

Bellabeat Capstone & Analysis

Vanessa Penna

Ask:

Bellabeat, a high tech manufacturer of health focused smart devices for women.
(Bellabeat.com).

Analyze a data set to gain insights into how non- Bellabeat users are using their smart devices and Bellabeat would like to use the data to gain insights on how to better market their devices.

What are some of the user trends?

How will these trends influence Bellabeats marketing of their products?

The Stakeholders:

Urska Srsen, Bellabeat's co-founder and Chief Creative Officer

Sando Mur, Mathematician and Bellabeats's co-founder, key member of executive team

Data sources:

Fitbit Fitness Health Tracker - Collaborator Mobius

Top Contributors Anastasiia Chebotina, Macarena Lacasa, Julen Aranguren

Prepare:

Data sources used: Fitbit Fitness Health Tracker

ROCCC (Reliable, Original, Comprehensive, Current, Cited)

Reliable: Reliable for the purpose of this study as it is open source collected from 33 fitbit users

Original: Originality cannot be confirmed as it is coming from a secondary source and not the originator

Comprehensive: Data does feel as it has some limitations, unsure of sample size and certain demographics.

Current: No, 2016 data

Cited: Yes, see dated sources

Process:

Daily activities_merged data

- Fixed structural errors such as typos, capitalization, incorrect spelling
- Eliminated duplicates
- Changed decimals to whole numbers

- Eliminated tracked distance column
- Renamed total distance column to total tracked distance
- Eliminated logged activities as most of the values were and wouldn't have a significant impact on data
- Added days of the week column (titled ActivityDay)

HourlySteps and HourlyCaloriesMerged

- Split ActivityDate column into 2 columns; ActivityDate and ActivityTime
- Added AM/PM column

SleepDayMerged

- Added column TotalMinutesAsleep in Hours

Made All 4 Google sheets in CSV files

Analyze:

Data is only 33 users over a months time (4-12 to 5-12-2016)

Loaded the 4 files into BigQuery, separately

Individual Users (unique IDs)

- Daily activity 33
- Daily sleep 24
- Hourly calorie 33
- Hourly steps 33

Some users may not sleep with their smart device and that would account for the lower number in daily sleep.

Using Bigquery and SQL, several queries were asked and answered with positive query results and tables. Below are 3 examples of my written code and a link to my Bigquery page.

- Total active minutes by users ID in descending order
- Activity levels by Days of the week in minutes
- Min/max/avg of total steps, total distance, calories and activity levels grouped by user ID
- Total minutes of sleep vs total steps by ID
- Total number of calories by hour of the day
- Hours of the day and total calories by ID

```
SELECT id, SUM(VeryActiveMinutes)
FROM `dailyActivity_merged.dailyactivity`
GROUP BY id
```

```

SELECT ActivityDay,
    ROUND (avg(VeryActiveMinutes), 2) AS Avg_Very_Active_Minutes,
    ROUND (avg(FairlyActiveMinutes), 2) AS Avg_Fairly_Active_Minutes,
    ROUND (avg(LightlyActiveMinutes), 2) AS Avg_Lightly_Active_Minutes,
    ROUND (avg(SedentaryMinutes), 2) AS Avg_Sedentary_Minutes,
FROM
`dailyActivity_merged.dailyactivity`
GROUP BY
    ActivityDay;

```

```

SELECT
    Id,
    MIN(TotalSteps) AS Min_Total_Steps,
    MAX(TotalSteps) AS Max_Total_Steps,
    AVG(TotalSteps) AS Avg_Total_Stpes,
    MIN(Total_Tracked_Distance) AS Min_Total_Distance,
    MAX(Total_Tracked_Distance) AS Max_Total_Distance,
    AVG(Total_Tracked_Distance) AS Avg_Total_Distance,
    MIN(Calories) AS Min_Total_Calories,
    MAX(Calories) AS Max_Total_Calories,
    AVG(Calories) AS Avg_Total_Calories,
    MIN(VeryActiveMinutes) AS Min_Very_Active_Minutes,
    MAX(VeryActiveMinutes) AS Max_Very_Active_Minutes,
    AVG(VeryActiveMinutes) AS Avg_Very_Active_Minutes,
    MIN(FairlyActiveMinutes) AS Min_Fairly_Active_Minutes,
    MAX(FairlyActiveMinutes) AS Max_Fairly_Active_Minutes,
    AVG(FairlyActiveMinutes) AS Avg_Fairly_Active_Minutes,
    MIN(LightlyActiveMinutes) AS Min_Lightly_Active_Minutes,
    MAX(LightlyActiveMinutes) AS Max_Lightly_Active_Minutes,
    AVG(LightlyActiveMinutes) AS Avg_Lightly_Active_Minutes,
    MIN(SedentaryMinutes) AS Min_Sedentary_Minutes,
    MAX(SedentaryMinutes) AS Max_Sedentary_Minutes,
    AVG(SedentaryMinutes) AS Avg_Sedentary_Minutes
FROM
`dailyActivity_merged.dailyactivity`

