analysis on fitbit data from
`https://www.kaggle.com/datasets/arashnic/fitbit/data`

The Problem

Business Task: Identify usage trends in fitness tracker features (activity, sleep, weight) and determine how these insights can inform Bellabeat's marketing strategy.

Stakeholders: Bellabeat marketing analytics team, Urška Sršen, Sando Mur, executive team.

Preparation

Data Source: Public Fitbit Fitness Tracker dataset from Kaggle (CC0 Public Domain).

Organization: Multiple CSV files in wide format, containing daily activity, sleep, and weight logs.

Limitations: Small sample (30 users), self-reported or device-recorded data with potential bias.

Data Integrity: Verified file completeness, consistent column structures.

Dataset

much of data was already part of activity tracking and much was short timeframes,
so, Three key datasets were analyzed:

- **Activity Tracking** (steps, calories, distance)
- **Sleep Tracking** (total minutes asleep, time in bed)
- **Weight Tracking** (weight, BMI, fat %)

Process

Tools: Python (pandas, matplotlib, seaborn) for cleaning and analysis.
Cleaning:

- already mostly no missing in chosen data, dropped one column(fat) that was
- make the entries unique

Analyze

User Coverage

Feature	Users with Data	Median Days Logged	Average Days Logged
Activity	33	31	28.5
Sleep	24	5	12.4

Feature	Users with Data	Median Days Logged	Average Days Logged
Weight	8	0	2.0

Key observation: All users log activity, fewer log sleep, very few log weight.

Usage by Engagement Tier

Tier	Most Used Features
Power Users	Activity, Sleep, some Weight
Engaged Users	Activity + Sleep
Casual Users	Activity only

Share

Visualization

Feature Usage Distribution

Average User Engagement by Feature
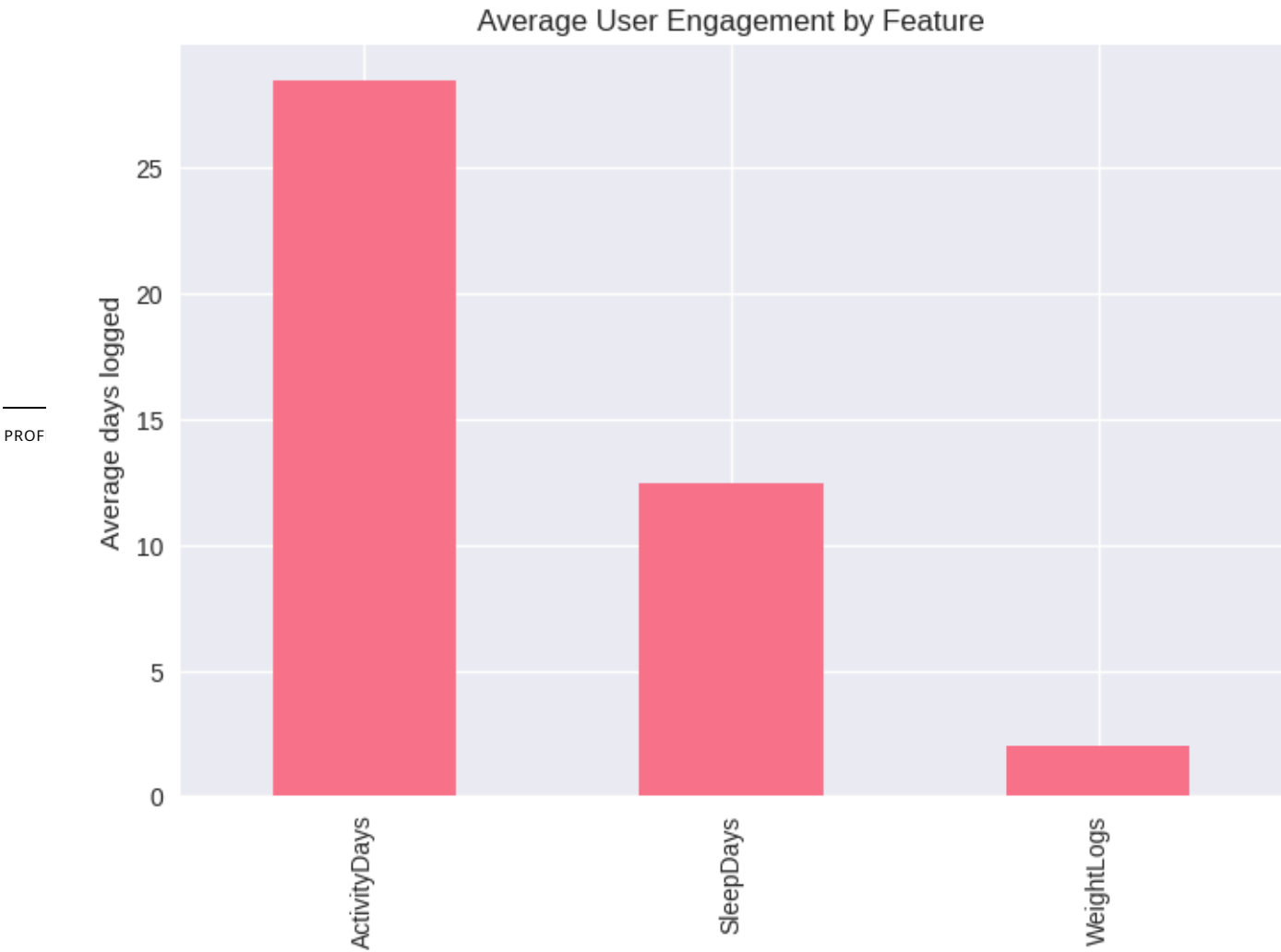
Engagement Tier Composition

