

Lab 1 - Not E-Lone Product Description

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1. Introduction

The number of cases in young adults possessing depression or anxiety are becoming more and more common. Young adults are consistently put under pressure, whether it be academically related or their own personal life, there are plenty of new tests that they are put up to each day. In most cases, this causes immense stress. Stress can cause a multitude of different side effects, including: high pressure, weakened immune systems, obesity, heart disease, or anxiety and depression disorders (APA). Anxiety and depression can drain the motivation of young adults, which can cause them to fail completing their daily activities, which can lead to further demotivation.

A means of organization can provide stress relief and motivation, which can do wonders for those young adults who possess anxiety or depression. Anxiety within this target audience frequently stems from a sense of overwhelmingness due to an abundance of tasks, most often pertaining to school. Conventional mental health solutions that exist today are fairly expensive, and can be unaffordable for a high percentage of young adults, and it could demand even more time they do not have. Young adults who have busy schedules may struggle to stay organized and complete their necessary daily tasks, let alone have time to spare for professional help. Struggling to complete tasks within a daily routine repeatedly can continuously accumulate an even larger list of “to-dos” for young adults to complete. These can worsen the symptoms of anxiety and depression. Younger adults can begin to struggle to do anything at all, and figuring out where to start can become overwhelming.

Young adults are infamous for becoming addicted to technology, smartphones, and other mobile devices. Not E-Lone is an application that will serve as a gateway for assisting young

adults in taking back control of their life. While there are other applications like Not E-Lone in existence, there are none quite like it. It takes a new approach by adding game-like qualities with stories and quests to an application based around aiding those with depression and anxiety, as well as combining them with important journaling and scheduling features. There are other applications which also attempt to aid with depression and anxiety that have similar features, however, none of them contain a cohesive form of each aid that Not E-Lone offers. SuperBetter has game mechanics and challenges with a progress calendar/schedule (which is our closest competitor), and some other applications such as Fabulous and Habitica also track progress/habits through a schedule much like SuperBetter. These other applications have some good qualities, but Not E-Lone offers many more resources for those in need on top of what the competition offers. Including: daily motivational quotes written by fellow users, stories providing reconceptualization, and journaling.

To start, Not E-Lone comes with a feature titled “Note-Passing.” Young people who are anxious or depressed will be encouraged by our application to send brief, anonymous messages to other users who have been chosen at random. These messages will provide words of motivation to others who are going through similar struggles, as well as assist the user in writing them by helping them help others, which has been known to lessen sadness and anxiety symptoms. The intention is also that young adults who receive these messages will become increasingly motivated by these consistent words of encouragement. Another common form of self-help victims of depression or anxiety utilize is that of journaling. Not E-Lone will have a journaling feature that will allow users to write about different topics at least once a day. Users will be encouraged to use the journal as a form of self expression and a place to vent.

Not E-Lone also offers a unique take on the planner/calendar. Users will be able to access and utilize a calendar in the same way as your standard calendar would. Allowing them to add, edit and delete events from their calendar. However, our planner is going to have a Schedule Building algorithm revolving around machine learning. By giving consumers access to a rapid schedule-builder, our application will simplify task management more and more over time. As the calendar feature is used, specific user data is collected, and the application will begin suggesting new events to the user. These can be events revolving around productivity, or relaxing. Users are allowed to both opt in and out of this experience. On top of our schedule building feature, Not E-Lone also offers First Step. With this feature, young adults will be given step-by-step templates for complicated challenges they may face, which will help them isolate and concentrate on finishing one step within a task at a time. At the end of the day, young adults will be able to view a list of accomplishments they have completed. This will lead to a heightened sense of accomplishment, and leave the consumer feeling proud of how productive they were throughout the day.

The last aspect of the application is the aforementioned reconceptualization feature. This stems from another technique therapists employ to help their patients, entailing presenting a person with an alternative way of thinking. With these stories, users will find parables and analysis from several schools of thinking within Not E-Lone. Within the next section, we will discuss the specifics of these features.

2. Not E-Lone Product Description

Not E-Lone is a mobile application that provides guidance through different methods of self-help. Its goal is to guide young adults, with specific individual experiences, through

developing time management skills, journaling, and advice. This will be done primarily through machine learning algorithms that give recommendations to users to help encourage application interaction, presented with game-like features. Some of these features include sprite avatar creation, and a reward system that's similar to more basic, older video games.

