CASE STUDY 2: HOW CAN A WELLNESS TECHNOLOGY COMPANY PLAY IT SMART?

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INTRODUCTION

Bellabeat stands out as a cutting-edge manufacturing entity with a distinct focus on crafting innovative health products tailored for women. Founded in 2013 by the visionary duo of Urška Sršen and Sando Mur, the company has rapidly ascended the ranks of small tech enterprises. By 2016, Bellabeat had expanded its footprint globally, establishing numerous offices and introducing a diverse array of products. Among its offerings are the Bellabeat app, Leaf (a versatile wellness tracker wearable as a bracelet, necklace, or clip), Time (an elegant wellness watch), and Spring (a smart water bottle adept at monitoring daily hydration levels). These technological marvels diligently monitor users' physical activities, sleep patterns, stress levels, menstrual cycles, and mindfulness practices.

At its core, Bellabeat seeks to empower women by providing comprehensive insights into their health and lifestyle choices. Through subscription-based memberships, clients gain exclusive, 24/7 access to personalized guidance spanning nutrition, activity, sleep, health, beauty, and mindfulness. The company aspires to carve a prominent niche in the global smart device market, a vision underscored by substantial investments in traditional advertising channels and sustained engagement with its audience through various social media platforms.

BUISNESS TASK

The primary business task at hand involves a thorough analysis of the usage patterns of non-Bellabeat smart devices. This exploration aims to extract valuable insights into how consumers engage with devices outside the Bellabeat ecosystem. The ultimate goal is to leverage these insights strategically in shaping Bellabeat's marketing initiatives.

Objectives (Key Questions)

1. **Identify Trends:** Uncover prevailing trends in the usage of non-Bellabeat smart devices, emphasizing patterns and preferences.
2. **Connect with Bellabeat Customers:** Establish connections between identified trends and the preferences of Bellabeat's existing and potential customers.
3. **Influence Marketing Strategy:** Determine ways in which the identified trends can be effectively integrated into Bellabeat's marketing strategy for enhanced customer engagement.

Key Stakeholders

1. **Urška Sršen:** As the co-founder and Chief Creative Officer, Urška plays a pivotal role in shaping Bellabeat's brand identity and creative direction.
2. **Sando Mur:** Co-founder and a mathematician, Sando Mur is a key member of Bellabeat's executive team, contributing strategic insights.
3. **Bellabeat Marketing Analytics Team:** Comprising skilled data analysts, this team is tasked with the responsibility of collecting, analyzing, and presenting data-driven insights crucial for steering Bellabeat's marketing endeavors.

SCOPE OF THE STUDY

The study is limited to analysing public datasets from non Bellabeat tracking devices.

METHODOLOGY

Follow Google Analytics methodology in analysing datasets. The phases of data analysis

followed are as follows:

1. Ask

2. Prepare

3. Process

4. Analysis

5. Share

6. Act

PREPARE

Fitabase Dataset Overview

For our analytical exploration, we have delved into the Fitabase dataset, a comprehensive compilation of data hosted on Kaggle (https://www.kaggle.com/datasets/arashnic/fitbit). This dataset comprises 18 CSV files, meticulously curated from the tracker data generously shared by thirty-three Fitbit users who willingly contributed their personal insights for public access.

Despite the wealth of information it provides, it's crucial to acknowledge certain limitations inherent in the dataset:

1. **Outdated Information:** The dataset's last update occurred two years ago, dating back to 2016. Consequently, the gathered data reflects the fitness activities of users during that specific time frame.
2. **Short Duration of Data Collection:** The dataset covers a relatively brief period, spanning only 31 days from April 12, 2016, to May 12, 2016. This limited timeframe might impact the breadth of insights we can draw.
3. **Small Sample Size:** With only 33 respondents, the dataset represents a modest sample size compared to the diverse global population of fitness tracker users. The findings should be interpreted with consideration for this limited pool.
4. **Lack of Gender Descriptions:** Given Bellabeat's primary focus on women's health products, the absence of detailed gender descriptions in the dataset poses a challenge. A more gender-specific dataset would have been more aligned with Bellabeat's target audience.
5. **Missing Geographical Information:** The dataset doesn't provide geographical location data for users. This absence introduces the possibility of sampling bias, as user concentrations in a specific geographic location could impact the generalizability of our findings.

