Bellabeat User Trends

Google Certificate Case Study 2

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Introduction

Goal

Goal:

- To analyze the trends of users and how they are using Bellabeat products.
  - This could also be done on an individual level
  - Used to approximate trends to people with similar traits

- Trends may reveal patterns among consumers for marketing team to capitalize on

Data

Data:

- Collected by respondents in a survey
- Consent was granted by participants for the collection and usage of the data
- Has a reputable affiliation: RTI International
- More information: Link
- Valid License: CC0:Public Domain

02

Preparing

Cleaning

Methodology:

- Mainly R but also a little excel
- R has a wide range of effective cleaning as well as analysis capabilities
- Excel had some functions that were more convenient
- Only focused on 4 files:
  - dailyActivity_merged
  - sleepDay_merged
  - weightLogInfo_merged
  - hourlySteps_merged.

Cleaning(Excel)

Excel:

File 1: dailyActivity_merged

- New column “Day” to indicate the corresponding day of the ActivityDate (WEEKDAY function)

File 2: sleepDay_merged

- Changed the format of the SleepDay to (m/dd/yyyy)
- New column “Day” with the same purpose as before
- New column “TimeSpentTryingToSleep” (TotalTimeInBed - TotalMinutesAsleep)

File 3: weightLogInfo_merged

- Changed the format of the SleepDay to (m/dd/yyyy)
- New column “Day” with the same purpose as before

File 4: hourlySteps_merged

- Changed the format of the SleepDay to (m/dd/yyyy)
- New column “Day” with the same purpose as before

Cleaning (R)

R:

File 1: dailyActivity_merged
- Dropping unnecessary columns.
- Finding the number of participants,
- Checking for duplicates (results were 0)
- Changed the no. values in “Day” column to name of the day
- Renaming the date column to “Date” to standardize naming formats.

File 2: sleepDay_merged
- Same as File 1. Removed existing duplicates

File 3: weightLogInfo_merged
- Same as File 1 but did not need to change the date column

File 4: hourlySteps_merged
- Same as File 1.

03

Analysis

Analysis

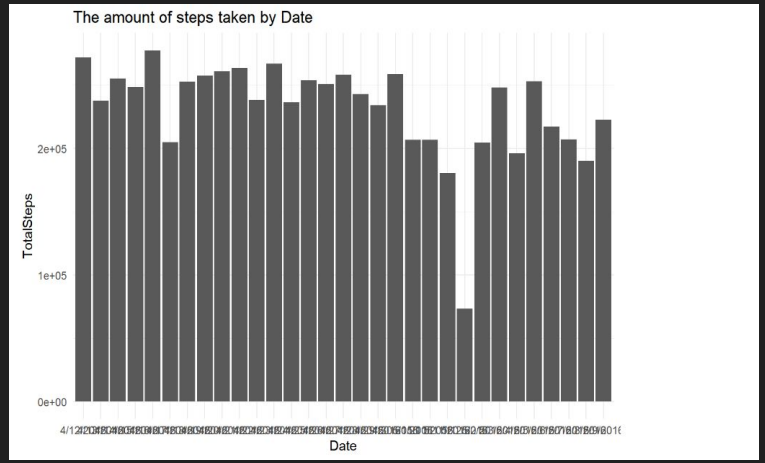
Thought Process:

- Came up with my own questions
  - Looked at column names
  - Compared the columns and tested whether a possible connection exists
- Files were analyzed individually first then tried merging
- Most analysis split into 2 trends
  - Overall trend
  - Individual trend

Analysis (File 1)

File 1: dailyActivity_merged

Steps Taken against Date



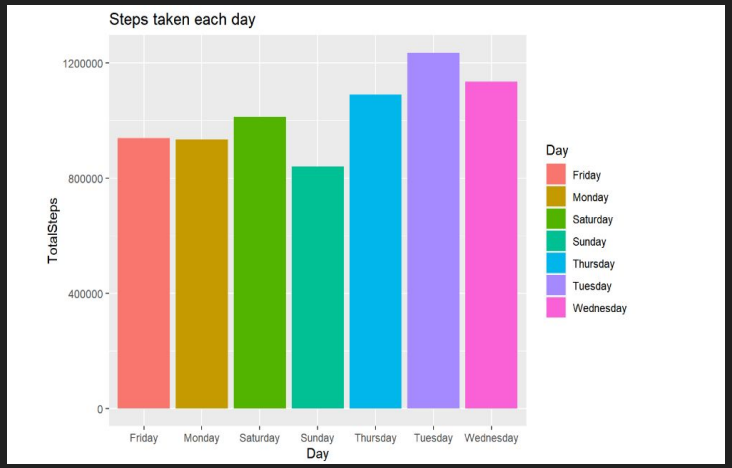
Steps Taken against Date(Individual)

Overall, this could be used to identity what dates (holidays or etc) that people walk more. Individually, personal habits during certain dates could be identified and recommendations for health could be made.

