Poster Script

**Introduction**

My project is a gamified smartphone app that aims to encourage students to eat healthy, with an emphasis on them cutting down on their sugar consumption. The idea was brought about when researching unhealthy behaviour amongst students, and then finding out that sugar has an adverse effect on health and weight

**Gamification**

I also delved into the theory of gamification as it was known to be an effective way of improving healthy behaviour, according to researchers. Having studied a number of papers and apps utilising gamification techniques, I found that self-monitoring, feedback, and goal-setting were the three most prevalent techniques used, so these would be present in my app, as a result.

**Gamification in app**

The app is developed in Android, using the Android Studio IDE. Let me show you how gamification is incorporated within the app.

In the app, gamification takes a number of forms. The goals can be set by going to the Goals activity under Settings. Here, users can set themselves daily and weekly goals. If a user achieves a goal, they will receive 5 points, if they fail to achieve a goal, they will be deducted five points

Another technique is feedback, this is where popups appear to the user when they have done something bad, or good. SHOW EXAMPLES

**The free-throw game**

Users gain points if they add foods to their diary, reach certain goals, log foods for several days, etc. Another way I felt that gamification could be tested was by adding a game to the app. This was a simple free-throw game, developed by someone else under a creative commons licence. Users would only be allowed to play the game if they had points / logged foods for that day. This would encourage users to log the foods they are eating, and therefore induce a level of self-monitoring.

**Food Database API**

It utilises an online food database powered by the Nutritonix API – this is a basic API in which food items and their content sit as an array of JSON objects on a webpage. I used the Google Volley library to make HTTP requests to this URL and then parsed the JSON object into an array list and returned the results to the app – thereby allowing the items and contents to exist

**SQLite Database**

The app incorporates an SQLite database, which is used to store User information and the food they eat in a diary.

An issue with the Nutritionix API is that it limits the number of API calls an account is allowed per day (only 250 item views and 5000 searches). It allows 5000 searches, but only 250 views of the food’s nutritional content. I found this would be fine for one user, but would prove to be an issue when it came to doing the user studies. As a result, I decided to cache the data using the local SQLite database I created, so whenever a user added a food to their diary, it would be added to the local database, so that whenever this food was added again, it would not count as an API call

**The server**

At this point, I realised I had enough time to incorporate some elements of machine learning to my app. However, as the database was local to each device, I had no way of knowing who was using the app, what they had logged, etc.

Therefore, I decided to create a server using the XAMPP Server client, and create a MySQL database which could be accessed from a particular URL. Turned my desktop computer into a static IP address, having to block windows firewall and changing my router so that any requests on Port 80 would go through this computer. Then, created a dynamic domain name, which would change whenever my IP changed. Go to sugarthrow.hopto.org/

**Logging in and signing up**

The server was used on a number of facets within the app. When a user signed up for an account, it would use the server to determine whether someone with that user name existed. The server was also used to sync the user’s data with the online database – go to Settings > Sync. Information was inserted to the online database using php scripts, Subsequently, the amount of each food for each user sat inside the contents table of the online database.

User studies

Project had an overall objective of measuring the effectiveness of the app in encouraging healthy behaviour, which was then split up into several sub-objectives:

1. LIST OF OBJECTIVES HERE

Machine Learning

Hand outs

* Phone
* Database schema
* PHP scripts
* App screenshots
* Machine learning equation
* User study results?