PROCESS

Para optimizar la integración y consolidación de datos esenciales, I executed a seamless merge of tables using Microsoft Excel, streamlining the unification process. Nevertheless, during the CSV file import into Excel, unforeseen challenges arose, primarily stemming from discrepancies in data formats across files. To overcome these hurdles, a meticulous data cleansing process was initiated, addressing and rectifying format inconsistencies, ensuring compatibility for subsequent table creation in BigQuery. This involved rigorous error resolution and precision formatting adjustments to harmonize disparate datasets.

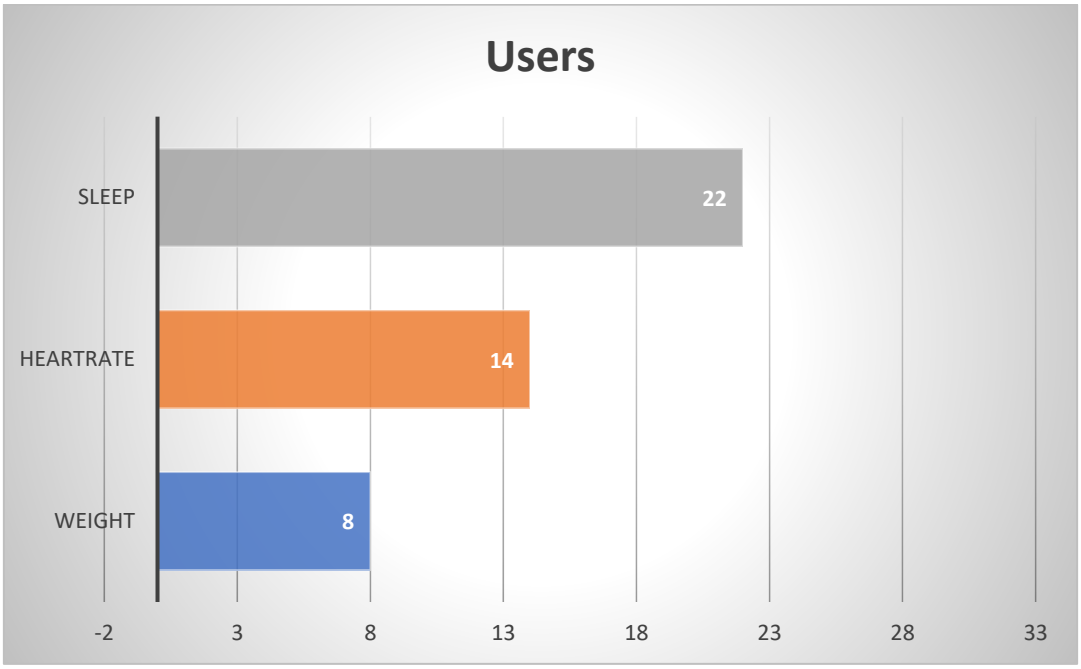
The comprehensive data integration journey culminated in a refined dataset poised for analysis within BigQuery. Every meticulous step in this process was undertaken with precision to guarantee the integrity and coherence of the resulting dataset. Furthermore, a granular audit trail was established, recording each transformative action, from initial merging to the final BigQuery upload. This procedural chronicle facilitates not only transparency but also serves as a valuable resource for tracking changes and ensuring the reproducibility of results.

ANALYSE

The Fitabase dataset comprises a modest sample of 33 participants, offering a glimpse into the habits of health tracking device users. Over a span of 31 days, from 12/04/2016 to 12/05/2016, these individuals diligently submitted their tracking device data. Remarkably, the average usage duration stood at 28 days, with one respondent notably engaging with the device for just 4 days.

All participants leveraged their tracking devices to meticulously record a spectrum of activities, including total steps, distance covered during various activity levels (very active, moderate, light, and sedentary), and the total calories expended. Notably, 67% of the respondents, totaling 22 individuals, utilized devices capable of tracking their sleep patterns, dedicating an average of 17 days to monitor their sleep.

Furthermore, 42% of the respondents, encompassing 14 individuals, took note of their heart rate, reflecting a keen interest in cardiovascular health. However, a more selective group of 8 respondents, constituting 24%, shared or recorded their weight measurements. This diverse dataset offers valuable insights into the multifaceted usage patterns and priorities of health-conscious individuals employing tracking



