Bellabeat Fitness Device Analysis

By Shaun Henry

Executive Summary

- Bellabeat is looking to release its Time product, a wellness watch with smart technology to track user activity, sleep, and stress.
- As this is Bellabeat's first fitness device, it does not have data of its own, so publicly available data from Fitbit devices will be used instead.
- The data is needed to gain insights into how consumers use fitness devices.
- This data will be used to help analyze growth opportunities in preparation for the product launch and its marketing.

About the Data

- 33 females consented to the submission of fitness data from their Fitbit devices.
- 1 month timeframe (4/12/2016 - 5/12/2016)
- Publicly available dataset from Kaggle

Heart Rate Data
- Calculated every 5 seconds

Minute Data
- Calories
- Steps
- Intensity
- METs
- Sleep

Hourly Data
- Calories
- Intensity
- Step Total

Weight Log Info
- kgs/lbs
- BMI
- Is Manual Report (Boolean)

Daily Data
- Steps
- Distance
- Logged Activities
- Active Minutes
- Calories
- Sleep

Problems with the Data

No Metadata

- No descriptors for the variables. All variables relied on intuition to determine definitions. Some could not be used at all due to lack thereof.
- How the many device features function (ex. manual vs automatic) is also unknown.

Much of the daily data is unusable.

- All daily data tallying less than 24 hours per day had to be filtered out.
- Users often do not wear their devices at all times of the day.

Cleaning/Manipulation of Data

SQL (BigQuery) was used to work on the larger datasets, while Google Spreadsheets was used for the smaller datasets.

All datasets were aggregated based upon time frame (minutes, hours, days).

The datetime variable of all minute-level data was initially read as a string in SQL. Queries were run to alter the data into universal datetime format.

Time was removed from datetime in the heart rate dataset in order to group the data easier.

Tableau was used to create all data visualizations in this presentation.

General Analysis

It seems the only categories always tracked were **steps taken, distance traveled,** and **calories burned**.

All other features were not automatically tracked with wearing of the device.

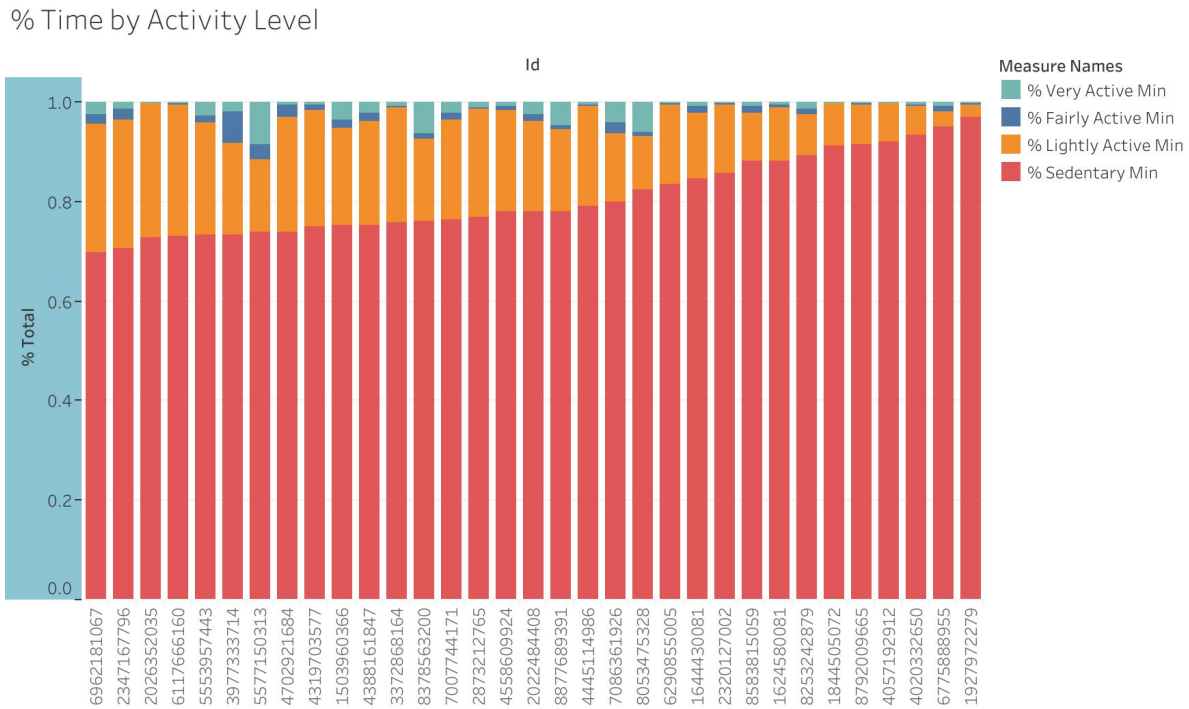
- Some of these are very popular, whilst others are extremely unpopular. This is unclear why.

