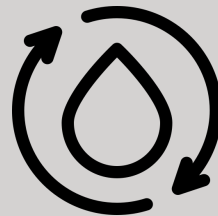
2. Sleep Improvement Features

Provide more detailed sleep insights and bedtime suggestions based on daily activity.



3. Sedentary Time Reduction

Send reminders to stand or take breaks after inactivity.



4. Integration with Menstrual Tracking

Link activity and sleep data with menstrual cycle information for holistic insights.



5. Enhance Social Features

Improve community features for sharing achievements and fitness challenges.

Conclusion

- Insights from Fitbit data can help Bellabeat improve its products and user engagement.
- Implementing the recommended changes will enhance user experience and help Bellabeat stay competitive in the wearables market.



The Analyst



Jada Towner

THANK YOU!



Sources

Icons:



Data: <https://www.kaggle.com/datasets/arashnic/fitbit>

My Kaggle notebook:

<https://www.kaggle.com/code/jadatowner/bellabeat-analysis>