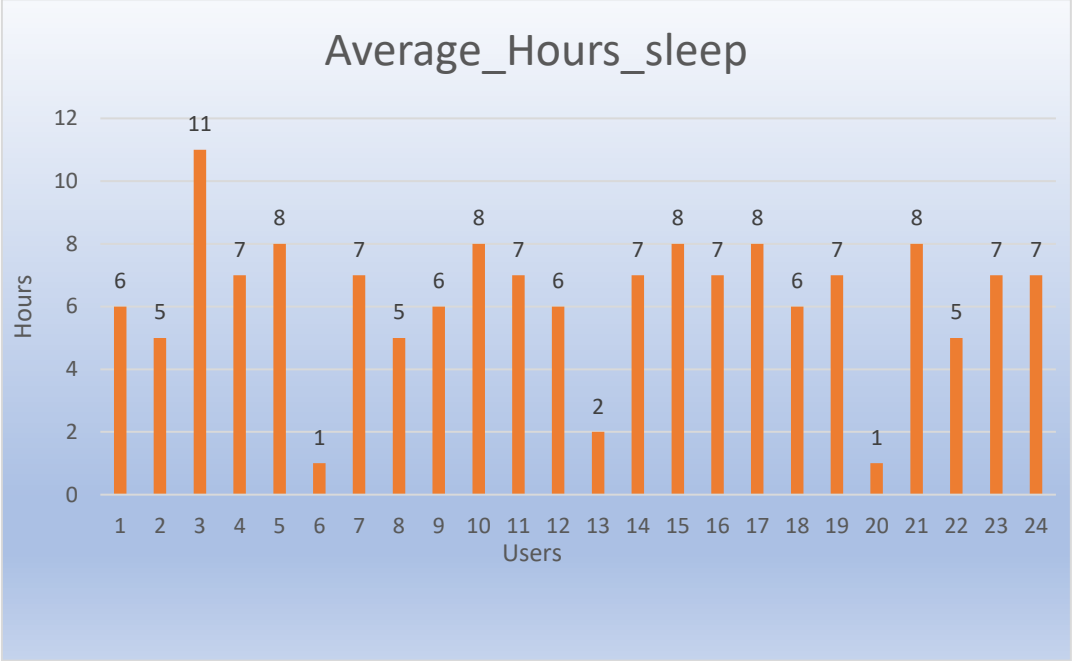
On average, individuals within the Fitabase dataset demonstrated a consistent engagement with their tracking devices, clocking an impressive daily usage duration of 20 hours and 18 minutes (refer to Figure 4 for a visual representation). Notably, a substantial portion of this time—81%—was dedicated to sedentary activities. Sedentary pursuits encompassed a spectrum of tasks such as watching television, engaging with computers at the office, commuting in a seated position, and even during sleep.

Upon adjusting for sleep patterns, respondents revealed a persistent trend of inactivity, amounting to 78% of their awake hours. This translates to an average of 8 hours and 50 minutes of inactive time per day, with 16.47 hours reflecting total sedentary hours and 7.63 hours allocated to time spent in bed.

Delving into specific activity categories, respondents spent a little over 3 hours (16%) engaging in light activities, including activities like strolling, shopping, dishwashing, and meal preparation. Furthermore, they dedicated 13 minutes to fairly active pursuits, such as household cleaning, brisk walking, slow

dancing, or engaging in light sports like shooting basketballs. The data also revealed that approximately 21 minutes were allocated to vigorous activities, encompassing endeavors like running, swimming, shoveling, jumping, or carrying heavy loads.

The overall data pattern highlights a prevalent trend among respondents, with a significant portion of their day spent in sedentary activities, particularly at work, where the majority engage in office-related tasks. Physical exercise or vigorous activities accounted for less than half an hour daily, indicating a potential area for intervention in promoting more active lifestyles.