User Engagement Tiers
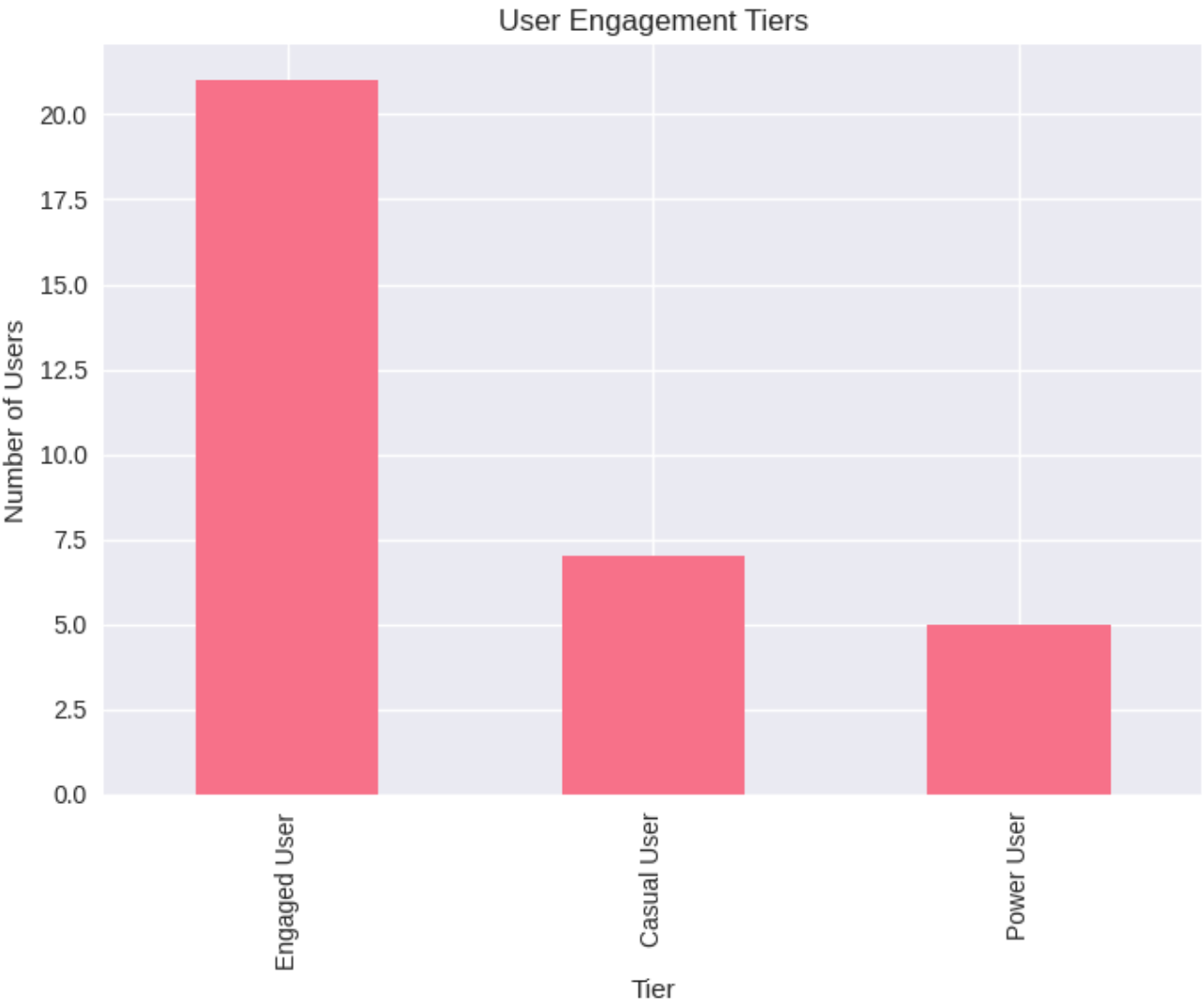
Tier vs enagement in different features

