Bellabeat Case Study — Ask Phase

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1. Business Task

Bellabeat is a wellness-technology company that designs smart devices for women. This analysis explores how insights from smart-device usage (Fitbit dataset) can inform strategies to enhance engagement and feature adoption within the Bellabeat App.

Main Objective:

Identify behavioral trends in activity, sleep, and health tracking to make data-driven recommendations that improve the Bellabeat App's user engagement and marketing focus.

Key Deliverable:

An HTML report summarizing insights, limitations, and actionable next steps for the App's marketing and product team.

2. Guiding Questions

Category Question Purpose

- Behavior Patterns When and how are users most active?
- How consistent are steps, calories, and sleep?
- Reveal engagement rhythms and habits.

- Feature Gaps
- Which wellness dimensions appear under-tracked (e.g., mindfulness, hydration)?
- Identify opportunities for Bellabeat App content or reminders.
- Correlations
- Do users with consistent sleep patterns also show steady activity?
- Support holistic marketing that connects rest and activity.
- Opportunities How can the App personalize notifications or features around real user behavior?
- Guide app design and communication strategy.

3. Product Focus — Bellabeat App

The Bellabeat App is the ecosystem hub connecting all Bellabeat devices.

It aggregates data on activity, sleep, stress, and mindfulness while offering coaching and habit-tracking tools.

By analyzing Fitbit data (a comparable wearable dataset), we can:

- Derive usage patterns typical of wellness-oriented users.
- Suggest feature or UX improvements (timing of reminders, goal setting, gamification).
- Inform marketing narratives emphasizing holistic wellness.

4. Hypotheses

Hypothesis Expected Outcome App / Marketing Implication

1. Users are less active on weekends. -> Activity drops on Sat/Sun. -> Promote mindfulness or light-activity challenges on weekends.
2. Users with regular sleep patterns are more consistent in activity. -> Correlated behaviors. -> Reward consistency and balance with in-app streaks.
3. Light / short sessions dominate over intense workouts. -> Short bouts more frequent. -> Emphasize "micro-workouts" and habit formation.

5. Data Source

Dataset: Fitbit Fitness Tracker Data (public Kaggle dataset)

Participants: 30 users, ~60 days of data

Files: dailyActivity, sleepDay, weightLog, heartrate, etc.

Granularity: Minute- and day-level

Relevance: Both Fitbit and Bellabeat track similar lifestyle metrics (activity, sleep, calories, etc.), allowing behavioral comparison.

6. Assumptions & Biases

Representativeness –> 30 Fitbit users Bellabeat's female-only audience –> Limited generalizability –> Use insights as behavioral indicators, not statistics.

Time Range ~2 months of data –> Misses seasonal patterns –> Avoid claims about long-term behavior.

Device Differences –> Fitbit Bellabeat hardware, UX or tracking gaps –> Focus on cross-device behaviors (steps, sleep).

Self-selection –> Participants self-logged data.–> Overrepresents engaged users –> Treat findings as insights for active segment.

7. Success Criteria

The business question is clear and measurable.

All assumptions and limitations are transparent.

Hypotheses are testable with available data.

Output links insights to concrete App improvements (UX, notifications, marketing content).

8. Next Steps

Prepare Phase — Import Fitbit CSV files, check structure, and assess data quality.

Process Phase — Clean and merge relevant datasets (activity + sleep).

Analyze Phase — Identify patterns, correlations, and trends.

Share Phase — Present visual insights and App-focused recommendations.

9. Analyst's Reflection

This phase establishes the foundation for the Bellabeat analysis by defining the business task, framing hypotheses, and highlighting assumptions and biases.

The next phase ("Prepare") will ensure the dataset is validated, structured, and ready for exploration.