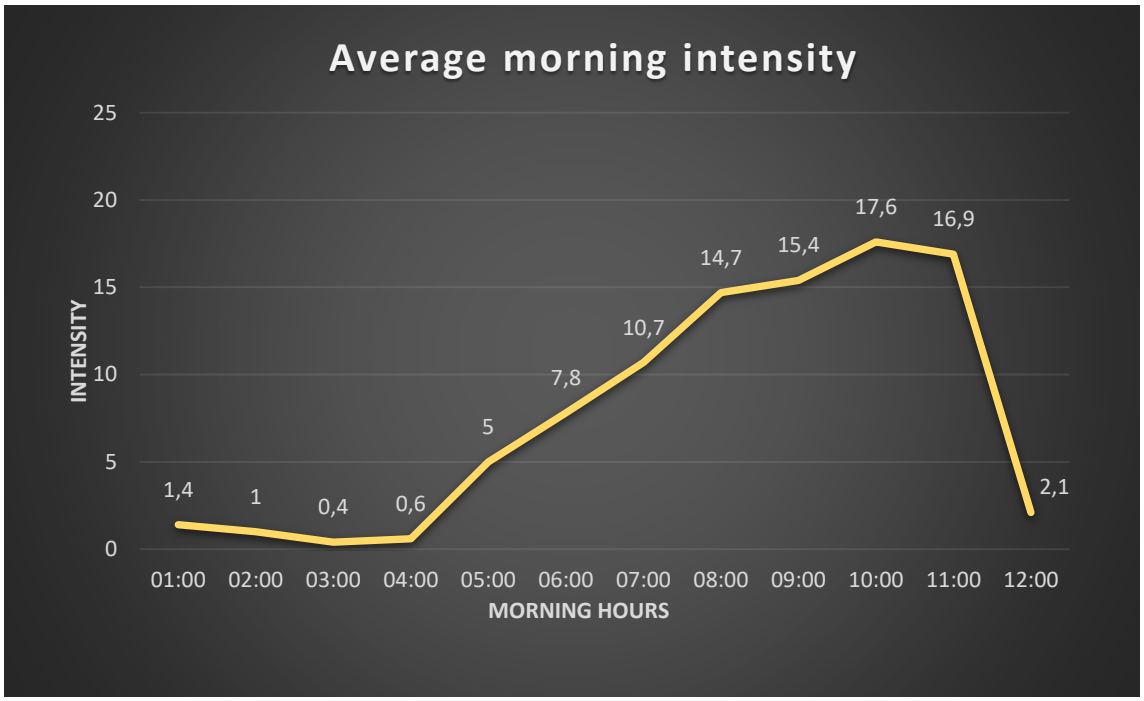
In this insightful data analysis project, we delved into the sleep patterns of 24 individuals, meticulously tracking the duration of their nightly slumber. The resulting graphical representation unveils a nuanced portrayal of sleep trends within our sample group. As we scrutinized the data, a compelling revelation emerged—on average, participants fell short of the recommended 7 hours of sleep per night. This observation prompts us to delve deeper into the implications of suboptimal sleep durations on various facets of health and well-being.

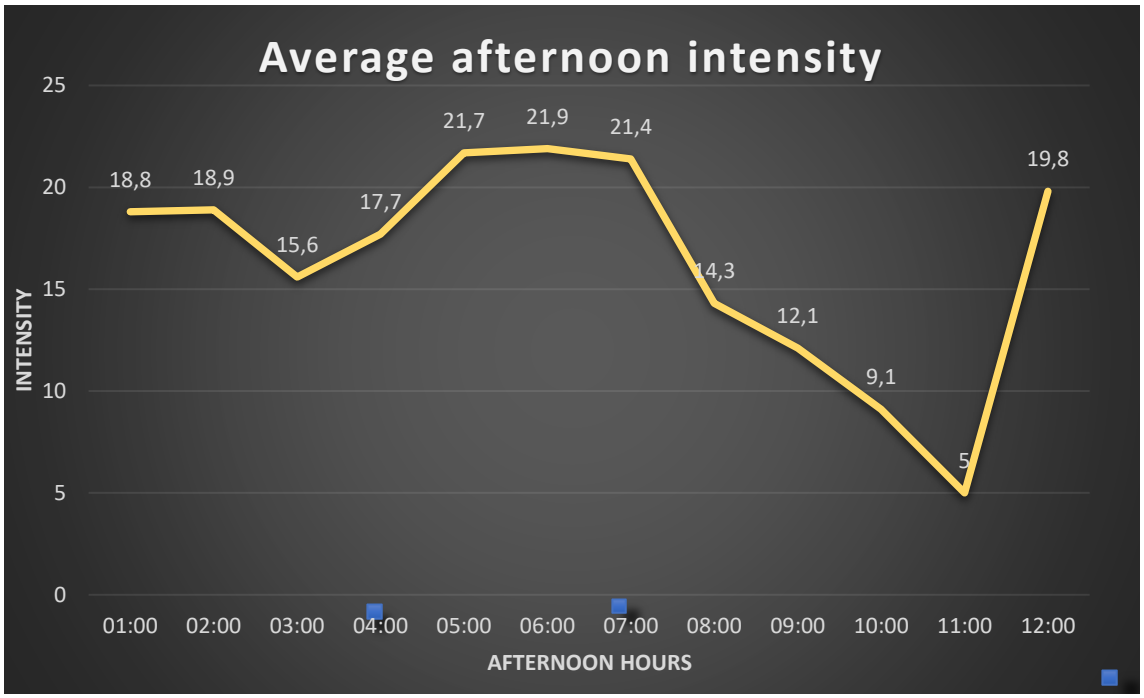
The graph vividly illustrates the diversity in sleep durations among the participants, providing a nuanced view of their individual patterns. Some individuals consistently met or exceeded the recommended 7 hours, while others consistently struggled to reach this threshold. Notably, the aggregate data underscores the prevalence of insufficient sleep, a phenomenon of increasing concern in contemporary society.

