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, 2019). 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 (APA, 2019). Younger adults can begin to struggle to do anything at all, and figuring out where to start can become overwhelming. Not E-Lone offers many more resources for those in need, including: daily motivational quotes written by fellow users, stories

providing reconceptualization, and journaling. Not E-Lone is an application that will serve as a

gateway for assisting young adults in taking back control of their life.

2.   Not E-Lone Product Description

While there are other mobile applications similar to Not E-Lone in existence, there are

none quite like it. It takes a new approach by adding game-like qualities with stories and quest

progression to an application based around aiding those with depression and anxiety, as well as

combining them with other important features. Not E-Lone 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

Not E-Lone will offer a compilation of many features that intend to aid the user. When

opening the application, users will be greeted with a main menu, and will have four different

buttons. Beginning with our note-passing feature.

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. The next feature the user would then be

greeted with is our journaling feature. Not E-Lone's journaling feature 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 planner/calendar. Users will be able to access and use a calendar

in the same way as a standard calendar would, allowing them to add, edit and delete events from

their calendar. The more tasks that are completed, the more experience they earn toward their

account progression. When tasks are completed consecutively, an experience multiplier

accumulates which encourages the user to continue their streak. There is a risk that such a feature

can become counterproductive over time, and put more stress on the young adult to upkeep their

streak. The user will be periodically rewarded "pass on this quest" vouchers that will be

implemented into the game system, allowing them to take breaks when needed.

Next, is the First Step feature. 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

presents a person with an alternative way of thinking. Users are given new stories and parables

they may not have heard of before. Widening their perspective on certain topics of life or mental

health, allowing them to become more educated and open minded. This feature will also provide

story based writing prompts for the journal so that way the young adult can elaborate and explore these new perspectives.

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
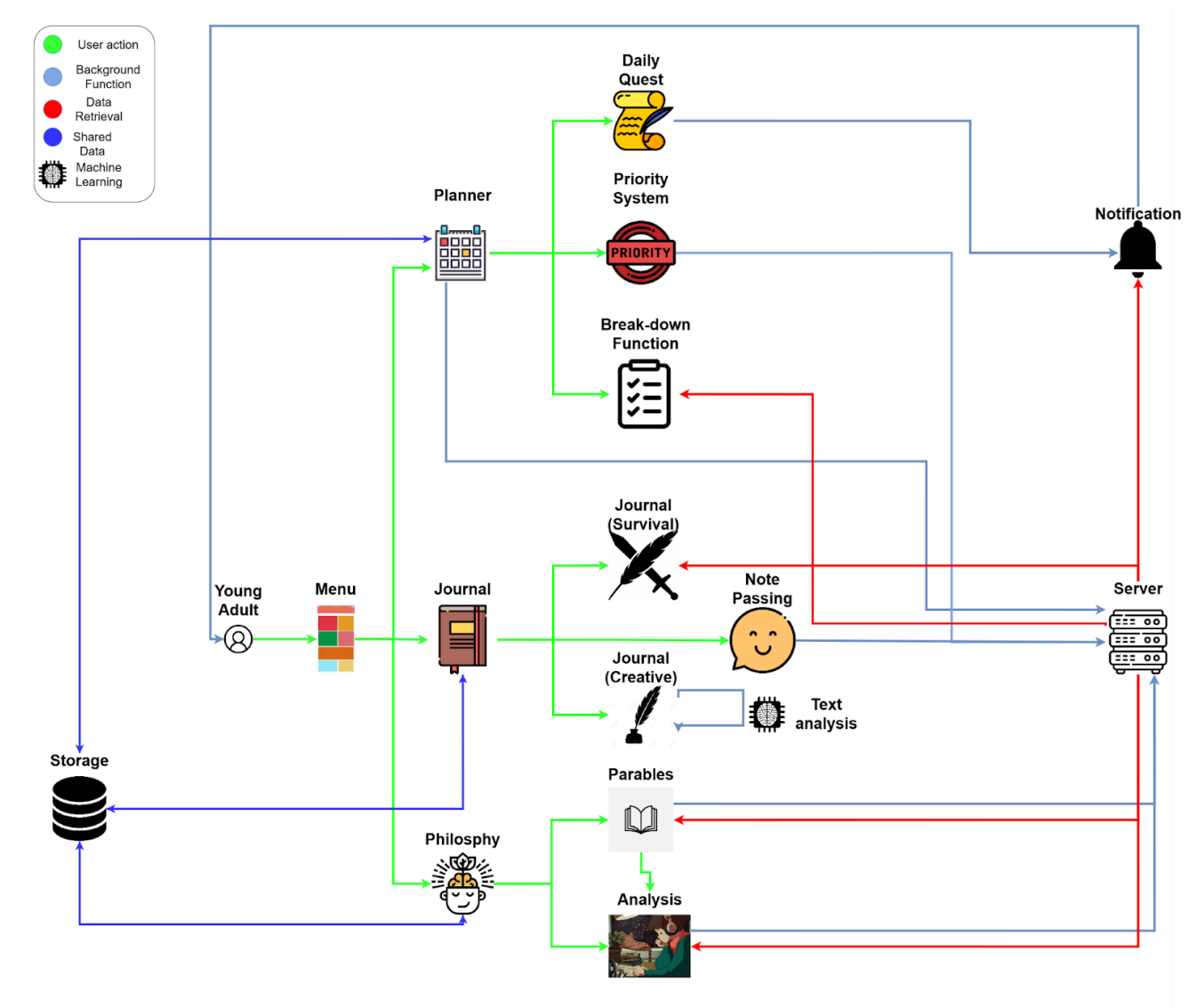
The GUI and back-end development is going to be done in Java. This is the most common and efficient mobile application high-level language available, so this is the one that will be utilized. We have two specific libraries that will be used, the first being Java-ML for the machine learning portion of 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 used. 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 reasons. Its main intent is to provide helpful tools that help young adults manage depression and anxiety. 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)

The initial prototype is going to be a web application that will serve as a model for a mobile application, any mobile device or computer will be able to access it. Not E-Lone will run on a virtual machine environment which will have multiple docker containers for the prototype. One container is going to be used for a MySQL database server, and the other will be used for our HTTP Apache server. Two containers holding databases are going to be used for user account information and the other for data that the prototype will use, including: stories, journal

prompts, note passing messages, etc. Another container will be used to run Not E-Lones Java

application which uses the Java .net* library mixed with Spring Boot. The application will

control the prompts, stories, messages, etc., are shown to the young adults. To manage all of the

dockers, Docker Compose is going to be implemented.

Since the Not E-Lone prototype is a web application instead of a mobile application,

HTML, CSS, JavaScript are going to be used for the graphical user interface. Within those

languages, the Bootstrap and jQuery libraries will also be used. Two Amazon EC2 instances will

be used for the Apache web server and actual Java application, with two separate Amazon RDS

instances to manage the databases.

4.2 Prototype Features and Capabilities

The Not E-Lone prototype will be complete with a GUI for the following features: Note

passing, journal, First-Step, Planner, Reconceptualization. These activities will be fully

accessible and functional to show the bare minimum of what Not E-Lone's purpose will be. The

web application will also contain GUIs for settings, quests, and notifications. This will allow

some personalization for the young adult's activities and experiences. The prototype will also

provide an initial set of writing prompts, stories, parables, quests, planner templates, and

notifications for the young adult to choose from.

4.3 Prototype Development Challenges

As of right now, there will be a challenge regarding the full stack web development

knowledge of the team. A lot of research will have to be done, especially pertaining to docker

and web server/database functionality.

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

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