School of Computing

CA326 Year 3 Project Proposal Form

SECTION A

Project Title: Phaze

Student 1 Name Kevin Bortas ID Number 18424396

Student 2 Name: Kevin Cogan ID Number 18421694

(A third team member is exceptional and requires detailed justification.)

Staff Member Consulted: Mark Roantree

Description:

Our idea is to create a mobile phone dieting application for Android OS, similar to MyFitnessPal, that keeps track of the user's daily calorie intake. However, instead of manually searching and typing your meals eaten, users will be able to take photos of their meals. Our application will use an open source computer vision software along with a machine learning algorithm to detect which food item is in the picture. It will send the result out to a food database and return its nutritional information. The nutritional information will be processed and retrieved from the cloud and stored on the user's phone, which will allow them to keep track of their daily caloric intake, protein intake, etc. This information will be visually represented on a graph for the user to track their progress over a period of time (daily, weekly or monthly).

We also plan to add additional features to our dieting app such as:

- An onboarding process that evaluates the user's fitness and nutritional needs such as if they would like to lose weight or gain weight. This allows our user to tailor the app to enable them to achieve their specific goals.
- A step counter that monitors the amount of calories burned from their total steps taken.
- An Interval timer for home workouts/estimates the calories burnt.
- Notifications informing the user how many calories they have left to consume for that particular day.

Division of Work:

1. Kevin Bortas will work on the application development and user interface
2. Kevin Cogan will be dealing with setting up of the cloud database and the sending and receiving information to the user when information is requested.
3. Kevin Cogan and Kevin Bortas will both be involved with the implementation of the food recognition API and machine learning.

Programming Languages:

1. **Python OpenCV:** A computer vision library to identify and recognise the food.
2. **Python Keras/Tensorflow:** to create a deep learning for the identification of the food products.
3. **Java:** Used for the development of the android app in Android studios.
4. **MySQL:** For the retrieval of the food data from the cloud database.
5. **Javascript REACT:** This will be used for the connection between the application and The cloud.

Programming Tools:

1. **Microsoft/AWS SQL Cloud Database:** Access to The cloud to store the information of all the foods.
2. **Android Studio**
3. **Database:** Food Database API.

Learning Challenges:

1. Neither Kevin Bortas and Kevin Cogan have any experience using machine learning and deep learning.
2. We have never set up a database and used cloud computing before.

Software/Hardware:

1. Linux/MacOS for development purposes.
2. Cloud database stores food nutrition information
3. Camera
4. Mobile phone running Android OS