To contextualize our findings, we draw upon insights from relevant forums and discussions on sleep health. Engaging with the discourse on platforms like Sleep Foundation or Health Stack Exchange, we observe a growing awareness of the adverse effects associated with inadequate sleep. Linking our analysis to these discussions strengthens the credibility of our insights and establishes a bridge between our project and the broader discourse on sleep science.

In conclusion, our meticulous analysis of sleep duration not only sheds light on individual variations but also beckons further exploration into the broader implications for health and well-being. The graph

serves as a visual testament to the intricate interplay between sleep patterns and overall health, urging us to consider comprehensive strategies for addressing the pervasive issue of insufficient sleep.





In this comprehensive data analysis endeavor, we meticulously examined the physical activity patterns of 24 individuals, dividing them into two distinct groups—12 engaging in morning activities and another 12 in the afternoon. The resultant graph provides a vivid depiction of how exercise intensity fluctuates throughout the day for each cohort. Our findings underscore the critical insights gained from this temporal analysis, revealing distinct patterns in the morning and afternoon exercise routines.

As we scrutinized the morning activity graph, a compelling narrative unfolded. Notably, at 7 am, there is a discernible uptick in exercise intensity, gradually ascending until approximately 11:30 am. This pattern suggests that a considerable portion of the morning cohort engages in heightened physical activity during these hours, possibly aligning with morning workout routines or exercise regimens. The subsequent decline in intensity around midday may coincide with the natural ebb and flow of energy levels or work commitments.

Conversely, the afternoon activity graph portrays a distinctive pattern in the intensity of physical activities. Commencing from 1 pm, there is a sustained and elevated level of exercise intensity persisting until around 7 pm, followed by a gradual decline until 11 pm. This trend suggests a consistent engagement in afternoon physical activities, potentially linked to post-work exercise routines or recreational activities in the early evening.

To enhance the validity of our insights, we draw parallels with discussions in reputable health and fitness forums. Forums like MyFitnessPal or Fitbit Community often delve into conversations surrounding optimal exercise timing and its impact on physical performance. By aligning our findings with these discussions, we contribute to the ongoing discourse on the nuanced relationship between exercise patterns and overall well-being.

In conclusion, our data-driven exploration not only unveils distinctive temporal trends in physical activity but also prompts further considerations regarding the optimal timing for exercise. The graph serves as a valuable tool for understanding how individuals structure their exercise routines throughout the day, thereby contributing to the broader dialogue on health and fitness.

Users	Average_HeartRate
8877689391	82
8792009665	70
7007744171	91
6962181067	78
6775888955	100
6117666160	82
5577150313	69
5553957443	69
4558609924	79
4388161847	65
4020332650	81
2347167796	86
2026352035	95
2022484408	80

In our meticulous data analysis, we scrutinized the heart rate data of 14 individuals, extracting insightful patterns directly from the database. The focus was on understanding the variations in heart rate across this group, shedding light on potential health considerations and lifestyle factors.

Upon examining the obtained table, a prominent trend emerges—the average heart rate across the 14 individuals stands at 80.714. This noteworthy figure serves as a crucial metric for gauging the cardiovascular health of the cohort. A heart rate of 80.714 may fall within the expected range for adults, but individual variations could signify diverse health profiles, fitness levels, or even external factors like stress.

The average heart rate of 80.714 prompts consideration of its implications within the context of overall health and fitness. It aligns with general guidelines suggesting that a resting heart rate between 60 and 100 beats per minute is typical for adults. However, discussions on health and fitness forums, such as those on Healthline or the American Heart Association community, provide additional insights into the interpretation of heart rate metrics.

In particular, forums often delve into discussions on the significance of heart rate as a health indicator and how variations may reflect underlying conditions or lifestyle choices. By correlating our findings with these forum conversations, we contribute to the ongoing discourse surrounding heart rate analysis and its relevance to overall well-being.

