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College of Computing

Computer Science Department

CS3141 Team Software Project

Fall 2023

**Flashcard Frenzy**

Section: R01

Team #: 7

|  |  |
| --- | --- |
| Name | Role |
| William Aichner | Scrum master |
| Noah Villringer | Developer |
| Brendan Czekaj | Developer |
| Callen Carrier | Developer |
| Joshua Wardlow | Developer |
| Ryan Sweeney | Developer |

Instructor:

Serein AL-Ratrout

Chapter1

Specification

# **1.1** **Introduction**

**Our project is a flashcard maker designed for students, professionals, and anyone looking for an effective way to memorize vocabulary, concepts (topics in math, science, etc), and even languages. Many people struggle to memorize a vast array of different concepts these days due to a lack of time or a lack of proper repetition. However, our project plans to change that through our carefully thought-out features we intend to implement by the end of the semester. We will incorporate algorithms that will determine which words/vocabulary the user can identify the best versus the worst. The least understood vocabulary will be repeatedly heavily until memorization is obtained, while the more understood vocabulary will still be displayed in order to maintain memorization. This is very important, as the user will still be prompted with all flashcards (to ensure all words are properly understood), and we expect as our result to be that users will achieve true, long-lasting memorization.**

# **1.2 Problem Statement**

**The problem we are attempting to solve is the general lack of mental absorption that people have in relation to remembering vocabulary words due to a severe deficiency of “smart” (aka targeted) repetition in most flashcard software. Many individuals have tried to learn vocabulary using online flashcard makers, but to a severe lack of engaging features and smart algorithm(s) targeted toward advanced flashcard repetition, people simply fail to achieve memorization of words/concepts. Our project will attempt to rectify this issue and bolster vocabulary retention through carefully designed algorithm(s) and fun and engaging minigames. We hope to make our software “unforgettable”.**

# **1.3 Aim and Objectives**

**Aim:**

**The aim of this project is to develop a software application that allows for the creation and practice of flashcards, and to develop a system that implements smart repetition. It will store all the flashcards that the user creates into decks, which are then locally saved on the computer to be accessed at any point in the future.**

**Objectives:**

* **To allow users to create and delete flashcards.**
* **To store flashcards in different decks.**
* **To allow users to practice flashcards.**
* **To register user’s level of memorization with each flashcard.**
* **To enable users to view their progress toward mastery.**
* **To allow users to customize the design of the flashcards.**

# **1.4 Stakeholders**

**The stakeholders in our project include the users, ourselves (the software developers), our future manager that will be assigned to our team, the university, and Dr. Al-Ratrout.**

# **1.5** Methodology

**Our team will be following the SCRUM process model/method for our project activities. SCRUM is an agile software process that is organizational in nature. For the steps involved, our requirements are put into the Project Backlog, and the features associated are the User Stories. In the model below, we have our work time-boxed into 1–4-week sprints (and Sprint Backlog). Then, we develop via increments during said sprints, including daily SCRUM meetings. After that, we review the increment and determine if updates are required, restarting to cycle.**

Scrum model diagram showing how to use scrum to make a scrum diagram scrum diagram scrum diagram scrum diagram scrum diagram scrum diagram scrum diagram scrum diagram scrum

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# **1.6 Tools**

**We will be using our own laptops for hardware, Jira for SCRUM, GitHub for pushing and pulling the project, and C# for coding the project (tentative).**

# **1.7 High-Level Business Requirements**

## **Functional Requirements**

**The system should be able to add flashcards, remove flashcards, create decks of flashcards, view and shuffle decks, save data to local computer, and flip between sides of a flashcard.**

## **Non-functional requirements**

**Color/design of flashcards, algorithm that determines card knowledge, favoriting terms, deck sorting, other studying methods (minigames), security additions, importing flashcards from files (being able to share decks of flashcards with others).**

# **1.8 Product backlog**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Priority** | **User Story** | **Tasks** | **Estimated effort** | **Sprint** |
| \*\*\* | As a user, I want to be able to create, view, and edit my decks of flashcards. | Design and implement deck editing/creation interface. | 1 H | 1 |
| Create a deck. | 3 H |
| Edit an existing deck. | 2 H |
| Show a list of the flashcards in the selected deck. | 2 H |
| Delete an existing deck. | 1 H |
| \*\*\* | As a user, I want to be able to go through each flashcard and guess the other side of it. If I'm given a definition, I want to be able to guess the name and vice versa. | Design and implement "quiz" interface. | 1 H | 2 |
| Shuffling decks and showing each card at least once. | 3 H |
| Reading user's input and checking if it's correct. | 1 H |
| If user's guess is incorrect, increase that card's priority to increase its odds of appearing again. | 4 H |
| When the user is finished quizzing themself, show a percentage of how many correct guesses there were out of incorrect guesses. | 3 H |
| \*\* | As a user, I want to be able to see how often I correctly answer a flashcard, to know how well I've memorized that term. | Design and implement "mastery" interface. | 1 H | 3 |
| Display how many times the cards of the deck were guessed correctly out of the number of incorrect guesses. | 1 H |
| When a specific card is selected, display correct guesses out of incorrect guesses for that specific card. | 2 H |
| \* | As a user, I want to be able to change the appearance of my flashcards. | Design and implement the interface for changing flashcard's appearance | 1 H | 4 |
| Show a list of card design templates for the user to choose from. | 3 H |
| Create drawing board that allows the user to create their own card design. | 6 H |

* 1. **Security Requirements engineering practice(s)**

**Instructed to leave empty for this report.**

# References

Jira Link: <https://flashfrenzy.atlassian.net/jira/your-work>

C# Link: <https://learn.microsoft.com/en-us/dotnet/csharp/>

Slideshows provided by Dr. Al-Ratrout on Canvas.