Exploring Data-Driven Strategies for Health and Wellness: A case study of Bellabeat

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Last Updated: Dec 30th, 2022

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Bellabeat

- Bellabeat is a high-tech company that manufactures health-focused products for women.

- Bellabeat collects data on **activity**, **sleep**, **stress**, and **reproductive health** to empower women with knowledge about their own health and habits.

- Urška Sršen (Founder) believes that analyze smart device usage data can lead to the company growth.

01

ASK PHASE

A short description of business task and what we are talking about today

The Problem

- We want to **analyze smart device usage data** in order to gain insight into how consumers use smart devices.
- It’s believed that analyzing smart device fitness data could help unlock new growth opportunities.
- it’s required to gain insights into how consumers are using their smart devices, these insights then along **high-level recommendations** help in guiding the **next marketing strategy/campaign**.

02

PREPARE PHASE

A description of all data sources used and how to get them

Dataset

- This dataset is for about thirty (30) Fitbit users.
- Data collected between Apr 12th to Mar 12th
- The dataset contains **minute-level**/**hour-level** output for physical activity, heart rate, and sleep monitoring.
- Some of these data are:

Total steps/day - Total distance/day - Active minutes/day - Total calories/day - Heart rate/second - Sleep data - Weight in Kg - BMI

03

PROCESS PHASE

Documentation of any cleaning or manipulation of data

Data Cleaning

- We first discovered data to get familiar with how data is organized
- We started by getting some short summaries like unique values/ # of users/ period
- We then discovered some invalid data such as person has Zero step/day. There was small portion, so we ignored them
- We mainly used R (Programming language)