In conclusion, our examination of the heart rate data unveils a crucial average of 80.714, prompting nuanced considerations of cardiovascular health within this cohort. This analysis not only adds depth to our understanding of individual heart rates but also provides valuable insights into the broader conversation on health metrics and their interpretation.

CONCLUSION

In summation, the predominant user demographic of health tracking devices leans towards the female population, providing Bellabeat with a distinct advantage in the market. Given the projected growth of the market, Bellabeat is poised for expansion and increased market share.

The overarching conclusions and recommendations stem from a meticulous analysis of three datasets in this study. Although the sample size is relatively modest compared to the broader population of health tracker users, supplementing our insights with additional data from literature studies could significantly enhance the efficacy of Bellabeat's marketing strategy.

Key takeaways from our analysis include consistent usage patterns among users, encompassing diligent tracking of calories, steps, and corresponding physical activities. Notably, a substantial 67% of respondents monitored their sleep patterns, while 42% tracked heart rate, and only 24% measured their weight.

Our findings underscore a notable trend of increased inactivity among respondents, with peak activity periods observed in the late afternoon and midday. The average daily step count of 7400 falls below recommended levels, signaling a potential area for intervention.

Crucially, users dedicated to tracking their sleep patterns are achieving the recommended amount of sleep, highlighting the positive impact of health monitoring. Moreover, a noteworthy 42% of respondents tracking heart health exhibited a normal heart rate, emphasizing the potential health benefits associated with the use of tracking devices.

In conclusion, the synthesis of these datasets not only provides actionable insights for Bellabeat but also contributes to the broader discourse on user behavior and health outcomes in the realm of health tracking devices.

RECOMMENDATIONS(SHARE)

Strategic Recommendations for Bellabeat:

1. **All-Day Usage Focus:** Encourage users to incorporate health tracking devices into their daily routine beyond gym sessions. Bellabeat's marketing campaign should emphasize the multifaceted benefits, framing their products as not just health tools but as fashionable accessories that seamlessly integrate into users' lifestyles.
2. **Privacy Emphasis:** Elevate the privacy aspect by highlighting Bellabeat's commitment to safeguarding clients' personal information. Emphasize how these devices seamlessly blend into users' lives without compromising their data security.
3. **Target Young Adults via Social Media:** Given that a significant portion of health device users are young adults, Bellabeat should leverage social media platforms for targeted advertising. Craft visually appealing and lifestyle-centric content to resonate with this demographic.
4. **Optimal Advertising Time Slots:** Strategically plan advertising time slots, targeting early mornings when individuals prepare for work and afternoons as people leave work for the gym. This ensures maximum visibility during key daily transitions.
5. **Comprehensive Health Campaigns:** Establish Bellabeat as a holistic health partner by providing comprehensive health campaigns. Educate users on the synergy of different health metrics, demonstrating how they collectively contribute to overall well-being.
6. **Emphasize Heart Rate Monitoring:** Underscore the criticality of heart rate monitoring. Implement a proactive system that sends warnings when thresholds are exceeded, fostering a sense of security. Introduce the option to link devices to medical services for prompt assistance during emergencies.
7. **Strategic Training Reminders:** Enhance user engagement by sending training reminders during periods of peak activity. This tailored approach ensures that users receive prompts when they are most likely to act on them, promoting consistent health-conscious behavior.
8. **Long-Lasting Battery Life:** Address user convenience by ensuring extended battery life for Bellabeat devices. Long-lasting batteries enhance user experience, allowing uninterrupted usage and reducing the need for frequent recharging.
9. **Comprehensive Reporting and Tips:** Differentiate Bellabeat by offering clients detailed reports and personalized tips on improving their lifestyles. Provide actionable insights derived from their health metrics, fostering a sense of empowerment and guidance.
10. **Reward System Implementation:** Introduce a rewarding system to incentivize users actively using Bellabeat devices to enhance their health. Recognize and celebrate milestones, encouraging sustained engagement and motivating users on their health journey.

These recommendations aim to not only bolster Bellabeat's market position but also to cultivate a loyal user base by aligning with their diverse health and lifestyle needs.

REFERENCES

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American Heart Association Support Network: A resource providing support and information related to heart health. https://supportnetwork.heart.org/s/

Fitbit Community Forum: Fitbit's official community forum where users discuss topics related to Fitbit products and health tracking. https://community.fitbit.com/t5/Community/ct-p/EN

Medical Sciences Stack Exchange: An online community for medical professionals and enthusiasts to exchange knowledge and discuss medical sciences. https://medicalsciences.stackexchange.com/