2.1 Key Product Features and Capabilities

As previously mentioned, Not E-Lone will offer a compilation of many features that other applications offer, but with a twist. Each task/milestone completed within a user's planner will give them experience points. The more consecutive tasks completed, the higher their experience multiplier becomes, earning more experience for each task than before. With these level ups, it allows the users to engage in a friendly act of competition within themselves to keep their streak going. On top of potentially completing their tasks, users can opt in to complete quests to further their progression, these quests are the face of our schedule building algorithm we utilize to add events to user's schedule to heighten their productivity for the day. Including exercise, extra study time, cleaning, house-hold chores, etc. There is a risk that such a feature can become counterproductive by making the young adult feel more stress and pressure to upkeep the streak, however over time, one of the game rewards that will be implemented is going to be the "pass on this quest" voucher.

When opening the application, users will be greeted with a main menu, and will have four different buttons. The Philosophy button (which is our reconceptualization feature), the journal, the planner, and the note-passing button. Starting with the note-passing, the note passing feature allows users to send inspirational/happy messages to one another. To avoid this being used maliciously, the application will give users a pool of words to choose from in order to prevent vulgarity and harmful verbiage. Keeping the main focus on helping each other up instead

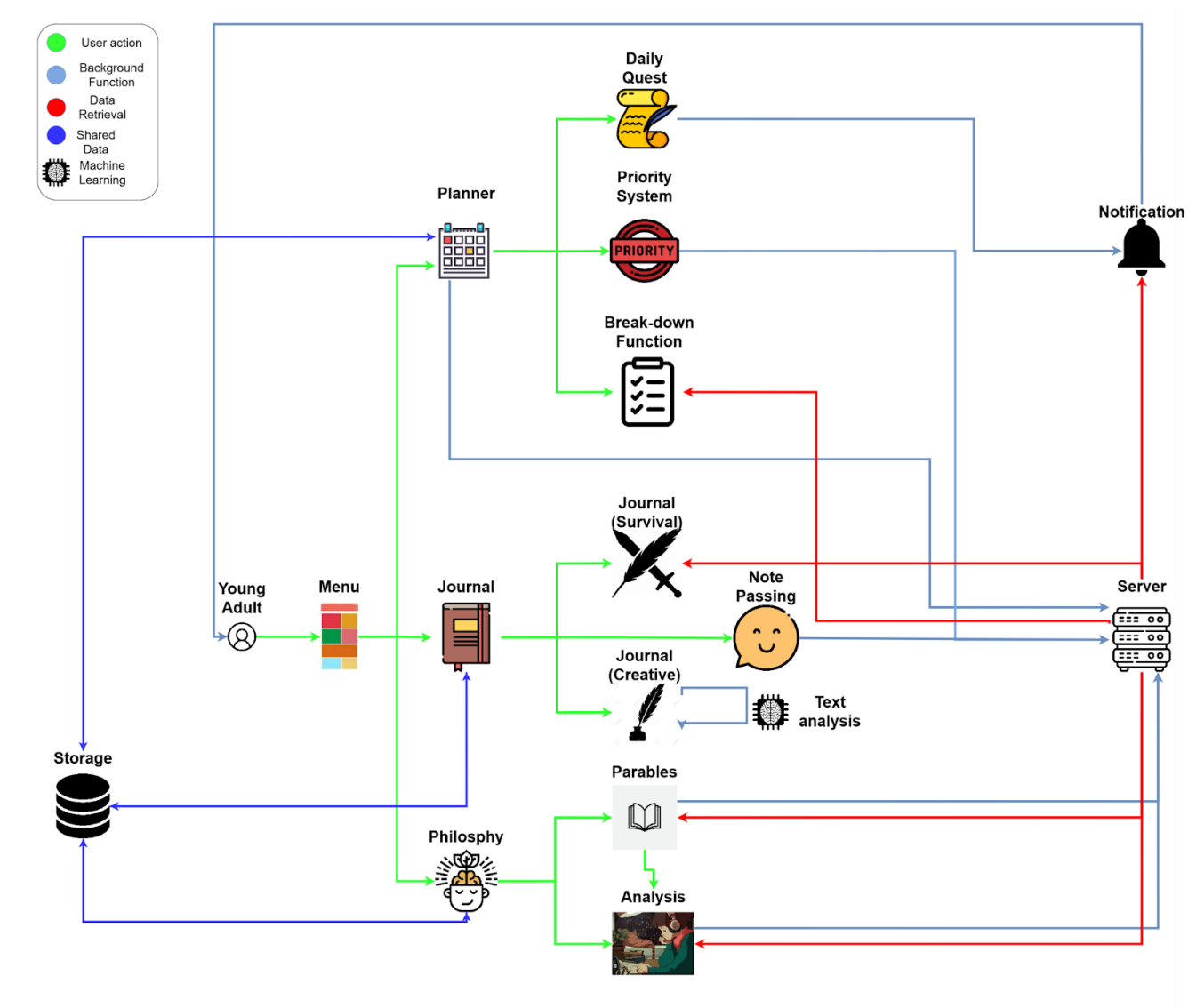
of kicking them down. The journaling screen will allow thoughts and experiences to be recorded and discussed throughout the day, and will allow users to add/edit/delete entries. Our philosophy tab will provide parables and insights to the stories. These insights will widen the perspective of the young adult, inspiring them to think differently and become more open minded. This will also provide story based writing prompts for the journal elaborating on these new perspectives. As for the planner, we have a schedule machine learning algorithm in place used to evaluate data input into the journal/planner to suggest new activities to be added to their schedule. The planner will allow consumers to add and delete events (both that were procedurally generated and user-created), intending to create a routing. Based on preferences, the user may potentially algorithmically generated events placed into their calendar. Once again, the user can opt out of this completely.