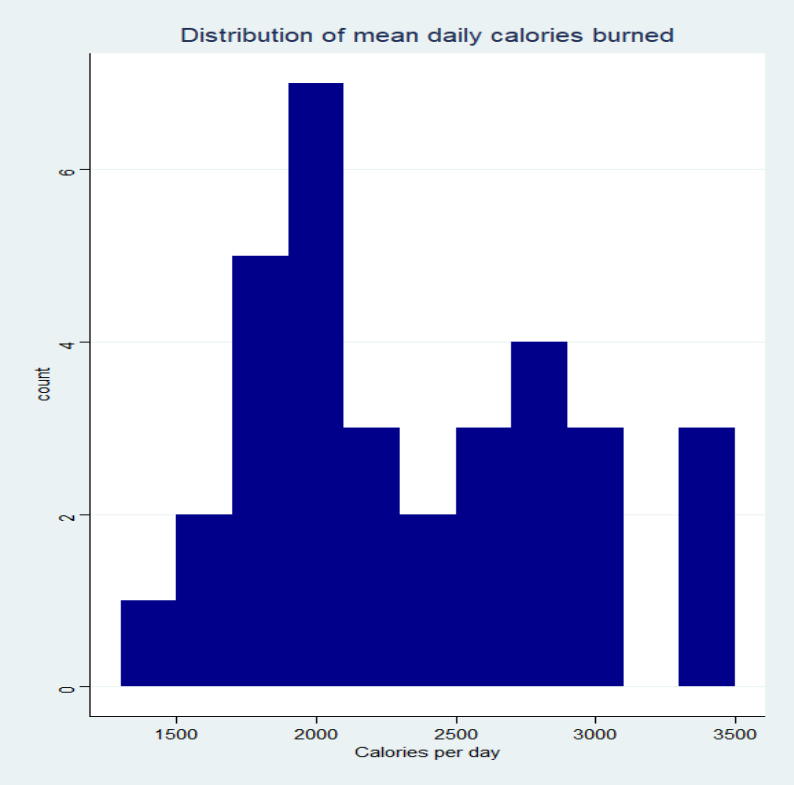
04

ANALYZE PHASE

- Aggregate/Organize data
- Identify patterns and relationships

Daily Activity Summary

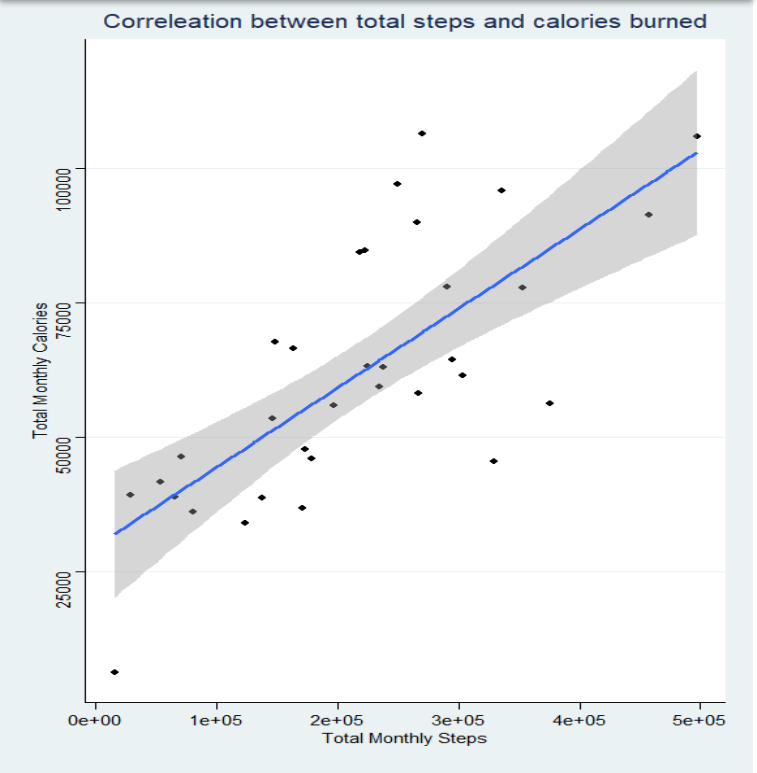
- Daily burned calories differ from person to another with single peak at 2000 calories
- we can conclude from these data that most people are healthy
- But we can add feature that send notifications for users on weekly basis if there mean daily calories is less than 1600 for women and 2000 for men (Source)



Daily Activity Summary (Cont'd)

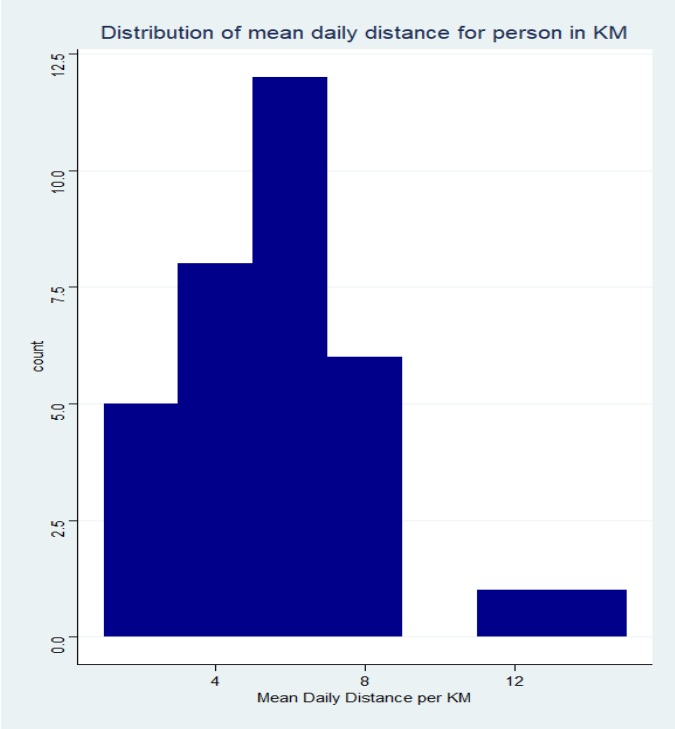
- seems to be there is a **correlation** between total monthly steps and total monthly calories with **r = 0.727**
- So, Bellbeat application may push some notifications motivate person to walk/run on regular basis to keep person fit