Feature Usage Composition by Tier (%)
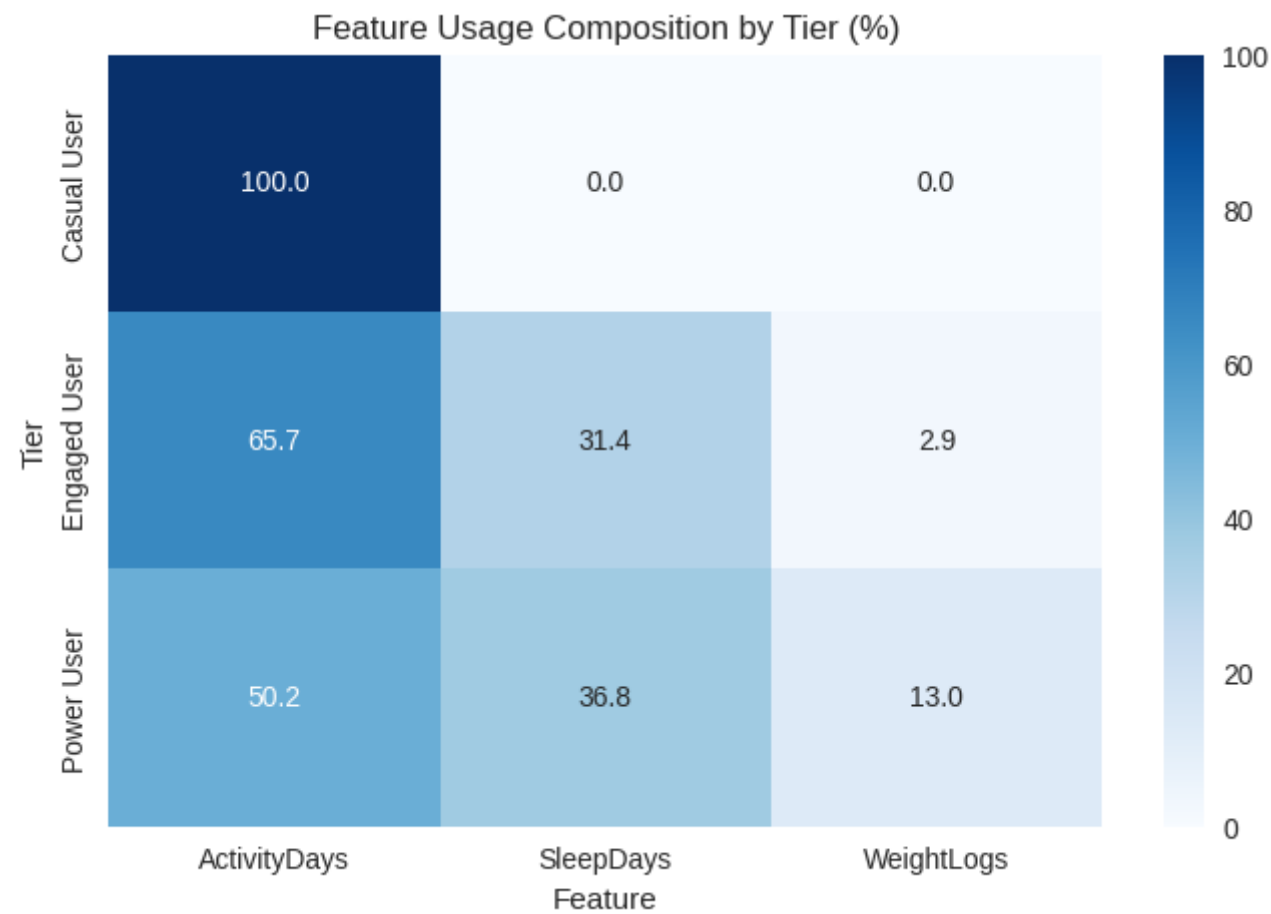
Reasoning (Hypotheses)

Activity tracking

- Immediate, visible results (step counter)
- Low friction: automatically logged

Sleep tracking

- Moderate adoption; may require intentional effort
- Possible barriers: device compatibility, setup friction

Weight tracking

- Very low adoption; changes occur slowly, reducing short-term feedback
- Often requires manual input

Action

This analysis suggests that improving core activity features and lowering friction for sleep tracking could yield higher engagement, while weight tracking is unlikely to become a primary feature without strategic changes.

Recommendations

- Focus Bellabeat marketing on activity tracking as the gateway feature.

- Promote sleep tracking as an added benefit for engaged users.

- Position weight tracking as a tool for advanced/power users.