```

GROUP BY

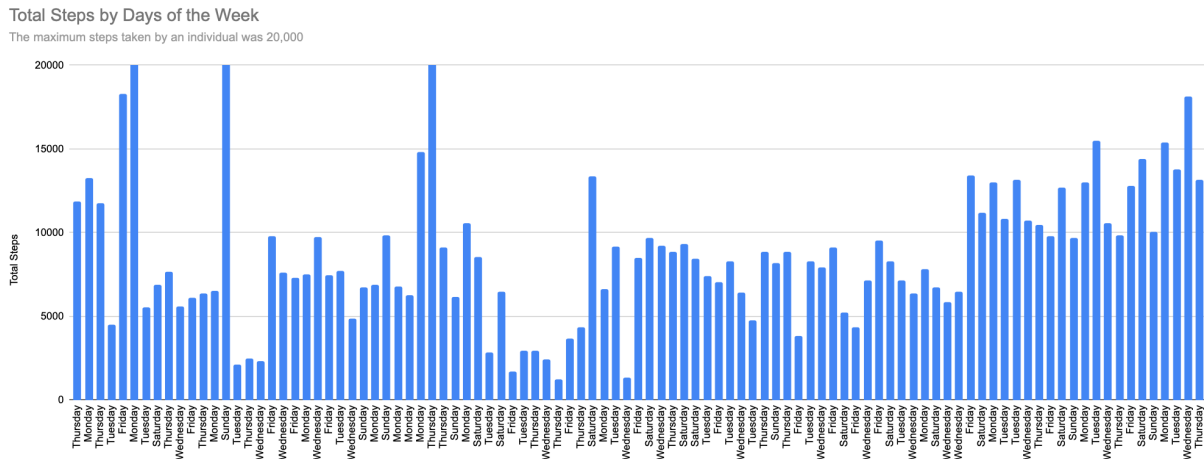
Id ;

<https://console.cloud.google.com/bigquery?sq=351198203038:05f73a1b4939407dbd9c30baf2204552>

Share:

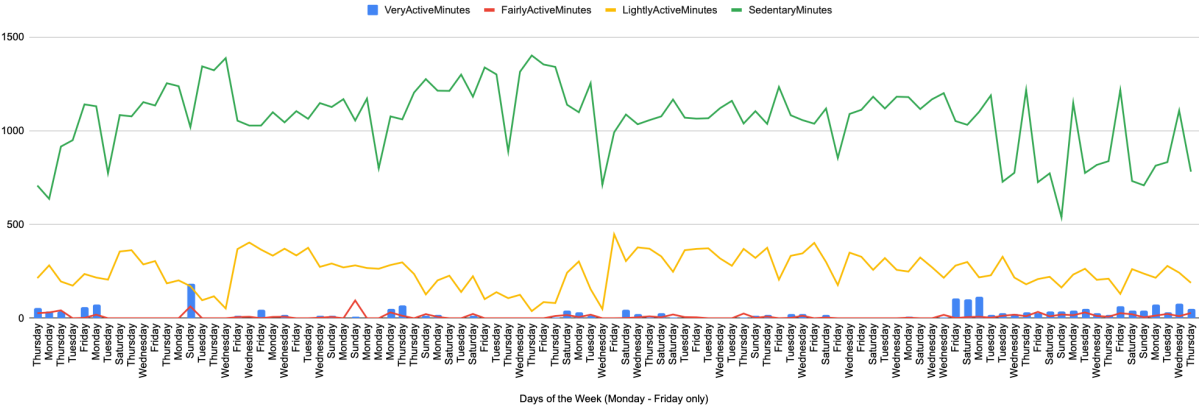
I started in Tableau with lots technical difficulties and moved to Google Sheets where my data lived to create several data visualizations. Visualizations include:

- Total Steps by Days of the Week
- Active Minutes by Days of the week
- Total Hours Slept By Date
- Step Totals per Activity Hour
- Activity Type By Days of the Week
- Very Active Steps by Days of the Week



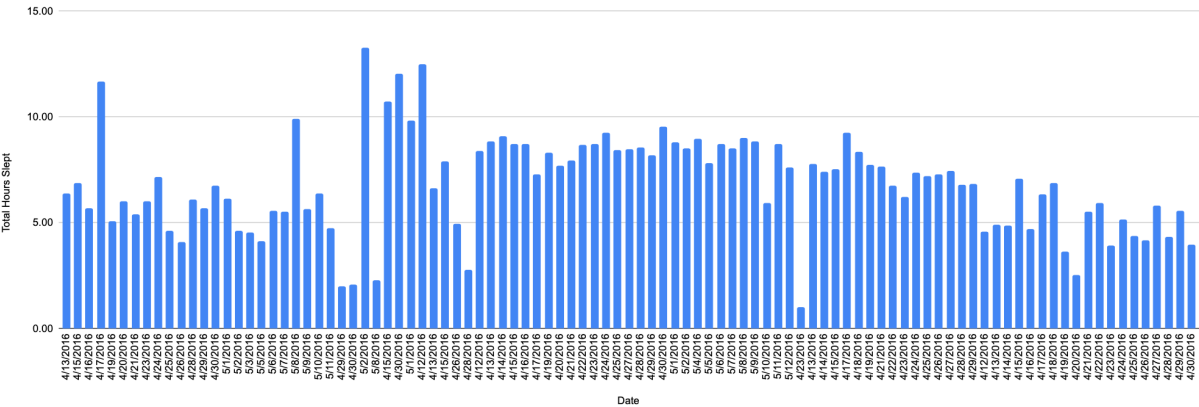
Active Minutes by Days of the Week

Measured as Very Active, Fairly Active, Lightly Active, & Sedentary



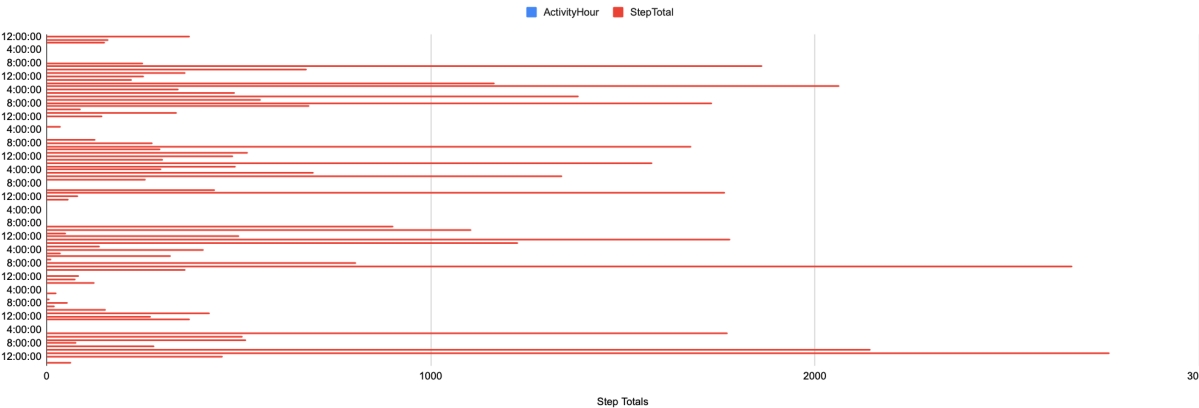
Total Hours Slept by Date

Original Asleep Minutes were converted into hours



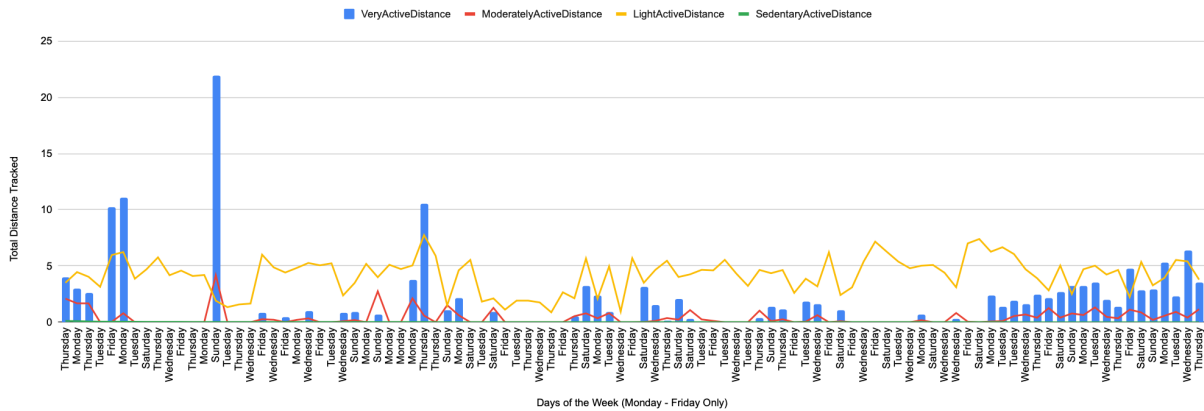
Step Totals Per Activity Hour

Activity Hour Starts at 12:00 AM

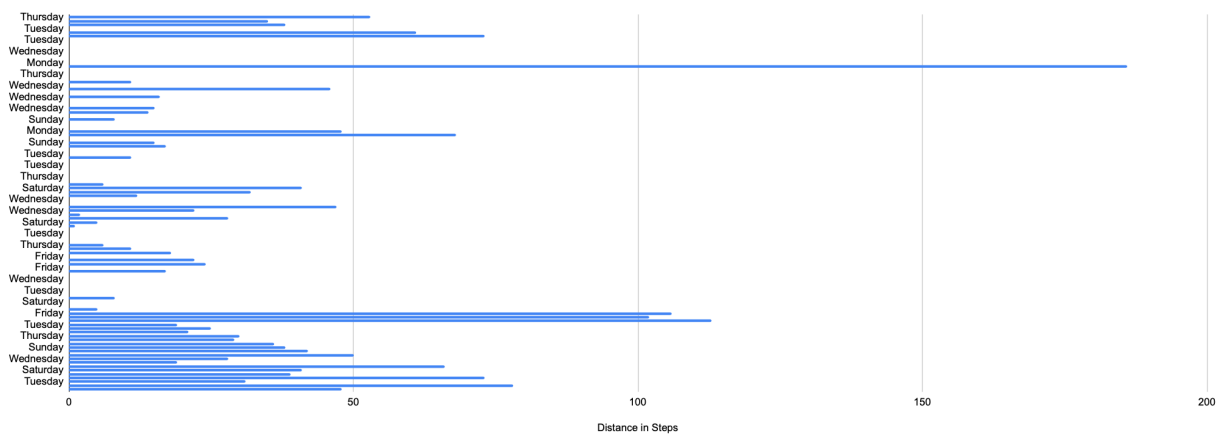


Activity Type by Days of the Week

Measuring Very Active, Moderately Active, Light Active, & Sedentary Distance



Very Active Steps by Days of the Week



Act:

Trends emerged that users were active with their smart device Early in the week but less so by the end of the week. Virtually no data on thursdays. This would suggest that users are excited about a fresh start of the week and may not stay on track throughout the week. Users that were very to Fairly active had a consistent and normal sleep pattern. Which would suggest their activity levels contributed to better, more consistent sleep.

To keep up with market trends Bellabeat should consider:

Data is from 2016 and technology has changed exponentially. Is bellabeat up-to-date with latest technological advances?

More relevant reminders, can Bellabeat add features that are more relevant to today's lifestyle and help users stay on track more consistently? Ideas such as a daily mental health (Just Breathe.) reminder or a time to stand up reminder if you've been sitting too long - allow users to sign up or to edit profile to adjust which kind of reminder and when to receive them.

Let users know when they have had quality sleep via their Bella beat device.

Appeal to your community with challenges that benefit the greater good. Step challenges that unlock charitable contributions or more community focused goals that directly impact women can lead to more consistent activity. "I'm happy to meet my step goals knowing I'm helping out XYZ cause!"