Correlation = 0.727



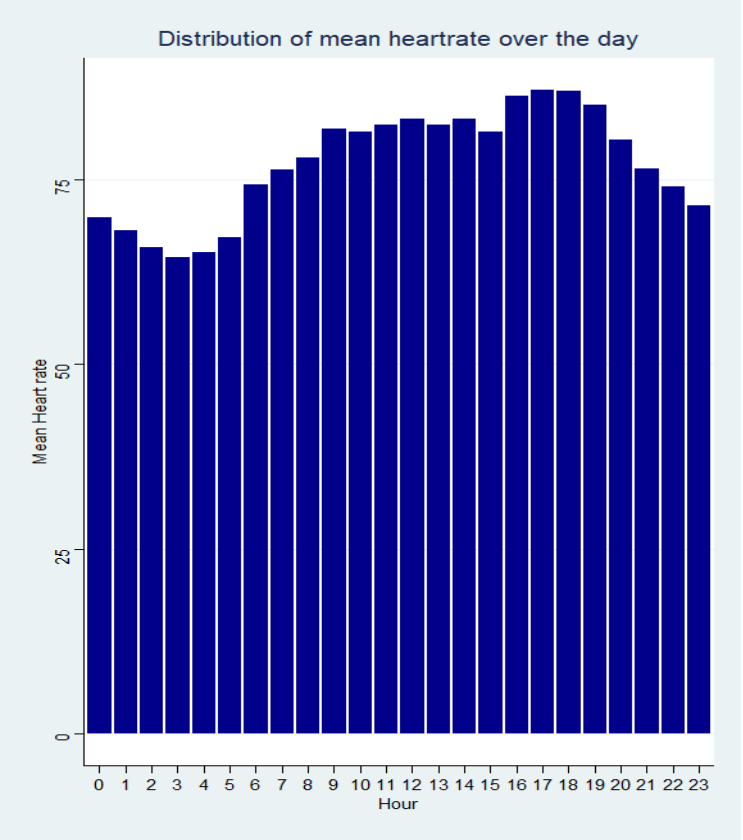
Daily Activity Summary (Cont'd)

- Around fifty percentage of users walk/run **less than 8 km/day**
- Centers for Disease Control and Prevention (CDC) recommend that most adults aim for 10,000 steps per day (**equivalent of about 8 kilometers**) (Source)



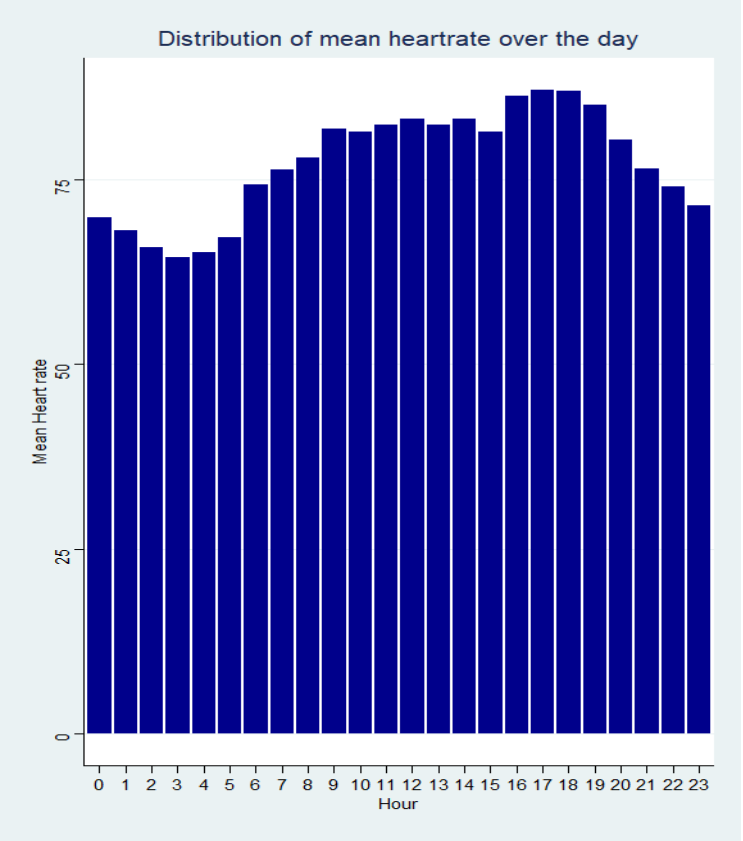
Hourly Activity Summary

- Heart rate starts to **drop** between 11 P.M and 6 A.M
- This can be used to indicate that person is sleeping right now to help calculating the **accuracy of sleep hour times**
- Also, this can be used to add **Don't disturb** (DND) feature to stop pushing notification when sleeping
- Another feature is if person want to sleep specific hours each day this can be used to make **automatic alarm** starting from the moment he slept