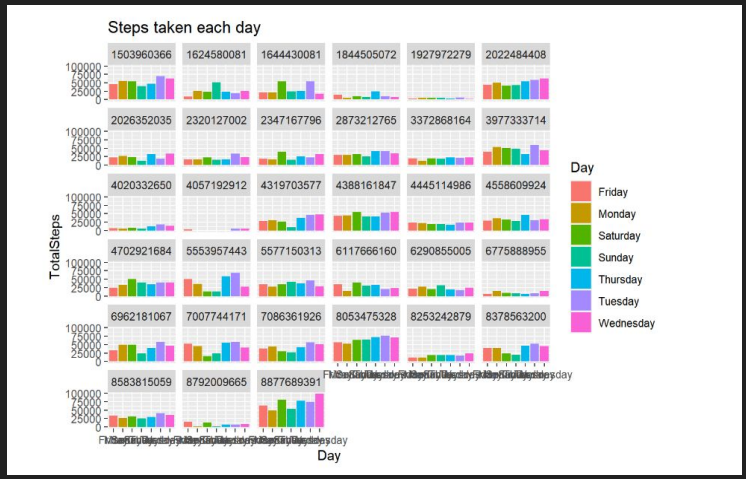
Analysis (File 1)

File 1: dailyActivity_merged

Steps Taken against Day



Steps Taken against Day(Individual)

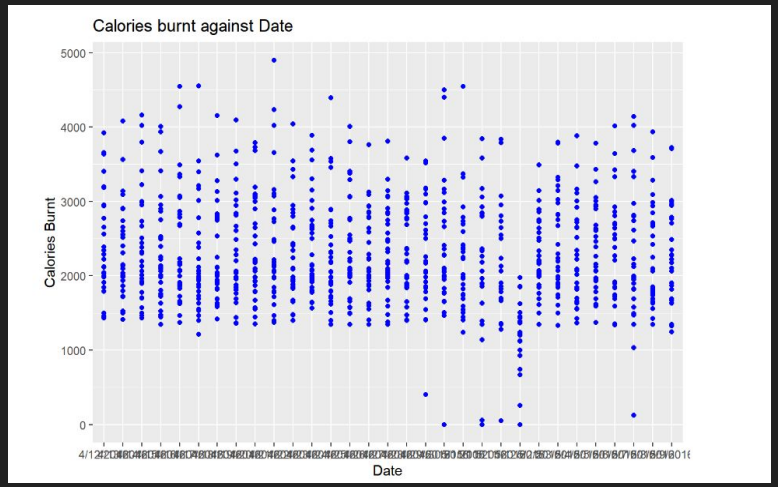


Similar to before, this could be used to identity what days that people walk more.
Individually, personal habits during certain days of the week for health recommendations.

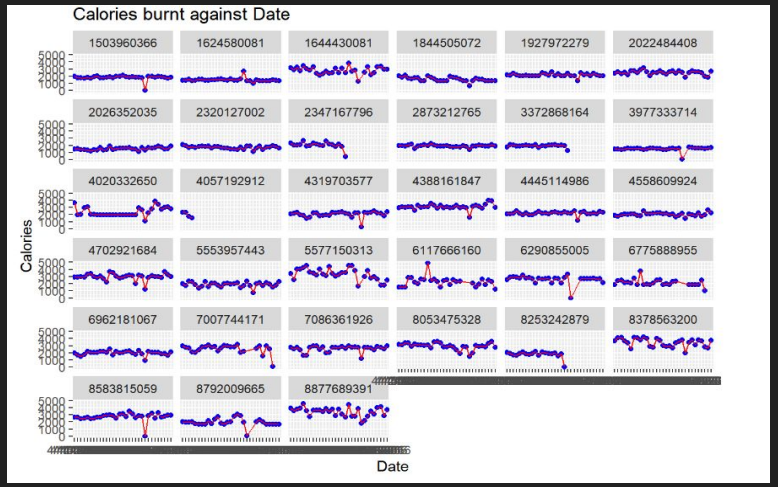
Analysis (File 1)

