Department of Computer Science

Student Number	1513449	Supervisor	Ms Annette Payne
Programme	Computer Science	Specialism	Software Engineering
Provisional Title	System guiding what NOT to eat-based on individual Health factors.		

Problem Definition

One in four British adults is obese, according to the UN Food and Agriculture Organisation, prompting fears that the UK has become the **"fat man of Europe"**. Obesity, Diabetes, Gout, Tension, Hypertension are some examples of side effects caused by eating food products that are harmful for your body and not eating what is necessary.

For ex. If your body has 92 heartrates, high sugar, low salt, then you should not be eating much Rice. If a user has type 1 diabetes, **he should not be eating** sweets/items with high amount of sugar. If a person has less vitamins, proteins, high cholesterol, low sugar, then presents systems are not very effective in guiding them what not to eat on a collective basis.

Another part of the problem is Obesity. **Obesity** develop over time when you take in more **Calories** than you use which is one factor. Some other factors are cholesterol, proteins and fat. At present if you type in google "What not to eat if you have diabetes and high blood pressure", it will list a several number of items. But will you be able to do this daily each & every time before eating? No!

In today's era uncertainty/lack of knowledge is a big problem and not everyone has the money to hire a private consultant to guide them what not to eat. http://digital.nhs.uk/catalogue/PUB30113 shows analysis of diverse effects of food on health.

Aims and Objectives

The aim of my project is to make difference in the lives of people by developing an android application which creates an awareness among individuals for what NOT to eat based on one's health factors.

- The android application should take in the values of health factors** as input and the system using Java/AI should filter and display a list of items unhealthy for that individual's health.

- The aim of the android application will be improving an individual's health by guiding him what is harmful for his body and thus bringing his health back to normal.

- Creating a UI which takes all the values in one screen as input simplifying the procedure.

- Automate a graph developed monthly showing improvement in an individual's health.

**- Protein count, heartrates, blood pressure, carbohydrate count, calories, sugar, hemoglobin are some important factors contributing to human health.

Background Sources

(a) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551352/NDNS_Y5_6_UK_Main_Text.pdf NDNS UK analysis shows the consumption of food items resulting in obesity as per source B.

(b) http://digital.nhs.uk/catalogue/PUB30113 shows analysis of diverse effects of food on health.

(c) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/551352/NDNS_Y5_6_UK_Main_Text.pdf The findings for the NDNS RP Years 5 and 6 (combined) are compared with the UK recommendations for food and nutrient intakes. Current UK recommendations for consumption of fruit and vegetables, red and processed meat and oily fish are shown in table A.

(d) Other systems/website/medium which guides/shows what NOT to eat is when you enter a particular condition and not based on your health as an individual.

(e) This android application will I believe make a difference in the lives of people solving a lot of problems moreover preventing them.

Approach

To develop the android application, a prototype will be a good mediator to explain and justify the use-cases. I will start engineering my prototype by choosing the Star Lifecycle (by **Hartson and Hix (1989)**) following the UCD (User-Centred Design) approach.

To design the "Home" page and display screen, I will use the "**Wireframing**" method and the pencil and paper design will be then imported into high-end prototype using graphics.
Once the Prototype and UI/Front-end are aligned I will start implementing it in the Back-end using

Agile Methodology strictly following the **Software Development Life Cycle**.
An ethics approval formal agreement/Feedback form will be prepared within the application to take user approval for processing data and moving on towards evaluation.

Evaluation

Primary evaluation will be done on the basis of functionality. Does it work as it was supposed to be? How accurate is the item list displayed on the screen? Is the system generic/universal? How is it better than present systems/applications/google?

The secondary evaluation will be done by carrying out a survey in a fitness centre and demonstrating the application to real time users asking them their opinion and feeling after using the app. Finally a graph will be prepared on the basis of user reviews.

Since the difference in an individual's health using the app vs one not using takes time and research, the basis of evaluation will be reviews from diet consultants verifying the accuracy and functionality.