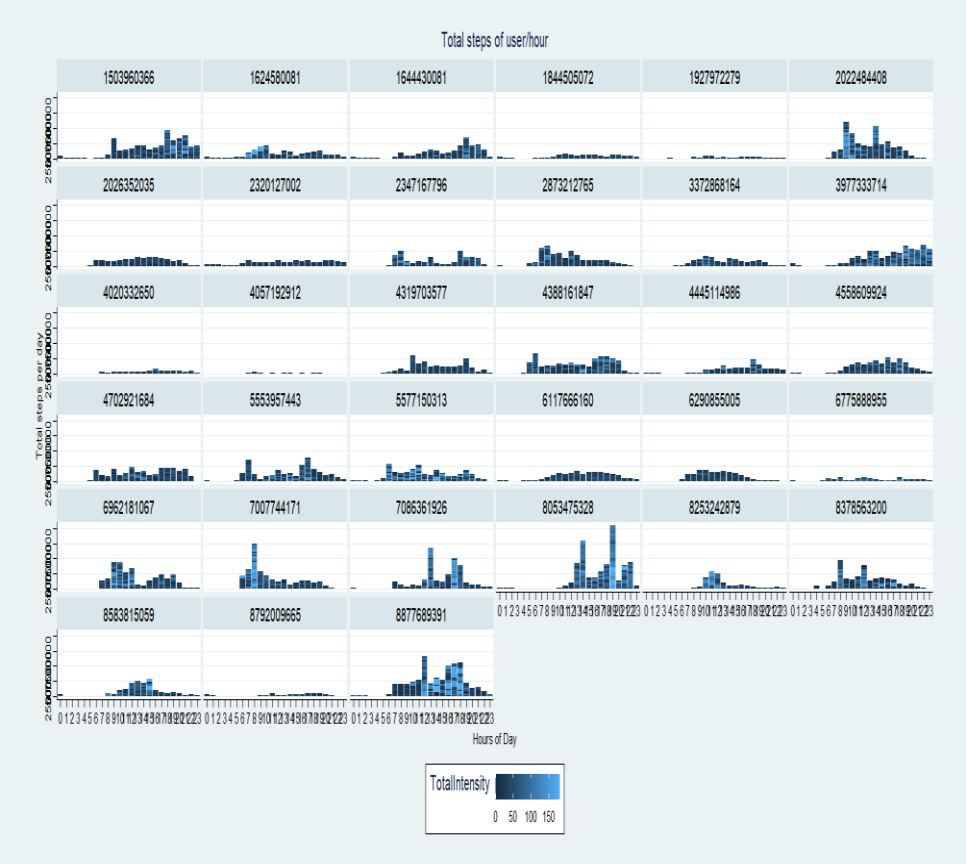
Hourly Activity Summary (Cont'd)

- Also, we can notice that heart rate distribution over the day has single peak between 5 P.M to 7 P.M
- Which may be many people are doing some workout or being at the gym this time
- So, we can push some **motivational notifications or reminders to help them keep fit**



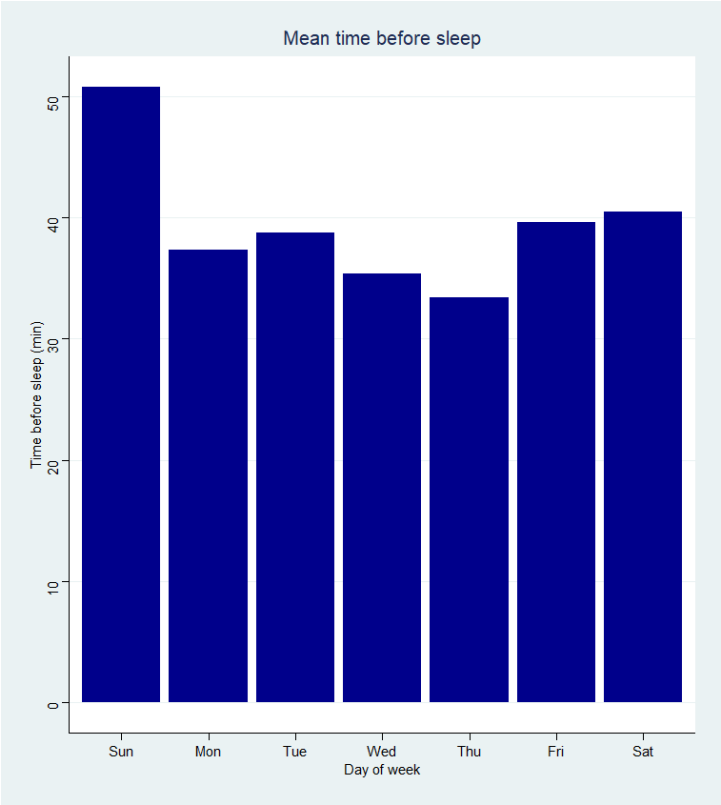
Hourly Activity Summary (Cont'd)

