Software Requirements Specification

for

Maze Game

Version 1.0 approved

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1. Introduction

1.1 Purpose

In this project , we are going to design a maze game using the Java programming language. The primary goal is to provide only one version of the program, but we may publish more versions in the future.

1.2 Intended Audience and Reading Suggestions

Reading this document is suggested to developers and programmers however we designed it in that way that other people also can understand it.this has 3 main parts

1.Intro
2.Overall Description
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1.3 Project Scope

This project does not have commercial goals and is actually a small-scale academic project that is mostly educational and its audience is all people, especially children.

1.4 References

you can checkout the project github repo for more information.
https://github.com/Stmsmj/Maze

2. Overall Description

2.1 Product Perspective

This is a completely independent project and is not part of one or more other projects and we have to implement it from scratch.

2.2 Product Features

this game should has these features

1. User Profile
   1. Creating
   2. Selecting

2. 6 languages
3. 5 difficulty levels
4. 3 play modes

   that we will discuss them in detail in the future.

2.3 User Classes and Characteristics

as we said before the audience of this program will be all people , and that's because the program is a game. however we predicted the main users will be teenagers or even kids.
so for this reason we like to make the game colorful and with suitable pictures to satisfy these types of audience that is our main users.

2.4 Operating Environment

here comes tha Java , this a beautiful programming language that for it's compiler design it is cross platform.so Java programs like our Game will can run on many operating systems like Windows and Linux.

Note : at this time the version of OpenJDK is 17.0.2

2.5 Design and Implementation Constraints

as we said earlier this a University project so we will have two main constraints which is

1. Time limitation
   we have to finish the project before the final exam.
   that is around 2 weeks
2. Using only Java
   we have to use pure Java.
   for example we can just use SWING or AWT for program GUI

we don't have any other limitation.

2.6 Assumptions and Dependencies

Because we have to use only the Java language and cannot use other things, we do not have any special assumptions and dependencies, and our only dependency will be on Java itself.
Therefore, you should be careful in choosing the version of Java you use like Java EE or Java SE.

3. System Features

let's look at some main features of the game

3.1 User Profile

the program should allow users to have profile and play the game with it and compare results to other users.

3.1.1 Description and Priority

for profile feature we should do two main works.

first we should provide a create profile section and allow user to create a profile for himself.

second , sometimes may users have multiple profile , so we should provide a profile selection system.

3.1.2 Stimulus/Response Sequences

when user opens the app a panel should appear that contains 3 buttons.

first button : create profile

second button :select profile

third : start

and first user creates his/her account and then choose account and starts the game.

3.1.3 Functional Requirements

REQ-1: system should handle validity of the username and show error when user inputs invalid username like usernames that contains ‘!’,’?’, ‘,’ ,etc

REQ-2: system should show error when user enters an existing username.

3.2 Language

3.2.1 Description and Priority

the game should have 7 languages contains:

1.English
2.Persian
3.Russian
4.German
5.Japanese
6.France

7.Spanish

3.2.2 Stimulus/Response Sequences

when user clicks start button , in the right hand side panel a combo box should appear that contains those 6 languages and user choose one.

3.3 Difficulty levels

3.3.1 Description and Priority

we should provide 5 levels :

1.kids
2.Medium
3.Hard
4.Legends
5.Gods

3.3.2 Stimulus/Response Sequences

when user clicks start button , in the right hand side panel a combo box should appear that contains those 5 levels and user choose one.

3.4 Play Mode

3.4.1 Description and Priority

we should provide 3 modes :

1.Play
2.BFS
3.DFS

in the play mode the control is in user's hands and user moves current cell to reach the end
in the BFS mode , Computer finds the way using BFS algorithm which uses Queue.
and in the DFS mode , Computer finds the way using DFS algorithm which uses Stack.

3.4.2 Stimulus/Response Sequences

when user clicks start button , in the right hand side panel a combo box should appear that contains those 3 modes and user choose one.

4. External Interface Requirements

4.1 User Interfaces

as it said earlier the game's GUI should implement with AWT and SWING.
the game has 3 main panels.
each panel has some buttons , we don't like 3D buttons so , buttons should be simple and flatten.
also each panel except Maze panel should have maze picture for background.
and for error showing we have limitations that said above.

4.2 Hardware Interfaces

the game is very simple and doesn't need any hardware concern and limitation
if your computer can have Java on it thats enough!

4.3 Software Interfaces

only connections between the program and other software components is the connection for saving usernames and results.
the usernames will save in 'username' file in the program folder.

also the results will save in ‘All’ file.

5. Other Nonfunctional Requirements

5.1 Security Requirements

the user profiles and results should be protect from manipulation for fair play and using a safe tool for saving them is necessary.

5.2 Software Quality Attributes

please consider these attributes*:*

adaptability, availability, correctness, flexibility, interoperability, maintainability, portability, reliability, reusability, robustness, testability, and usability.

and for a game ‘ease of use’ and ‘ease of learning’ are super important!