# Prototype Functionality Description

**TrackStats**

URL: <http://trackstatsk.appspot.com>

GitHub: <https://github.com/miballeuk/trackstats>

# Scripting Demo Prototype Coursework Report

With the dramatic increase of different devices tracking fitness and other daily activities, comes an associated need to analyze the produced data in order to understand the good or bad progress in factors like physical activities, sleep, sports performance and even nutritional habits.

This supported the idea within the group to create an application that shows basic personal statistics for the logged in user, getting data specifically for fitness activities recorded in Google Fit. This application is called **TrackStats**.

From the end-user perspective, the website initially shows a welcome page explaining very quickly the site propose and allowing the user sign-in using its Google credentials. This is a prerequisite to allow it seeing its own data coming from Google Fit.

For logged-in users, TrackStats shows initially a dashboard with a summary of fitness related statistics for the most common factors like total distance, burned calories, average speed, etc., aggregated for the current month. In the same page there’s a calendar view showing a condensed list of activities (sessions) per day, and allowing the end-user selecting one to get more details.

The session details page shows a summary for the particular activity. Additionally it shows a map displaying activity location tracking along with a chart showing complementary measures like speed evolution, distance and altitude.

The previously described functionalities are the designed ones within the scope of this project. However, the architecture allows a consistent and organized application grow offering more data insights, integration with mobile web version or even mobile apps. In the end, easy adapting is one of the most important features an application should have.

# Tools and Techniques

Coordinating a group of seven contributors is a challenging task due to the many activities each person has, lectures, deadlines, as well as different working styles.

From mid-October the team defined a weekly slot to have a sync meeting. Following basic Project Management guidelines, the meeting focused on getting a current status of all project related activities, discuss about priorities and concerns, and define the actions to follow for the next 7 days.

There’s a record of all meeting minutes in a shared notebook as well as additional information about the initially defined project phases: Planning, Development, Test, Deployment and Presentation.

By the end of October the final idea was chosen, assigning at the same time the roles each person will play according to its strengths and interests. Three people focused on the application layer development, three in the front end development and one in project management and supporting the development process of both parts.

Tools

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| --- | --- |
| Team Collaboration | |
| OneNote | Shared notebook for meeting minutes and documentation. |
| Facebook | Group for sharing ideas and general communication |
| Skype for Business | Virtual meetings |
| E-Mail | General communication |
| Development | |
| Notepad++ | Text editor that recognizes many programming languages. |
| PyCharm | IDE for Python |
| Google App Engine Launcher | Application that emulate the GAE locally for development proposes. |
| GitHub | Repository for the app code, deliverables and other general information. |
| Deployment | |
| Google App Engine | Hosting platform managed by Google as part of its cloud offer. |

# Relevant Statistics

Relevant statistics (e.g. lines of code written, plus an assessment of code taken from acknowledged external sources - provide a list giving sources)

# Design and Implementation

TrackStats uses as starting point an existing service that stores and models records from different sensors, called Google Fit. This service is originally designed to work as the backend for a broad range of devices requiring to store the collected data from sensor like GPS location, heartbeat, distance, speed, consumed calories, balances, among others. At the same time, Google Fit provides the collected data to mobile applications or websites with the aim to let its users analyze it and provide insights to improve their wellbeing.

In a way, Google Fit is a low level repository offering a very generic data schema requiring the data consumers to group, aggregate or combine the data at its own convenience. TrackStats then uses its own approach to consume and interpret the data and show it in different views.

TrackStats is therefore a three layer application. It uses Google API as the data provider for both, fitness and user authentication. In the application layer it has a set of REST services built on Python that on demand pull data from Google Fit, transform it and return more meaningful datasets to the front end. This last layer is a web application running on top of Django that at the same time runs in a Google Application Engine environment. Its main role is to render HTML pages that when delivered to the browser, its associated JavaScripts allow the end-user interact with the data by triggering request to the application layer depending on the used features.



# Critical Evaluation

As described previously, making a team of seven people get to an agreement in some aspects is a challenging task. The first evidence of this was defining what the project about will be about.

The whole team had several meetings with brainstorming sessions to define a scenario all team members find interesting and feasible within the coursework scope and requirements. It took almost 1 month take a decision and define a draft architecture. On the good side, this helped all team members to know each other better and understand other points of view.