- Distribution of total steps/hour differs from person to another.
- This can help build **customized plan** for each person based on his daily life
- This can lead to company total growth



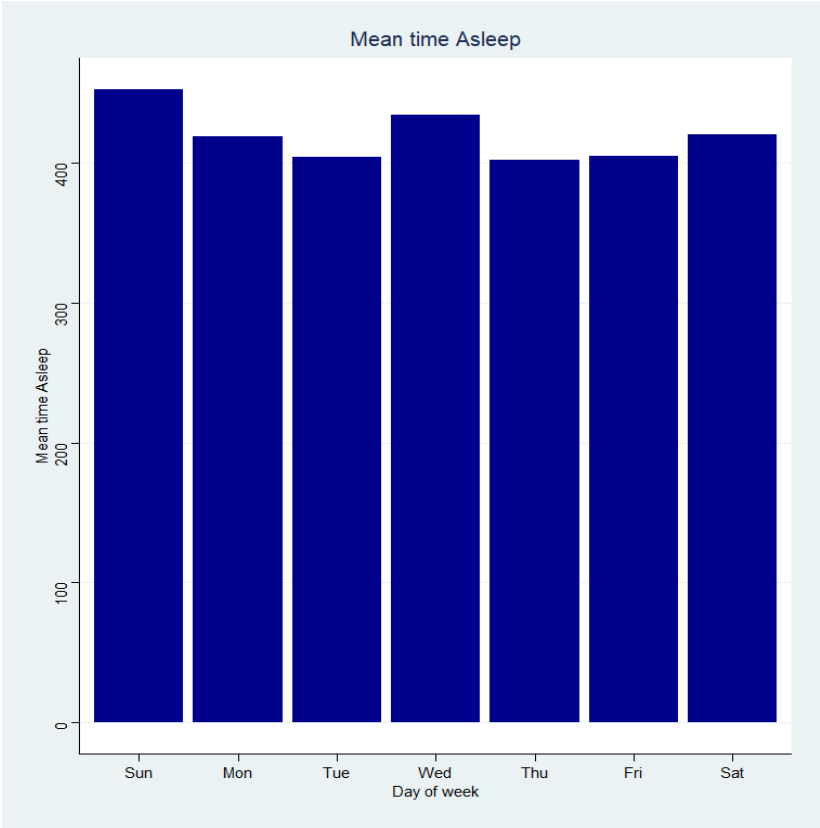
Sleep Summary

- Graph shows single peak over days on **Sunday**
- This can be explained due to being exposed to blue light in the evening weekends.
- This trick our brain into thinking it's still daytime, disrupting circadian rhythms and leaving us feeling alert instead of tired (Source)



Sleep Summary (Cont'd)

- Mean time asleep appears to be same all days with mean around 6 – 7 hours except for weekend.
- Time needed for sleep differs from person to another.
- This can lead us to add feature that asks user about his mood when getting up to help degerming how many hours needed.



05

ACT PHASE

High-level insights based on analysis

High-level Recommendations

Daily Activity

- Weekly report regarding their weekly activity
- Remind users to do quick workout or stretches on regular basis
- Customized plans / workouts

Sleep

- Remind user before expected sleep time not to expose to blue light.
- Add **automatic alarm** to help user get specific sleep hours.
- Add **DND**

General

- Help users achieve their weight-goal by recommending strategies for controlling daily calorie intake.

Thanks

Do you have any questions?

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