Let's go through a couple of these features...

Activity Level

This feature calculates activity by energy expended.

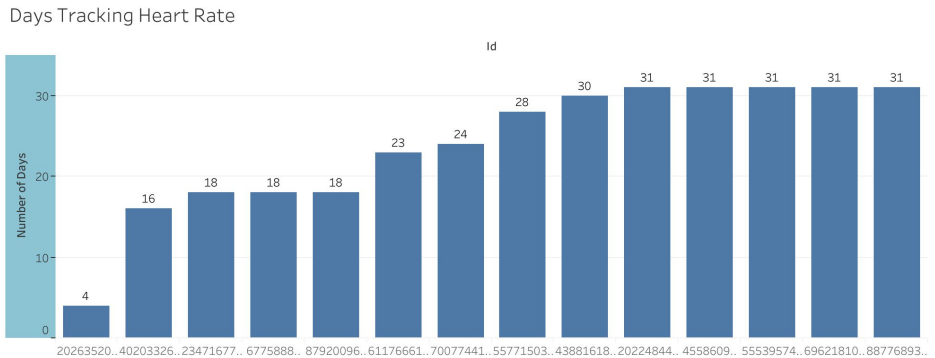
- **Very Popular** - all 33 women use their devices frequently to track activity level.
- All women are sedentary at least 70% of the time using the devices.
- The devices were used to track far more than just workouts.

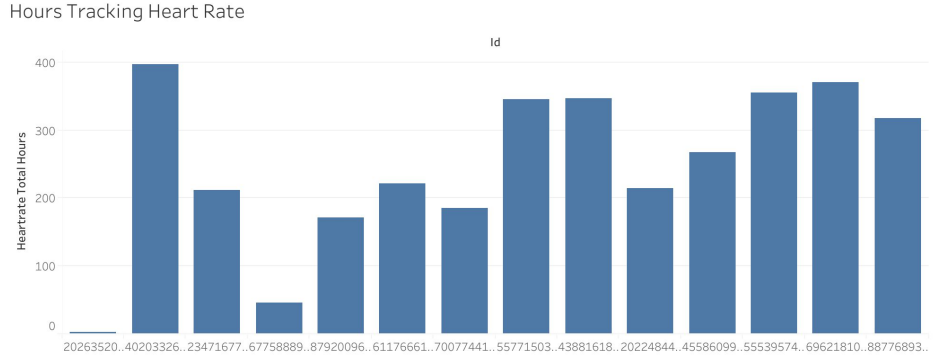


Heart Rate Data

This data is tracked every five seconds.

- **Not Popular.**
- **Only 14 of 33** women's heart rates were tracked, with 5 of them tracking every day.

