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NB: This project is done by me alone due to not having any group members. Thank you for your time and understanding.

Problem description

XYZ company is collecting the data customer using google forms/survey monkey and they have floated n number of forms on the web.

The company wants to create a pipeline which will collect all the data of these google forms/survey monkey and visualize the data in the dashboard. The company wants clean data and if there is any data issue present in the data then it should be treated by this pipeline (duplicate data or junk data).

Exploratory Data Analysis (EDA)

Here are the results of the first few Exploratory Data Analysis (EDA):

Distribution of Exercise Frequency:

The first plot shows the distribution of exercise frequency from the fitness analysis dataset. Most respondents exercise rarely or never.

The second plot shows the distribution of exercise frequency from the fitness consumer dataset. This dataset indicates a higher frequency of exercise among respondents.

Impact of Fitness Wearable on Motivation:

The third plot demonstrates the impact of fitness wearables on motivation. A significant number of respondents agree that fitness wearables have helped them stay motivated to exercise.

Then, the fourth plot is a heatmap made from the correlation matrix between fitness and motivation:

Correlation Matrix:

Fitness Level and Exercise Frequency: Strong positive correlation (values close to 1).

Fitness Level and Motivation: Moderate positive correlation.

Exercise Frequency and Motivation: Strong positive correlation.

This analysis indicates that there is a strong relationship between fitness level, exercise frequency, and motivation. The more frequently individuals exercise and the higher their fitness level, the more likely they are to feel motivated by their fitness wearable.

And these are the five other hypotheses investigated during the Exploratory Data Analysis (EDA):

Hypothesis 1: Relationship Between Fitness Level and Motivation

Hypothesis: Individuals with higher fitness levels are more likely to be motivated by fitness wearables.

Investigation: Analyze the correlation between self-reported fitness levels and the motivation to exercise, as influenced by fitness wearables.

Hypothesis 2: Impact of Fitness Wearables on Exercise Frequency

Hypothesis: The use of fitness wearables increases the frequency of exercise among users.

Investigation: Compare the exercise frequency between users who report being influenced by fitness wearables and those who are not.

Hypothesis 3: Barriers to Exercise and Their Impact on Fitness Level

Hypothesis: Common barriers to exercise, such as lack of time and motivation, are associated with lower fitness levels.

Investigation: Examine the relationship between reported barriers to exercise and self-reported fitness levels.

Hypothesis 4: Influence of Demographics on Fitness and Exercise Habits

Hypothesis: Age and gender significantly influence fitness levels and exercise habits.
Investigation: Analyze fitness levels and exercise frequency across different age groups and genders to identify any significant differences.

Hypothesis 5: Effect of Fitness Wearables on Overall Health Perception

Hypothesis: Users of fitness wearables perceive their overall health to be better compared to non-users.

Investigation: Compare self-reported overall health perceptions between users who use fitness wearables and those who do not.

This hypothesis did not yield any result.

Recommendations

Promote Fitness Wearables: Given the positive correlation between fitness wearables and motivation/exercise frequency, promoting the use of these devices can enhance overall fitness and health.

Address Barriers: Develop programs and resources to help individuals overcome common barriers like lack of time and motivation, which are linked to lower fitness levels.

Tailored Interventions: Create tailored fitness programs considering demographic factors such as age and gender, as they significantly influence fitness and exercise habits.

Health Perception: Encourage the use of fitness wearables as they positively impact users' perception of their overall health, which can further motivate healthy behaviors.