Bellabeat Case Study: Portfolio Report

# Business Task

Bellabeat, a high-tech company specializing in health-focused smart products for women, aims to uncover insights from Fitbit user data to inform the marketing and feature strategies of their wellness app. The analysis explores users' activity, sleep, and heart rate behavior to make evidence-based recommendations.

# Key Findings

## 1. Physical Activity

- Average steps per day: 9,891 steps  
- Most active weekdays: Saturday and Thursday  
- Maximum daily steps: 36,019  
- Minimum: 0  
- Average distance covered per day: 7.18 km  
- Average calories burned per day: 2,686  
- Maximum calories: 4,900  
- Minimum calories: 0  
- A strong positive linear correlation exists between steps and calories burned, as confirmed by a Pearson correlation test.

## 2. Sleep Behavior

- Average time asleep: 425 minutes (7 hours)  
- Average time in bed: 455 minutes (~7 hours)  
- Minimum sleep: 58 minutes (~1 hour)  
- Maximum sleep: 796 minutes (~13 hours)  
- Sleep efficiency was consistent for most users  
- A negative correlation exists between sleep duration and step count

## 3. Heart Rate

- Average heart rate data was extracted daily from second-level readings  
- Users showed higher average heart rate on more active days  
- A negative trend between daily steps and average heart rate was found

# Recommendations

- Introduce motivational step challenges on the app, especially over weekends when users tend to be more active.  
- Provide insights and push notifications to improve and track sleep efficiency.  
- Use heart rate trends to recommend personalized workout intensity and rest suggestions.  
- Add weekly activity/sleep recap reports to boost user reflection and long-term consistency.  
- Educate users about the importance of recovery days and how to monitor them using heart rate and sleep data.

# Conclusion

This analysis of Fitbit user data offers actionable insights into how Bellabeat can improve engagement and outcomes through its app. By leveraging patterns in physical activity, sleep, and heart rate, Bellabeat can develop features that promote healthier routines and better user experiences. Future work should consider larger and more diverse datasets to improve generalizability and refine predictive insights.