# Bellabeat Marketing Analysis Case Study

## 1. Ask

The business task focuses on analyzing non-Bellabeat smart device data to uncover usage patterns and provide actionable insights for Bellabeat’s marketing strategy. The goal is to use these findings to guide the marketing strategy of Bellabeat.

Key questions include:  
- What are the primary trends in smart device usage?  
- How can these trends inform Bellabeat’s product marketing?  
- What actionable strategies can Bellabeat implement to engage users?

## 2. Prepare

The dataset used for this analysis originates from Kaggle. It includes fitness tracker data from 30 Fitbit users, collected between March 12 and May 12, 2016. The data encompasses metrics such as daily activity, steps, heart rate, and sleep monitoring.

Preparation steps:  
- **Source Verification**: Verified the data's credibility as it is publicly licensed and derived from consented users.  
- **Data Organization**: Examined the structure of 29 CSV files to identify relevant subsets, focusing on daily activity, sleep patterns, and weight metrics.

## 3. Process

The following steps were undertaken to clean and prepare the data:

- **Duplicate Removal**: Removed 3 duplicate rows from `sleepDay\_merged.csv` and all duplicates from `dailyActivity\_merged.csv`.  
- **Column Renaming**: Renamed inconsistent column names, such as changing `/` to `Id` for standardization.  
- **Data Format Checks**: Ensured uniformity in date formats and numeric values.

Tools used:  
- SQL for querying and validating cleaned datasets.

- Power BI for visualization.

- Google slides for presentation.

## 4. Analyze

Insights and their derivation steps:

- **Sleep Patterns**: Weekday vs. weekend sleep durations were calculated using SQL `GROUP BY` queries. The analysis revealed that users sleep longer on weekends, especially Sundays.

- **Step Count Distribution**: Explored using histogram plots to visualize step count ranges. Approximately one-third of users failed to meet the recommended daily activity level of 4,000 steps.

- **Activity Intensity Trends**: Hourly intensity data showed that weekends had higher activity levels, with peaks during the afternoon.

- **Weight and BMI Insights**: Analyzed manually vs. automatically logged weights, identifying trends indicating higher engagement among manual loggers.

## 5. Share

The following visualizations were created to support findings:

- Bar charts showing average sleep duration by day of the week.  
- Pie charts depicting the percentage distribution of users meeting step count thresholds.  
- Line graphs illustrating step count trends over time.

Visualizations were designed for clarity and to emphasize key trends. For example, the sleep duration chart highlights the disparity between weekdays and weekends, informing personalized sleep coaching recommendations.

## 6. Act

High-level recommendations based on the analysis include:  
- **Tailored Sleep Advice**: Use Bellabeat’s app to offer reminders for consistent bedtime routines.  
- **Gamified Challenges**: Launch step count competitions to increase activity levels.  
- **Engagement Campaigns**: Promote manual weight tracking features to encourage user interaction.

These strategies aim to enhance Bellabeat’s market position by aligning product features with user behaviors.