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Department of Electrical,
Computer, & Biomedical Engineering
Faculty of Engineering & Architectural Science

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CPS888 Software Engineering
Winter 2021

Term Project: Proposal

February 3, 2021

1 Tasks

1.1 Task 1 – Problem Statement & Informal Requirements Description

Amidst the global pandemic, isolation has brought an increased emphasis on mental health as people are limited to staying indoors and required to limit social interaction. According to a recent study done by CTV, about 16% of Canadians said their mental health is worse or somewhat worse according to 24% of people than it was in April during the beginning of the pandemic. [1] Our proposed solution is an online journal system for users to track their feelings. This is an alternative to a therapist which is expensive for the average person and will serve as a mental health monitoring system.

The online journaling system will serve as a means to connect users to mental health resources ranging from self-help to professional one-on-one therapy consultations. In order to use the application, new users are required to sign up or sign in if they have a registered account. Some features of the online journal system include a homepage with options for motivation, anxiety, health issues, self-esteem and stress.

Next, the website would have a dedicated location of journal entries the user entered similar to an online drawer of journal entries. Due to the nature of the application and ensuring that the users only track the necessary information relating to their feelings that day, a constraint on the journal entry would be a limit of 250 words. This way users can only record the important aspects of their day and discard routine activities such as brushing teeth and eating breakfast. Users can access their previous journal entries arranged chronologically by dd/mm/yyyy. These journal entries would have a user selected sentiment based on the emotion sad, happy, angry and excited. The indicated sentiment data would be used to provide the most appropriate recommendations or tips that would help the user.

Moreover, Stats Canada research done in 2020 showed that regardless of age, gender, or ethnicity, changes in mental health and emotions increased compared to the past year statistics [2]. Due to the breadth of people that mental health affects, it is best to keep the target audience to everyone in order to cater to different kinds of users. This would allow the application to cover a larger user base and to be able to reach more users, rather than limiting the scope of the application to a select few.

In addition, one of the most important features of the application would include a “Self Care” area, where the user would be able to track their feelings and access recommended mental health resources. This can include, but is not limited to: Quotes of the day, posts on a bulletin-board/dashboard and access to free mental resources such as the Kids Help Phone hotline,

Good2Talk, BounceBack therapy etc. This would allow the user to reach out to services that they may not have been aware of, and would help provide immediate services.

If the user decides that the “self help” features of the web-app are not sufficient, then they would have the ability to request the advice of professional therapists facilitated through the “Paid Services” section. Financial transactions will be initialized by the web-app and executed by a third party e-commerce solution such as PayPal. Licensed therapists can advertise their services by posting a short biography about themselves and their rates. Users can sift through and select an appropriate therapist, with whom they can book one-on-one therapy sessions. During the one-on-one consultations, the therapists can provide professional diagnosis and treatment options to the individuals.

Many studies have shown that people with a positive and healthy state of mind are highly productive and produce more quality work [4]. The application will be incorporated into different working environments such as corporate companies, schools, hospitals etc. The conditions of people's mental health can all be monitored from the web-app, allowing for actions or help to be provided. In a corporate setting this would allow Human Resources (HR) to intervene and assist the individual. Thus, allowing the mentally-ill person to feel better, focus more on their work, and provide a positive contribution to the team/workplace. In a school setting users such as high school students would be able to record their thoughts, and if negative or if help is needed, guidance counsellors would be able to step in and help the student. The user would be able to login via company credentials (student login, or workplace email/password). Upon registration, the user can have their choice of entries to either be public or private to HR. This will allow or prevent HR from viewing entries made, and provide assistance if needed.

The addition of an SOS emergency helpline feature will give users access to a list of emergency toll-free hotlines they can call. In case of a mental health crisis, the web-app will provide a free to use 24/7 on-call paramedic service. This will act like a final resort suicide prevention service, where the instantiation of this service will be provided by an easy to access emergency button in the journaling section of the application.

1.2 Task 2 – Team Information

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1.3 Task 3 – Process Information

Due to the foreseen linear nature of the project, the Waterfall model [2] is selected for the forthcoming reasons. First, the deliverables are easy to estimate at each stage. Second, the Waterfall model is free of execution ambiguity. Since the customer is the developer in this instance, there will be no confusion in regards to the direction of project development. Consequently, the project developers will execute their vision right from the initial requirements stage, negating the customer's involvement and thus the need for continuous modifications. As the process name Waterfall implies, each development phase is laid out sequentially. This provides a rigid structure of stages that will enable a better division, management and execution of tasks amongst group members throughout the duration of the project. This is especially true, as each member is working on their own section of the project at home due to the COVID-19 pandemic and group collaboration is difficult.

Development processes that feature more Agile oriented methodologies were not selected for the following reasons. Since there is no customer with changing requirements to please, there is no reason to use a flexible approach, which is the primary advantage of Agile design processes. Furthermore, a more Iterative Development process may in fact add nonessential complexity to the project as iterative development by nature is more difficult to manage. This is due to the fact that the development process isn't as visible as Planning oriented process management models such as the Waterfall model. This is important, because there is limited time to organize and develop the project and consequently any iterative tasks could cause organizational problems amongst the development team, thus delaying completion of the product.

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