# ****Fitbit Consumer Behavior Analysis****

# ****Tableau Dashboard:**** ****https://public.tableau.com/app/profile/kona.vagadheeswari/viz/FitnessDashboard\_17240811643300/Dashboard1****

### ****Introduction****

This project was undertaken as part of an internship with PrepInsta, focusing on analyzing data collected from 30 Fitbit users who participated in a survey conducted via Amazon Mechanical Turk between March 12, 2016, and May 12, 2016. The dataset includes minute-level outputs for physical activity, heart rate, and sleep monitoring, as well as other daily and hourly metrics. The primary objective of this analysis is to uncover trends in how consumers use the Fitbit app and provide actionable insights for the marketing team at HealthTrackers Inc. This analysis will help in shaping marketing strategies and enhancing product offerings.

### ****Dataset Description****

The dataset comprises 18 files, including detailed records of daily activity, calorie consumption, and hourly steps, among others. Each file captures specific aspects of the users' interactions with their Fitbit devices, allowing for a comprehensive examination of their behaviors and preferences. The data varies across users due to differences in tracker models and individual tracking habits, which is a key consideration in the analysis.

### ****Data Cleaning and Preparation****

The initial step in the analysis involved cleaning and preparing the data to ensure accuracy and consistency. This process included handling missing values, standardizing timestamps, and merging relevant files to create a unified dataset. Python, along with Pandas Profiling, was utilized to automate and streamline these tasks, ensuring a reliable foundation for subsequent analysis.

### ****Analysis and Insights****

The exploratory data analysis (EDA) revealed several notable trends in user behavior. For example, the data showed distinct patterns in daily activity levels, with peak activity occurring in the late afternoon and early evening. Heart rate data indicated variations corresponding to physical activity intensity, while sleep data highlighted common sleep durations and patterns. These insights were further visualized using Tableau, providing a clear and intuitive representation of the findings.

**Business Implications**

The trends identified in the analysis have several implications for customers. Understanding peak activity times can help tailor app features to encourage more consistent usage, while insights into sleep patterns could lead to personalized recommendations for improving sleep quality. These findings can also influence the marketing strategy by identifying key user segments and targeting them with customized messaging and promotions.

**Recommendations**

Based on the analysis, the following recommendations are proposed:

* **Targeted Marketing Campaigns**: Leverage insights on peak activity times to schedule promotional messages or app notifications when users are most active.
* **Personalized User Experience**: Utilize sleep and activity data to offer personalized tips and challenges, encouraging users to achieve their fitness goals.
* **Product Development**: Consider developing features that address common user pain points, such as sleep tracking enhancements or activity reminders during low engagement periods.

**Conclusion**

This analysis of the Fitbit dataset provides valuable insights into user behavior and highlights opportunities for improving both the user experience and the effectiveness of marketing strategies. By applying these insights, HealthTrackers Inc. can better align its offerings with consumer needs, ultimately driving greater engagement and satisfaction.

**Tools Used**

* **Python**: For data cleaning, transformation, visualization, and analysis.
* **Pandas Profiling**: To automate data profiling and initial exploratory analysis.
* **Tableau**: For creating visualizations that present key findings in an accessible manner.
* **Excel**: For supplementary data manipulation and validation tasks.