File 1: dailyActivity_merged

Calories Burnt against Date



Calories Burnt against Date (Individual)

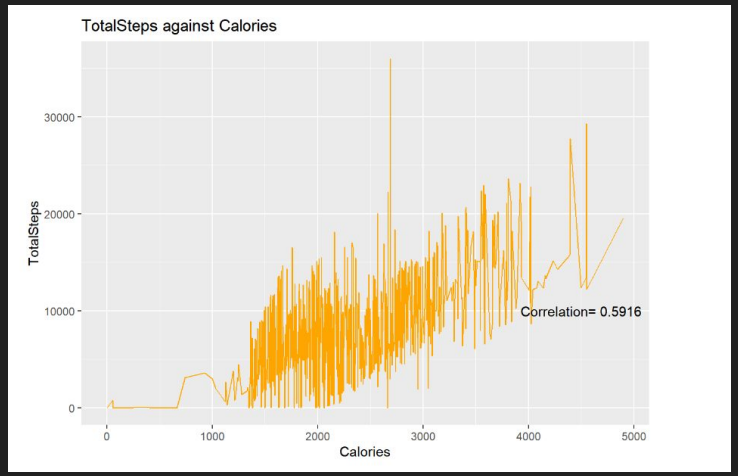


Seems like the Overall trend does not prove to be of much use. Individual trend however shows how consistent individuals are in burning calories, which allows the product to make reminders or recommendations if the trend becomes negative.

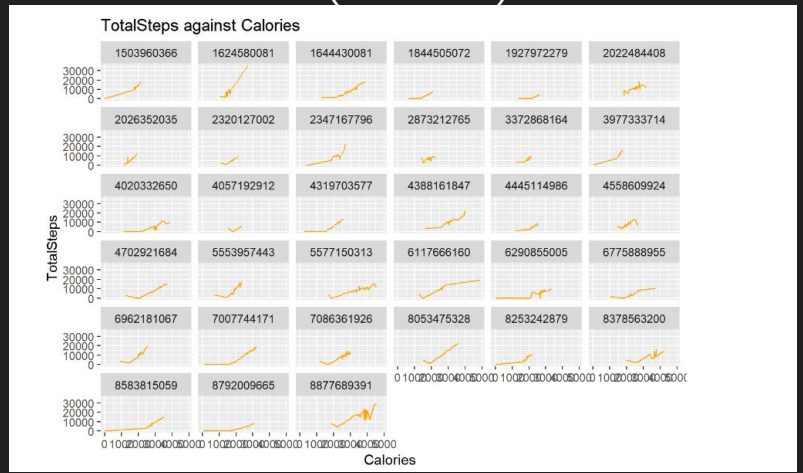
Analysis (File 1)

File 1: dailyActivity_merged

Steps Taken against Calories Burnt



Steps Taken against Calories Burnt (Individual)

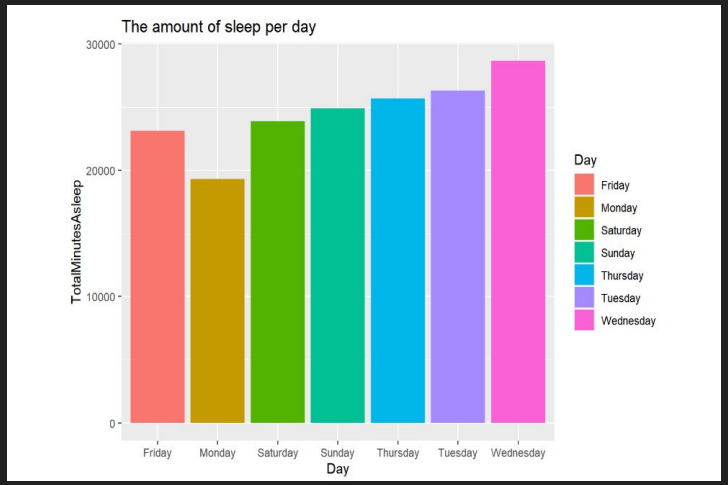


Overall, shows on average how many steps is needed to burn a certain amount of calories. Individually, a more detailed value to the previous purpose, as people have diff metabolisms. Tailored recommended no. of steps to burn certain amount of calories.