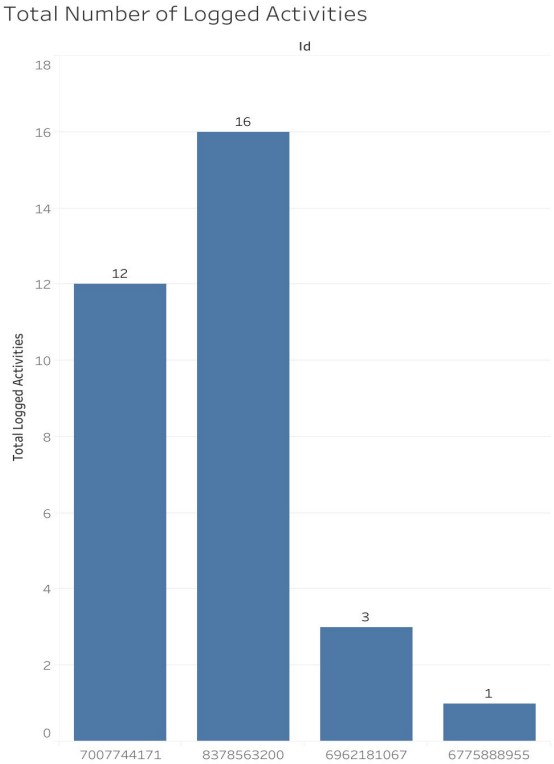


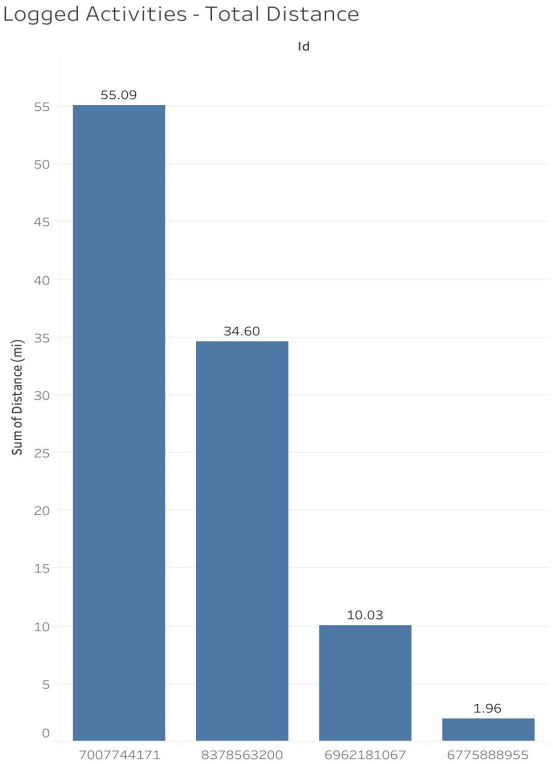


Logged Activities

This feature is used to track distance for manual entries by the user.

- **Deeply unpopular** - only 4 women used the feature once, with only 2 using it frequently.