2.2 Major Components (Hardware/Software)

Not E-Lone is a mobile application, and will be compatible on Android and iPhone operating systems. The application will contain algorithms, databases, front-end, and back-end development. A complete breakdown of Not E-Lone's application can be seen below in Figure 1, outlining all of the aforementioned qualities plus a few more.

Figure 1

Not E-Lone Major Functional Component Diagram



The GUI and back-end development is going to be done in Java. This is the most common and efficient mobile application high-level language available, so this is the one that will be utilized. We have two specific libraries that will be used, the first being Java-ML for the machine learning portion of our planner. The second library used is our Java.net*, intended to be used to communicate over the network to our servers. For the databases, our developers will be using SQL.

Not E-Lone is also going to be utilizing plenty of 3rd party software for the development process. For the testing and building of our program, due to the language choice being Java, Gradle is going to be implemented. To manage the databases and servers, MySQL is going to be used. Our development is going to take place on one of two IDEs (depends on the developers preferences): Eclipse or Atom. These IDEs are preferred as they are easily compatible and usable with GitHub. GitHub is going to be used for its repository and version control features. For overall project and sprint management, Not E-Lone will be planned on Trello to coordinate development sprints.

3. Identification of Case Study

Not E-Lone main community base is intended to be young adults, specifically between the ages of 18 and 25. During this time period, there are a lot of changes going on that can easily become overwhelming for any young individual. Ranging from completion of high school, beginning college, moving out, getting a first “career” job, and learning how to live on your own as a productive member of society. Additional consumers can include the family members, friends, and colleagues of young adults.

This mobile application will be used for a few primary reasons. Its main intent is to provide helpful tools that help young adults manage depression and anxiety. This includes multiple features such as the note-passing for inspiration, journaling as an emotional outlet, and our planner with an included machine based learning algorithm to encourage productivity and provide a sense of accomplishment. Consistently using the application will build healthy habits and practices over time, as the idea is eventually the consumer will no longer have to rely on Not E-Lone as a crutch. The purpose of this application is not for the consumer to become dependent, but to be used as a tool to build themselves up and learn how to be organized as an adult.

Not E-Lone could also potentially aid not only young adults, but those adults who were never given the chance to build and develop the healthy habits that Not E-Lone assists with. Mental health specialists can also utilize the application as they can learn new techniques or gather inspiration from what the application offers for new techniques to implement into their practice. Not E-Lone could also potentially aid colleges/universities. Academic institutions can widely encourage the use of the application, which will increase the happiness and mental state of their students in the long run.