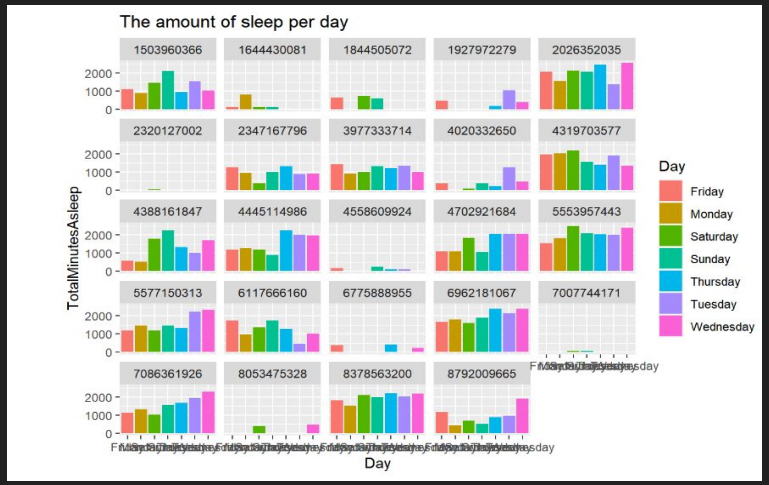
Analysis (File 2)

File 2: sleepDay_merged

Sleep against Day



Sleep against Day (Individual)

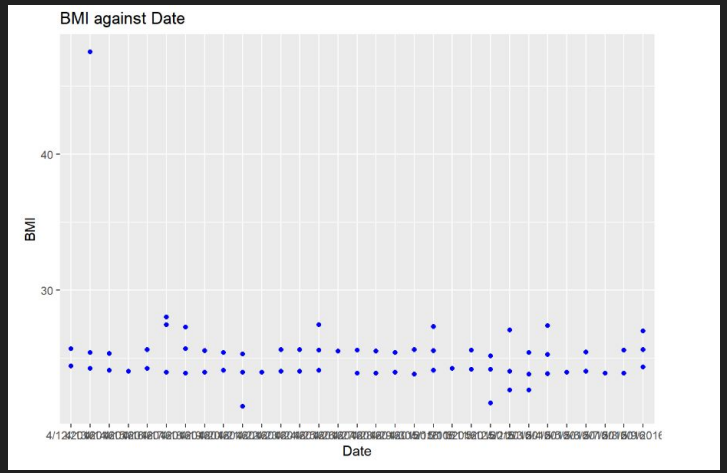


Overall, find out the sleeping patterns of people in general.
Individually, find out individual sleeping habits. Recommend users to sleep more if 7-8 hour mark is not met.

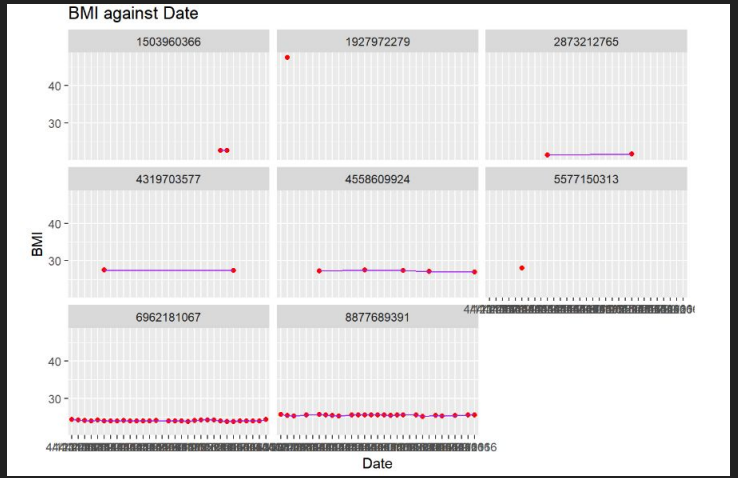
Analysis (File 3)

File 3: weightLogInfo_merged

BMI against Date



BMI against Date(Individual)

