Software Requirements Specification

for

Alpha Tiles Project: Ethiopia

Version 1.0 approved

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Revision History

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| **Name** | **Date** | **Reason For Changes** | **Version** |
| Bruk Mulatu | 9/20/2022 | Creating original version | 1.0 |
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# Introduction

## Purpose

The product that is covered by this document is “Ethiopia”. It is an interactive language game that is dedicated to helping people in rural areas of the world. This SRS encapsulates the main Java functionality files as well as the XML file that is used to set the format of the game.

## Document Conventions

This font was mostly written in Calibri font with size 11. Any details that are not present within this document are available in the project proposal. Higher level priorities are stated first, and lower level priorities are stated later.

## Intended Audience and Reading Suggestions

The intended audience for this document is for the client and team members. The rest of this SRS contains the description, external interface requirements, and system features. As listed before, is how the SRS is organized plus additional details within each of these sections. A suggested sequence for reading this document is to start with the introduction, then read chronologically through the rest of the document.

## Product Scope

The goal of this game is to allow users to enhance their language skills by giving them a series of blank spaces image and guessing the word based off of the hints given to them. Although there are other guessing games in the Alpha Tiles database, there are none that allow the user to enter the letter in a non-chronological order. Much like the game Wordle, this game will allow the user to enter the entire word and show them their correctness. This will coincide with SIL’s goal of improving people’s literacy and language skills throughout the world.

## References

Alpha Tiles Website: <https://alphatilesapps.org/>

* Used to create prototype design and as a reference for certain features for game.

Alpha Tiles Repository: <https://github.com/AlphaTiles>

* Resource of all downloadable materials that will be used for the Alpha tiles project itself.

# Overall Description

## Product Perspective

This product, named “Ethiopia,” is a follow-on member of a product family. The larger system being the Alpha Tiles game itself. Following the system of other games within the Alpha Tiles app, Ethiopia will be an interactive game that allows users to gradually improve their literacy with skill-based games that gradually increase in difficulty overtime.

## Product Functions

* Functions on Android devices that are being used for testing
* Allows users to enter complete words
* Images display accurately to word
* Color of letter changes based on user input
* Tiles slowly reveal image as more characters are guessed.
* Game keeps count of the number of guesses the user has made.

## User Classes and Characteristics

This project is mainly targeted towards younger children within impoverished countries throughout the world. This means that we are mainly targeting a young audience that does not have much internet access. The design of the game is mostly colorful, and the User Interface is mostly intuitive since the players are assumed not to have great linguistic skills either, so instructions would not be optimal. The game can also be used by other aged groups that are trying to improve their linguistic skills, but they are not the game’s main users, therefore their needs are not prioritized as much.

## Operating Environment

The operating system used for this is windows 10. Also, team members will be using android studio 3.1 as a software system. Team members will be using Discord for communication and GitHub for the repository. The hardware platforms used for this are

## Design and Implementation Constraints

For this product we will be under restrictions on using API 19, when it comes to testing/using the product on an android device. There is a time requirement as the team members are done with their Software Engineering 2 course around the end of November. For this product we will be limited to using Android Studio and the programming language used is Java. The client and their organization will be responsible for maintaining the delivered software.

## User Documentation

As of now there are no known user documents that will be submitted along with the program.

## Assumptions and Dependencies

* In game keyboard design can be replicated for this game
* We are assuming that the user’s input keyboard can be replicated from other games that already exist. If the keyboard is not compatible with the game that we are designing, we will have to create our own system for inputting the characters from the user.
* Images do not have to be formatted for the game
* Preexisting images can be used for our game. If there is an issue with the already existing images, we have to find new ones.
* Players can figure out how the game works.
* The user should need minimal instructions, and the game should be more intuitive. If not, the team will have to create more tutorials for each game, which can be difficult for different languages.

# External Interface Requirements

## User Interfaces

The input of the game will be from an onscreen keyboard. Each level will display a covered image with a series of blank spaces that are meant to display the word that the image represents. Based on whether the letter is within the word or not, the color of the tile will change, and the user will be able to see more and more of the image.

The game is mostly intuitive and not meant to have instructions, but there will be a button that has very basic instructions just in case the user is having trouble. There will be a back button to let the user return to the main screen. There will also be a list of circles that are on the top of the screen that indicate the current level of the user.

## Hardware Interfaces

The software and hardware will interact mainly though the Android Studio App and testing the code on Android devices that have been given to the team. The team will run tests on the devices to see how well the program can run on an actual device, as opposed to on just preliminary IDE tests.

## Software Interfaces

This project will be using the Alpha Tiles project from GitHub as a database source. Since the GitHub page has resources for images, sounds, textures, and formats, it is the ideal resource.

Most of the protocols for this project will come from pre-existing files from the Alpha Tiles database such as Colombia.XML.

The team will all be using the Android Studio IDE to program the application. Two of the team members will be using Windows 10 as their primary Operating System, but one member will be using MacOS as their primary Operating System.

## Communications Interfaces

The main form of communication with the client for this project will be through email. As far as inter team communications, our main form of communication will be through Discord group chats, email and text messages. The Discord will function as a form of communication for technical questions and software-related inquiries, and the text group chat will function as a way of organizing in-person meetings. Emails will serve as a platform for sending files and links. System Features

## Overall Tile Display

4.1.1 Description and Priority

Throughout the game there are places where Tiles need to either change color, disappear, or appear. Hence the top priority is to place each of

4.1.2 Stimulus/Response Sequences

Based on what the user’s guess is, the tiles will either change color, change how many tiles are covering the image, or change the availability of usable tiles as well.

4.1.3 Functional Requirements

The tiles must be able to react based on user input. Based on what letters are entered, there have to be color changing functions, tiles have to disappear if they are not being used, as well as tiles being loaded onto a picture with increasing number as the game goes on.

REQ-1: Color changes based on selected characters

REQ-2: Tiles stay or leave the image as more correct responses are made.

# Other Nonfunctional Requirements

## Performance Requirements

Since most of the users of this game will not have constant internet access, the game must be able to function without any connectivity to the internet. This will mean that all the pictures need to be downloaded alongside the game, as well as be able to function without an internet connection. This game must also function smoothly with the rest of Alpha Tiles as well. Meaning that it must be able to be integrated into the bigger game.

## Safety Requirements

If for any reason, the Android devices that were given to the developers by the client were to be damaged, the developer would be financially responsible for providing a new one.

## Security Requirements

The project will need to protect the wishes of the tribes that do not wish to share their language with the outside world.

## Software Quality Attributes

Since this game will be adapted to other languages in the future, one of the functions of the game must be adaptability. We should consider its ability to change languages and futures developers ease with adding a new language. Another function that must be considered is adaptability. Since the game will only grow bigger with time, there must be ways for developers to add images, update the format, and improve the game.

## Business Rules

The roles of each developer will change based on the stage at which the project is currently at. For the majority of the project, whoever is leading the design aspect of the stage will also be leading the project during that stage.

# Other Requirements

* Images must have enough resolution to fit in the game’s square area
* Each time a player loses a life one of the Xs in the top right corner will turn yellow.
* As the player progresses through each level, there will be indicators at the top of the page that change color based on whether they have passed that level or not.
* Keyboard can be reused and restructured to fit current format
* Images can be reused as well.

Appendix A: Glossary

API: Application Programming Interface, any software with a distinct function.

Android Studio: An IDE made specifically for developing Android Applications.

Appendix B: To Be Determined List

1. Addition of Music
2. Color changing Tiles
3. Number of levels