4. Not E-Lone Product Prototype Description

4.1 Prototype Architecture (Hardware/Software)

4.1.1 Hardware

4.1.2 Software

4.2 Prototype Features and Capabilities

4.3 Prototype Development Challenges

5. Glossary

Android: Mobile operating system.

Amazon RDS: Cloud-based Amazon relational database service.

Creative Mode: A gameplay mode within the journaling feature that allows the young adult to express their thoughts.

Daily Quest: An objective provided to the young adult to encourage continuous use of Not-Elone and its activities.

Depression: A mood disorder that causes a persistent feeling of sadness and loss of interest

Database: An organized collection of data stored and accessed electronically

Eclipse: an integrated development environment used in computer programming

First Step: A Not-Elone activity that allows a young adult to focus on a single goal.

Gitlab: Provides version control and repository for software development projects.

Gradle: An open-source build automation tool that is designed to be flexible enough to build almost any type of software.

GUI: Graphical user interface.

IDE: Integrated development environment.

Java: High level object oriented programming language

Java-ML: Java Machine Learning Library

Java.net*: Java package used for communicating with networks through URLs.

Journaling: A Not-Elone activity where the young adult will be able to type their thoughts and feelings.

Machine Learning: Artificial Intelligence designed to solve problems in a similar way to how humans solve problems.

MySQL: IDE for database coding in SQL.

Note Passing: A Not-Elone activity where the young adult is able to write a message of support to another young adult.

Notification System: A system based on preferences that push certain notifications to the mobile device

Parable: A simple story used to illustrate a moral or spiritual lesson, as told by Jesus in the Gospels

Planner: A Not-Elone activity that allows a young adult to plan their day.

Priority System: Method used to determine what events you can and can't skip out on, used both for recommendations and the user.

Reconceptualization: conceptualizing a topic in a new or different way

Survival Mode: A gameplay mode within the journaling feature that gives a writing prompt to the user.

Stress: A feeling of emotional tension.

SQL: Structured Query Language, a programming language made for manipulating databases.

Trello: A collaborative project management tool.

User: Young adult experiencing feelings of depression, stress, or anxiety.

User Interface: An interface that allows the user to interact with the software.

Young Adult: A person between the ages 18 to 25

6. References

- [1] S. H. Adams, J. P. Schaub, J. M. Nagata, M. J. Park, C. D. Brindis, and C. E. Irwin, "Young adult anxiety or depressive symptoms and mental health service utilization during the COVID-19 pandemic," *Journal of Adolescent Health*, vol. 70, no. 6, pp. 985–988, 2022.
- [2] "How to help children and teens manage their stress," *American Psychological Association*. [Online]. Available: <https://www.apa.org/topics/child-development/stress#:~:text=Prolonged%20stress%20can%20cause%20high,becoming%20more%20common%20in%20youth>. [Accessed: 22-Sep-2022].
- [3] "I'm so stressed out! fact sheet," *National Institute of Mental Health*. [Online]. Available: <https://www.nimh.nih.gov/health/publications/so-stressed-out-fact-sheet#pub3>. [Accessed: 22-Sep-2022].
- [4] Beck, Arne, et al. "Severity of Depression and Magnitude of Productivity Loss." *Annals of Family Medicine*, American Academy of Family Physicians, 2011, <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3133577/>.
- [5] T. M. Erickson, M. T. Granillo, J. Crocker, J. L. Abelson, H. E. Reas, and C. M. Quach, "Compassionate and self-image goals as interpersonal maintenance factors in clinical depression and anxiety," *Journal of Clinical Psychology*, vol. 74, no. 4, pp. 608–625, 2017.
- [6] K. M. Chan and K. Horneffer, "Emotional expression and psychological symptoms: A

comparison of writing and drawing,” *The Arts in Psychotherapy*, vol. 33, no. 1, pp. 26–36, 2006.

- [7] E. J. Masicampo and R. F. Baumeister, “Consider it done! plan making can eliminate the cognitive effects of unfulfilled goals.,” *Journal of Personality and Social Psychology*, vol. 101, no. 4, pp. 667–683, 2011.
- [8] R. J. Gatchel and K. H. Rollings, “Evidence-informed management of chronic low back pain with cognitive behavioral therapy,” *The spine journal : official journal of the North American Spine Society*, 2008. [Online]. Available: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3237294/>. [Accessed: 30-Sep-2022].