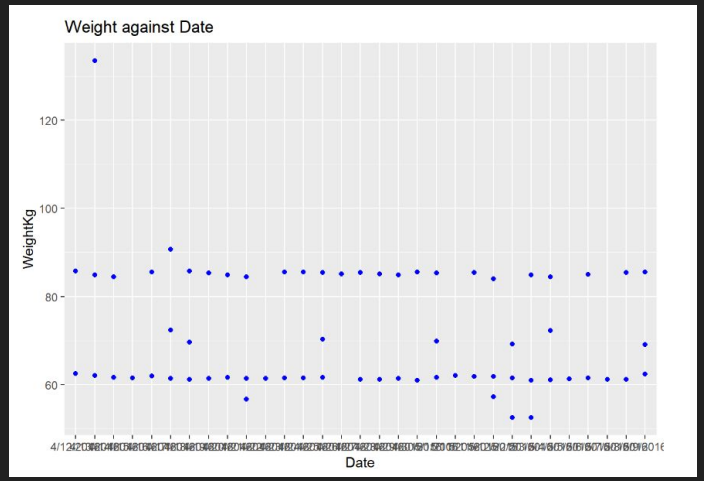


Overall, there does not seem to be a trend.
Individually, there is a constant non changing trend. However, if a trend of a sharply increasing/decreasing BMI appears, warnings could be made by the product.

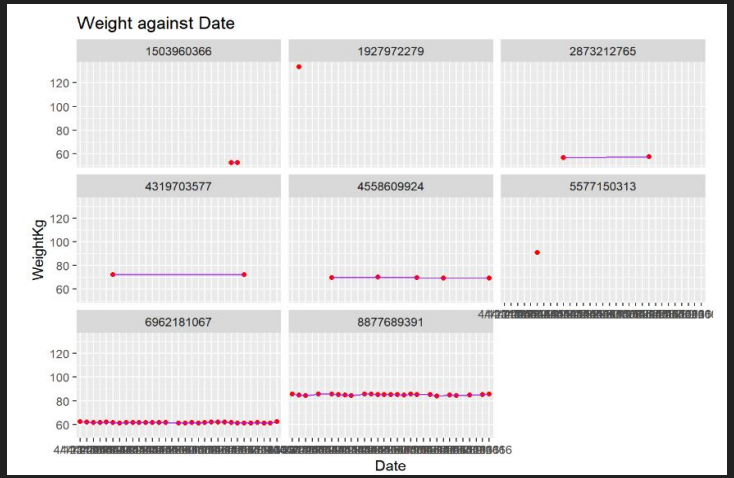
Analysis (File 3)

File 3: weightLogInfo_merged

Weight against Date



Weight against Date (Individual)



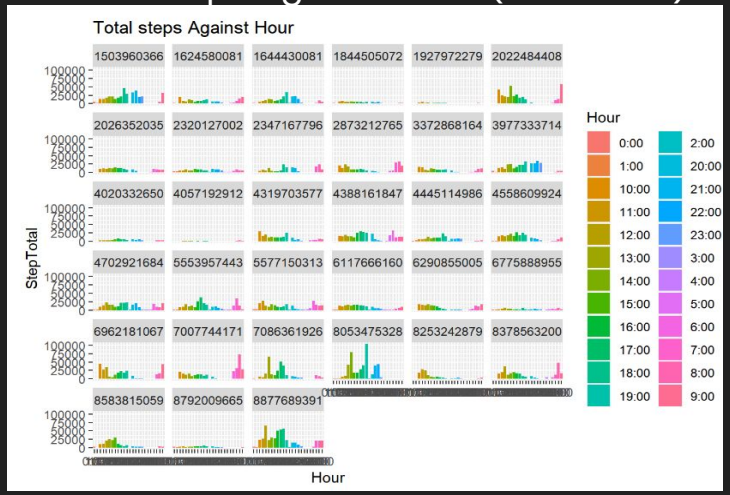
Similar to the results in the BMI against Date for both overall and individual trend.
Similarly to before warnings could be made by the product if the weight has a steady increasing trend.

Analysis (File 4)

File 4: hourlySteps_merged

Total Steps against Hour

Total Steps against Hour (Individual)



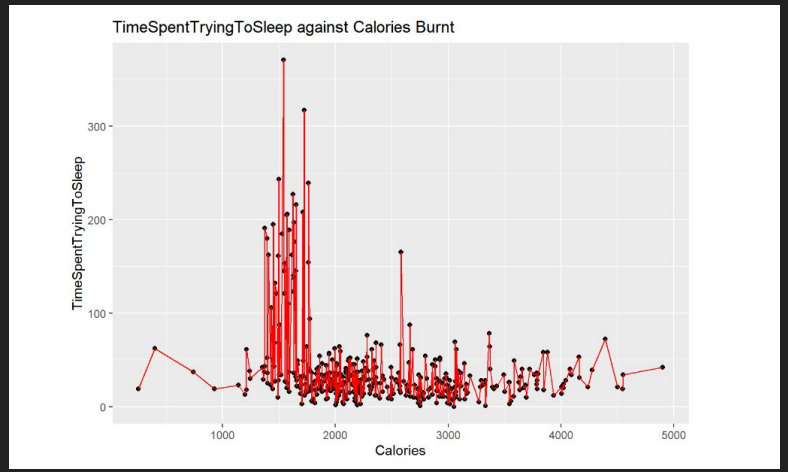
Overall, it could be used to tell which hours do people walk the most.
Individually, personal walking habits could be induced. Recommendations for health could be given based on individual walking habits.