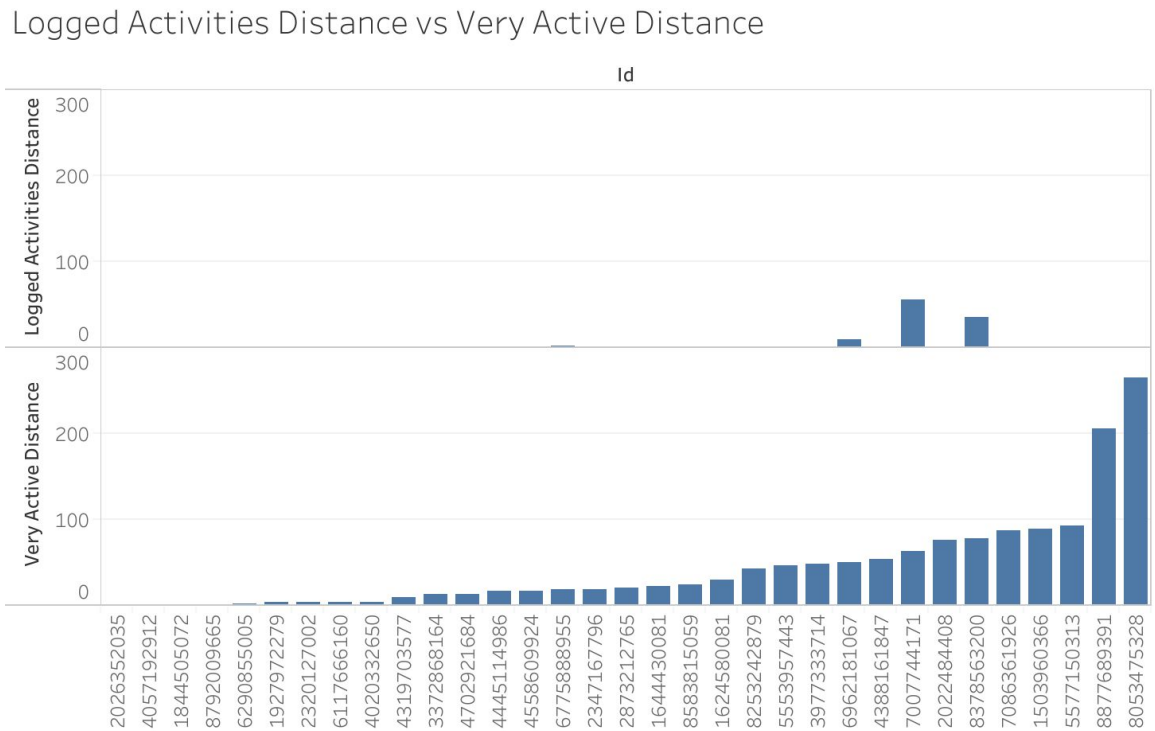


Logged Activities (Cont.)

Most women exercise throughout the month, as seen in very active distance.

It appears the **vast majority do not manually log** their workouts.

Whether the women choose not to use the feature or are unaware of its existence is unknown. Survey data of the participants in needed to determine.



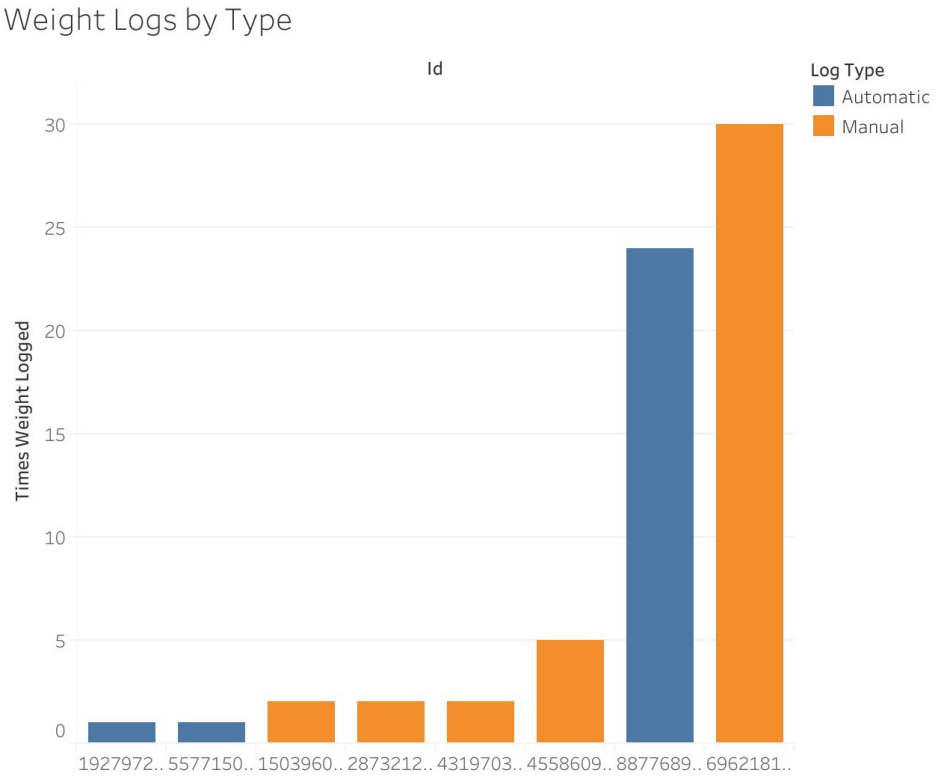
Weight Log Data

Extremely unpopular.

