1. Introduction

Bellabeat is a high-tech company focused on health and wellness products for women. This case study aims to analyze user activity trends using Fitbit data to provide actionable insights for Bellabeat's marketing strategy.

2. Data Preparation & Cleaning

- Checked for duplications and null values

- Identified and corrected outliers and inconsistent values

- Converted data types appropriately

- Ensured timestamps were in the correct format
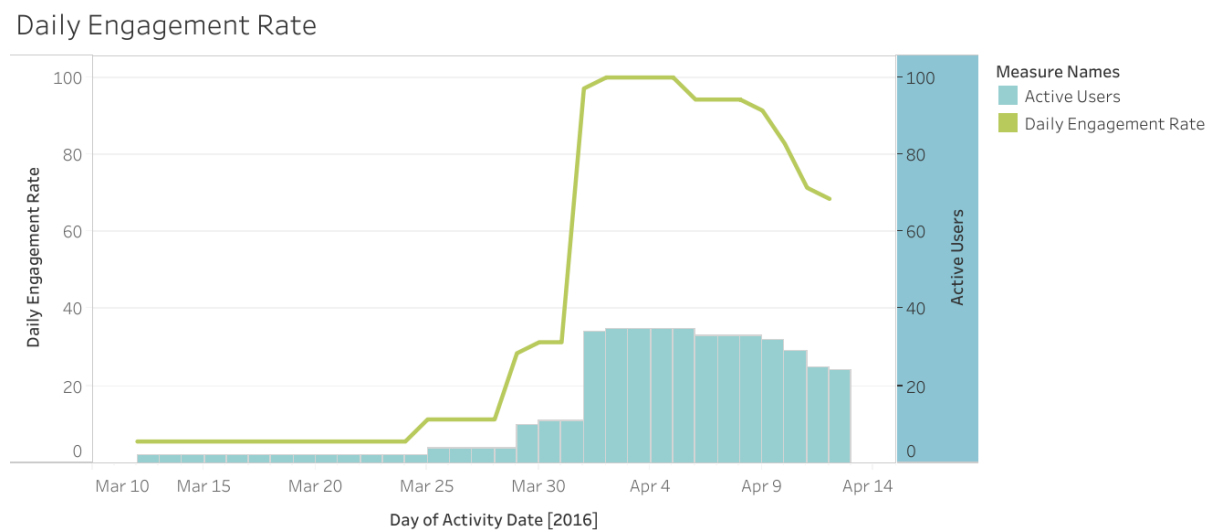
3. Exploratory Data Analysis (EDA)

Key Analysis Performed:

- Track the number of active days per user

- Calculate daily engagement rate

- Identify drop-off patterns

- Identify returning users

4. Data Visualization & Insights

Daily Engagement Rate Analysis

Visualization:

Daily Engagement Rate

Key Findings:

- The **daily engagement rate** remained very low (~5.71%) from **March 12 to March 24**, indicating a lack of active users.

- A **gradual increase** in active users started around **March 25**, with engagement reaching **31.43% by March 31**.

- On **April 1, engagement peaked at 97.14%**, followed by **100% participation from April 2 to April 5**.

- After April 5, engagement showed a **declining trend**, dropping to **68.57% by April 12**.

Marketing Implications:

- The engagement surge in early April suggests a **successful campaign or feature launch**. Bellabeat should investigate what caused this increase and replicate similar strategies.

- The **drop in engagement post-April 5** indicates potential retention issues. A follow-up campaign (e.g., reminders, challenges, or incentives) could help maintain active users.

- Continuous monitoring of engagement patterns will allow Bellabeat to optimize marketing efforts and improve long-term user retention.

5. Recommendations

- Implement a **loyalty program** to sustain high engagement levels.

- Use **push notifications** and in-app challenges to encourage daily activity.

- Analyze user feedback around April 1-5 to understand what drove engagement.

- Personalize marketing strategies based on user consistency trends.

6. Conclusion

Analyzing user activity trends has provided valuable insights into user engagement patterns. By leveraging these insights, Bellabeat can optimize its marketing strategy to improve user retention and drive brand growth.