CS486C – Senior Capstone Design in Computer Science
Project Description

Project Title: Healthy Lifestyle Coach	
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Project Overview:

1. Healthy Lifestyle Promotion Tool

Healthy lifestyle behaviors place emphasis as an important characteristic in health promotion and to prevent diseases. Individuals who practice healthy lifestyle behaviors in the early stage of life can withstand health risks in later life. In addition to regular exercise, sleep health, and beneficial eating habits, research has also recently indicated an importance on social well-being, including the perception of others. While a number of methods exist for tracking and promoting health (i.e., smartwatches, virtual coaches, wellbeing apps), no known app includes the important components of social health amongst youth. Treating these holistically is potentially a key to success in all dimensions of a healthy lifestyle.

This project aims to bring together the leading practices of measuring and promoting healthy habits through a progressive web app (PWA) that asks users to check in about their physical and social health daily and coaches them using research-informed techniques to maintain and improve their health. It follows the trend of tracking associated activities with self-reported states of health and should provide evidence-based coaching at a basic level for sufficient physical activity on a daily basis. The capstone team is welcome to introduce innovation in how social and physical health questions are asked in consultation with our team. In particular, elements of gamification and virtual interaction with the self-report data and coaching information from a Generation Z perspective.

We are particularly interested in the self-reported data as researchers as it allows for the investigation of relationships of how social and physical health are related. to allow researchers how perceptions of such interactions moderate over time, and are connected to physical health. The development of this project represents a pilot application that extends recent research on how social health is connected to other types of health, and presupposes that mobile devices can be helpful in promoting health for youth.

2. Our team

In the past, we have successfully collaborated with capstone teams on mobile educational apps that include speech practice, augmented reality, and learning from language data. We have experience researching learning in computerized contexts and developing internet-based language learning applications for a wide variety of learners. In addition, this is a continuing project in that some initial version of this program has been developed. However, it requires lots of improvements including account Avatar, gamification features, UI/UX Improvement, etc.

3. Current solutions for promoting healthy lifestyles

- There are numerous health-centric apps built into operating systems and available for additional downloads, however almost none of these include a component of social health.

- Few apps target adolescent participants.
- Current apps that offer 'coaching' can provide a model to work from for the current project.
- Apps that can have SMS/Push notifications
- Apps that can have functions of task manager/to-do list

4. **Solution overview**

We envision a progressive web app optimized for mobile devices that allows a simple interface for:

- Notifications and reminders to check in on a daily schedule set by the admin (partially implemented).
- Simplified and visually engaging question answering screen (partially implemented).
- Virtual coaching presented in an engaging manner for the Gen Z audience (new)
- Strategic gamification (i.e., rewards for app engagement and positive trends; not socially-motivated) (new)
- The ability to frame a Qualtrics survey for actual data collection in a secure environment (new).
- Account Avatar (new)
- Improve the gamification features overall (new)
- UI/UX Improvement (new)
- Transition into a mobile app or make mobile device friendly (new)
- SMS/Push Notifications (new)
- Task manager/To-do list (new)

The solution should also have an administrative login capacity that allows for the management of users, tasks, questions, reminders, and frequency. The actual questions and coaching content will be gathered from empirically-driven guides in collaboration with the research team.

We can also envision two stretch goals:
- Links to research-informed health promotion materials.
- Adaptive coaching based on the responses to previous questions.

5. **Impact of successful product**

The project would allow us to distribute this as a coaching tool to leaners, teachers, and researchers as a free and beneficial tool for tracking and improving physical and social health. In particular, the product could help pave the way for increasing the health in the target population (i.e., Gen Z), and propose novel methods for productive virtual coaching for a healthy lifestyle.

Knowledge, skills, and expertise required for this project:

- Familiarity with app development and deployment, in particular progressive web apps.
- Programming ability for web apps.

Equipment Requirements:

- There should be no equipment or software required other than a development platform and software/tools freely available online.
- As we would like the web app to be mobile-friendly, no app store developer accounts will be necessary.

Software and other Deliverables:

- A healthy lifestyle progressive web app that is mobile-compatible
- A strong as-built report detailing the design and implementation of the product in a complete, clear and professional manner. This document should provide a strong basis for future development of the product.
- Complete professionally-documented codebase, delivered both as a repository in GitHub, BitBucket, or some other version control repository; and as a physical archive on a USB drive.