Real-Time FitBit Data for Zamanya in Healthcare Analytics

Project Description: Fitbit provides a Web API for reading Fitbit trackers data. The Fitbit API allows developers to interact with Fitbit user's data on their behalf, so long as it complies with Fitbit terms and conditions. To use the Fitbit Web API, developers must register their applications at fitbit.com first, then ask users with Fitbit devices to authorize the developed application to access their activities. Fitbit data ranges from physical activity time-series (with the activity types), sleep time-series (with different types such as restless, asleep, awake), heart-rate time-series (with the heart-rate zones such as fat burn, cardio, peak), and body time-series (such as body fat-logs and calories).

Fitbit also allows developers to read user's real-time data using Fitbit Web Subscription API. As for Zamanya, it is a framework and in-house developed stand-alone library of algorithms for explanatory time-series prediction. **In this project, we are interested in developing a Fitbit Web API client for Zamanya in Healthcare Analytics.**

Accessing Fitbit API workflow.

- User must have a Fitbit tracker device.
- User is required to create a Fitbit profile.
- Implement a Fitbit Web API client application.
- Application registration: Once the Fitbit API client application is registered at fitbit.com, the Client ID and Client Secret ID are provided to the Fitbit API client application. These two parameters represent the API client credentials.
- The API client application receives user's Access Token and Refresh Token. These two credential parameters authenticate users at fitbit.com to release their data.

Disclaimer and Learning Opportunities: The interns will enhance their programming skills in Python and acquire new knowledge:

1. Get a deep understanding of the FitBit Web API;
2. Develop REST API client;
3. Time-series data for Zamanya;
4. Visualization of clustering and segmentation of real-time Fitbit data.

In this internship, each intern will be closely and constantly mentored to achieve the above objectives. Students need not have prior knowledge about time-series, clustering and segmentation.

Duties/Activities: The interns will design, implement and test the code on real-time data.

Required Skills: Python; PostgresSQL; REST API, Linux (or Mac).

Preferred Intern Academic Level: undergrad / B.Sc.

Expected Team Size: 2 interns (for both front-end and back-end)

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