Analysis (Merged)

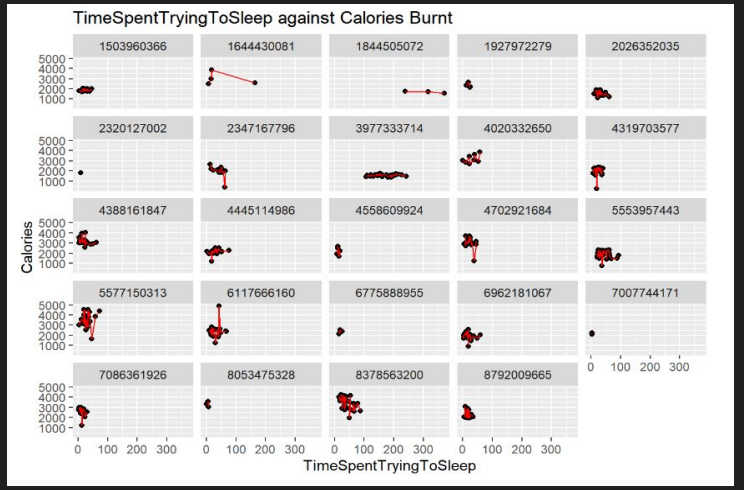
File 1: dailyActivity_merged & File 2: sleepDay_merged

*Total min in bed - Total time asleep

Time Spent Trying To Sleep against Calories Burnt



Time Spent Trying To Sleep against Calories Burnt (Individual)



Looking at the graph, we know that the calories burnt does not affect the time taken to fall asleep in general for both overall and individual trends.

04

Action

Findings

Findings separated into

- Overall Findings
- Individual Findings

(Overall Findings)

- Found which dates had more steps taken
- Most steps were taken on Tuesdays, Wednesday followed by Thursday.
- No change in Calories Burnt over time.
- The more steps taken the more calories burnt.
- People tend to sleep the most on Wednesday, followed by Tuesday and Thursday.
- No changes in BMI and Weight over time
- Most steps were taken at 12-2 and 5-7
- Calories burnt does not affect the ability to fall asleep

Findings

(Individual Findings)

- More sporadic in terms of what dates had more steps depending on individuals.
- Had days where more steps were taken by each individual.
- A more noticeable trend of calories burnt over time compared to overall trend.
- Specific individual values of how much calories were burnt for steps taken.
- Daily sleep patterns for individuals
- A constant trend is observed for both BMI and Weight against time meaning users were not getting unhealthy.
- Steps taken hourly by individuals were observed.
- No particular trend was observed for calories burnt and time spent trying to sleep.

Actions

Two options:

- Use the overall trend and take action
- Use the individual trend and take action specific to users
- Or both

Overall:

1. On dates/days where more steps are taken, look at what corresponding day/special occasion
    - Make a hydration drink and advertise it especially during the day/special occasion
    - Set reminders on these days/dates to remind users to stay hydrated.
2. Set reminders on days where people are sleeping the most to rest during the day to prevent exhaustion
3. Remind users to walk during non peak (12-2, 5-7)walking hours, even out walking hours
    - Improves circulation
    - balanced and sustainable healthy lifestyle
    - Enhancing overall well being

Actions

Individual:

1. Similar to before, on dates/days with more steps taken, find the corresponding day/special occasion
   - Provide hydration ads during these days/occasions individually through targeted ads.
   - Set reminders to stay hydrated.
2. Alert individuals if calories burnt did not reach a certain amount
   - Calculate the average calories burnt for an individual over time
   - Recommend users to exercise/walk if that is not met
3. Set reminders/recommendations based on individual sleeping habits
   - If sleep hours not 7 / 8, recommend users to sleep at a certain time
   - Recommend users to rest during the day on days where users are sleeping more
4. If BMI and Weight changes drastically over time, system can set alerts and make exercise/diet recommendations.
5. Remind individuals to walk during their own non peak walking hours.