**Capstone Project - Fitbit Consumer Behaviour Analysis**

**Project Proposal:**

Analyse Fitbit Fitness Tracker App data to gain insights into how consumers use the Fitbit app and discover trends and insights for the marketing team.

Approach:

The analysis will follow these steps:

1. **Data Cleaning and Preprocessing:**

* Identify and address missing values or inconsistencies in the data.
* Create new variables or combine existing ones for better analysis.

1. **Exploratory Data Analysis (EDA):**

* Utilize visualizations like histograms, scatter plots, and boxplots to understand data distribution and relationships between variables.
* Calculate summary statistics (mean, median, standard deviation) to describe central tendency and variation within the data.

1. **Customer Segmentation Analysis:**

* Analyse the characteristics of each segment to identify distinct user groups.

1. **Implications for Customers:**

* Based on EDA and segmentation, identify potential health trends and risks within user groups.
* Explore how these trends might impact user well-being.

1. **Marketing Strategy Recommendations:**

* Translate user behaviour insights into actionable marketing strategies for Health Trackers Inc.
* Suggest targeted marketing campaigns or product development based on user needs and preferences.

Tools and Techniques:

* Programming languages like Python with libraries such as pandas for data manipulation, and matplotlib or seaborn for visualizations.
* Data visualization tools like Tableau could be used for interactive dashboards.

**Exploratory Data Analysis Report:**

**Activity Levels:**

* Most users take at least 5,000 steps daily, with an average distance covered exceeding 3 kilometres.
* Light activity contributes most to daily steps, followed by moderate activity. Very active steps are less frequent but contribute significantly to calorie burn.

**Calorie Expenditure:**

* The minimum daily calorie burn observed is around 1,500 calories.
* Burning 300-400 calories is associated with 1,000-4,000 steps.
* Higher intensity levels (intensity 1 or 3) are required to burn significant calories (above 17 per minute).

**Engagement Patterns:**

* The average user maintains a minimum of 200 steps and 5 intensity points per hour.
* Calories burned per hour average at least 60, with the highest intensity typically occurring between 5 PM and 7 PM.

**Sleep Analysis:**

* Wearers tend to spend more time in bed than in actual sleep.

**Health Observations:**

* Most users have a weight below 100 kg and a BMI under 30, indicating a healthy weight range for most individuals (except for one outlier).
* Heart rates generally fall within the normal range (60-100 bpm) for the observed period (April-May).

**Implications for Customers Report:**

**Activity Levels:**

* The data suggests that most users are moderately active, taking enough steps daily. However, there's room for improvement in incorporating more vigorous activity for those with primarily light activity steps.
* Users with lower step counts might benefit from setting personalized goals and activity reminders.

**Calorie Expenditure:**

* The observed calorie burn might not be sufficient for weight loss or maintaining a healthy weight for all users. Customers should be aware of their individual needs and adjust their activity levels or diet accordingly.
* The data can help users understand the intensity required to achieve specific calorie burn goals.

**Sleep Analysis:**

* The discrepancy between time in bed and sleep duration highlights the importance of good sleep hygiene practices for improved sleep quality.
* Fitbit users might benefit from educational content or features within the app to promote healthy sleep habits.

**Health Observations:**

* The overall healthy weight range and normal heart rate readings are positive indicators. However, the outliers emphasize the importance of personalized health monitoring and potentially consulting a healthcare professional for those with concerns.

**Customer Segmentation Analysis:**

**Potential Segments:**

* **Active Achievers:** These users take a high number of daily steps (above average) and likely have a healthy weight range and normal heart rate. They might be interested in targeted challenges or goal-setting features to push their limits.
* **Moderately Active Individuals:** This is likely the largest segment with average step counts and potentially lower calorie burns. They could benefit from personalized activity plans and educational content on increasing activity levels and healthy weight management.
* **Sleep-Strugglers:** This segment have a discrepancy between time in bed and sleep duration. They would benefit from features or content promoting healthy sleep hygiene practices.
* **The Outliers:** This includes users with a higher weight range or abnormal heart rate readings. While the data might not be conclusive, this segment might benefit from personalized recommendations to consult a healthcare professional.

**Marketing Strategy Recommendations:**

Here are some marketing strategy recommendations for Health Trackers Inc. based on the customer insights:

**Promote Targeted Activity Programs:**

* Develop personalized activity plans within the Fitbit app based on user data and goals.
* Encourage users to incorporate more vigorous activity through challenges or rewards.

**Focus on Holistic Wellness:**

* Expand the app's functionality to include educational content on healthy sleep habits, nutrition, and stress management.
* Partner with sleep experts or wellness coaches to offer personalized guidance within the app

**Highlight Actionable Insights:**

* Emphasize the data's ability to help users understand their activity levels, calorie burn, and sleep patterns.
* Showcase how Fitbit data can be used to set personalized goals and track progress towards a healthier lifestyle.

**Target Specific User Segments:**

* Leverage user segmentation based on activity levels and goals to deliver personalized marketing messages and recommendations.
* Offer targeted promotions or product features that cater to the specific needs of each segment.

**Promote Community Engagement:**

* Encourage users to connect and share their fitness journeys within the Fitbit app.
* Organize virtual or in-person fitness challenges to foster a sense of community and motivate users.