4-Software Requirements

1. Introduction

1.1 Purpose

Commercial wearable devices have emerged as promising tools for measuring physical activity both in laboratory and real-world settings. However, researchers have faced challenges extracting these data in an efficient, scalable way. In this paper, we describe the Built Environment and Active Populations (BEAP) Engine, a web application/tool we developed to collect, process and analyze physical activity data exported from Apple Watch and Fitbit devices(As a value added) the tool also predicts past physical activity (from metrics such as energy expenditure and distance walked) using machine learning methods, and returns the file in a more user-friendly format

1.2 Intended Audience

The app is intended for researchers focusing on physical activity measurement to predict past physical activity.

1.3 Scope

Explain the scope of the software. What are the main goals and objectives?

1. want to get everything back up and running the existing webapp
2. extensive documentation is highly desired
3. require feedback from the dev team on what made our job easier or harder.
4. add extra coverage for new devices (Garmin)
5. potentially make an app that lives on your phone because its easier
6. Any kind of speed(performance) improvements are helpful because it was slow.

2. System Features and Requirements

2.1 Functional Requirements

1. Upload Fitbit, and Apple watch data by the user
2. Displaying the data in a nice and usable way/UI for the user
3. Logging in for users
4. Logging out for users
5. Process/Predict Fitbit and Apple watch data using SVM, Random Forest and Decision Tree

Nice to have Features:

1. Upload Garmin data
2. Process/Predict Garmin data

2.2 External Interface Requirements

1. A login button
2. A logout button
3. Predict button
    a. Start processing prediction of activity based on chosen device (Fitbit or Apple Watch) for the file that is uploaded.
4. Selecting Data to be Processed
    a. This is in form of a radio button where user can choose which data they want to process
5. Process button
    a. Process data to ready for prediction
6. Upload button
    a. This is in form of a drop zone where a user can upload as many files as they want to ready for processing.

7. Navbar
8. Progress bar
    a. A bar showing how much of the process for uploading or the prediction is done
9. A sign up button
10. Data Deletion button
11. A button for data input device (Apple Watch, Fitbit)
    a. This is in form of a radio button where user can choose which smart watch data they are uploading to the system
12. Choosing the way they want to see the data
    a. This is in form of a radio button where user can choose the format they want to view their data or process their data
13. Download the data file
    a. A button where they can download the processed data

2.3 Nonfunctional Requirements

1. The app should be able to handle large amounts of data files in a performant way.
2. Security
3. Usability
4. Processing the data faster/ more efficient
5. Improving machine learning algorithms for predicting activity data