

Title: Predicting Individual Energy Levels Using Apple Watch Data

1. Business Problem or Question:

The objective of this project is to predict an individual's energy levels through analysis of Apple Watch data. Understanding and accurately predicting energy levels can significantly impact personal health management, productivity, and overall quality of life. By applying data analysis and machine learning techniques, this project aims to uncover the relationship between data captured by the Apple Watch and the subjective experience of energy levels on the basis from lowest to highest on a 10-pointer level.

2. Data Sources:

The dataset will include:

- Apple Watch data covering heart rate, steps, exercise, sleep quality, and stand hours. [\[Link\]](#), [\[Link\]](#)
- Apple Watch health data from various watches

A dataset of 50,000 observations is going to be compiled to ensure the robustness of the analysis, combining historical data and real-time monitoring over a specified period.

3. Modeling Approach:

This project will explore classification models to categorize energy levels (e.g., low, medium, high in 10 levels total) and regression models for predicting the energy level on a numerical scale. A minimum of three different model families will be considered, including but not limited to:

- Decision Trees
- Support Vector Machines
- Neural Networks

The goal is to compare these models to identify the one that offers the most accurate predictions.

4. Project Approach:

Adhering to the CRISP-DM framework, the project will progress through stages of understanding the business and data, preparing the data, modelling, evaluation, and deployment. This systematic approach ensures thorough analysis and development of a solution.

5. Significant Assumptions or Constraints:

- Data collected from the Apple Watch is assumed accurate given it is used in various other places and representative of the individual's health state.
- Regular and consistent reporting of subjective energy levels by individuals may introduce a degree of variability.
- The influence of external factors not captured by the Apple Watch on energy levels is acknowledged but not directly measured.