- **Only 8 women** logged their weight throughout the course of the month.
- **Only 3 women** logged more than twice.

Manual logging more popular than automatic.

- 41 of 67 logs were done manually.
- Every woman logged only manually or automatically, insinuating the users could need more information about the feature.

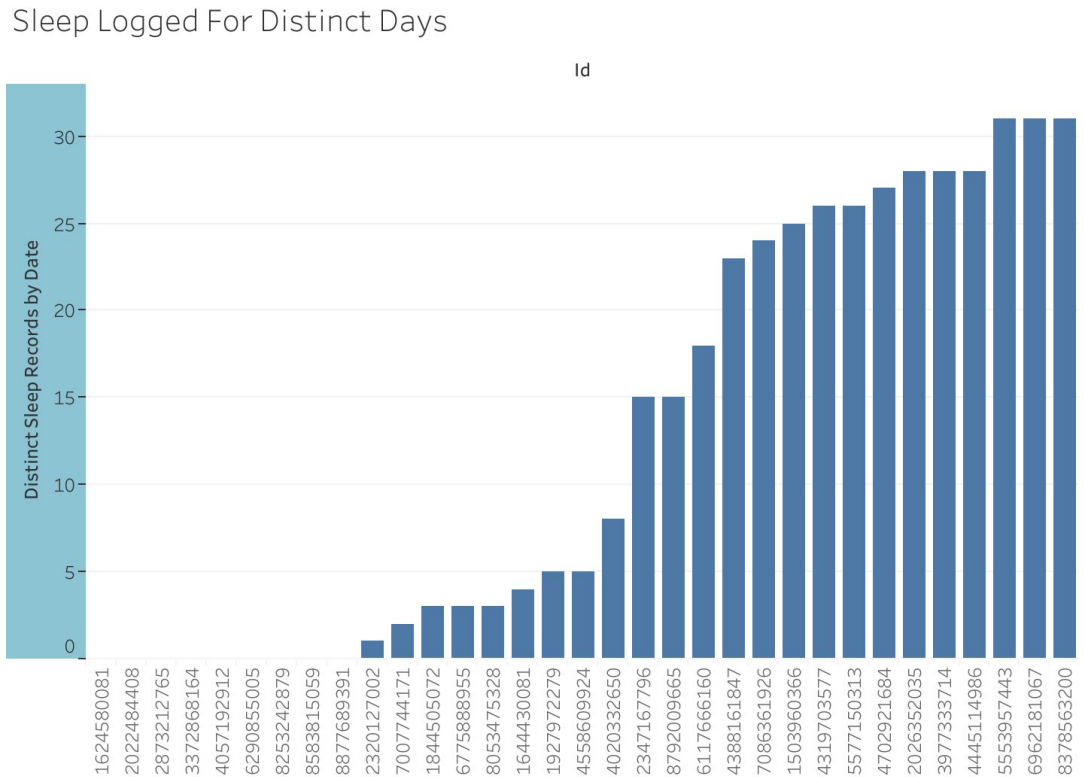


Sleep Log Data

Each sleep log also records time spent in bed and time asleep.

- **Fairly Popular**
- **24 out of 33** women logged sleep at least once over the course of the month
- **Only 3** women logged sleep every day

Possibly unfair to strive for users to always track sleep, as this may be the time when they charge their devices.



Recommendations For Time Product

- **Automatically track as many features as possible** simply by wearing the device.
  - High likelihood users will not be aware of many features if they require manual input.
  - Automatic tracking will give back more data for both Bellabeat and its users for future improvement.
- **For manual input features** that are not being used, **create device notifications** for users on how to use such features.
- **Incentivize users to consistently use features.**
  - The more data Bellabeat can acquire over a time period, the more useful info can be relayed back to the consumer.

Thank You!

Any Questions?

You can contact me at

shenry@scu.edu