2019

Pick-a-Path

SOFTWARE REQUIREMENTS DOCUMENT

OLIVIA LANGLEY, LOGAN MURPHY, LUCIA RISTEA, JAMES ERPENBECK

I. Preface

This document is to describe the requirements and specifications for Pick-a-Path, a game development engine. These requirements will be agreed upon by Dr. Barry Wittman, Dr. Amy Sheeran, and the Pick-a-Path development team. This document will explain the functional and non-functional features and constraints of our software, such as its overall design and performance.

II. Introduction

The objective of Pick-a-Path is to facilitate creating one's own games without any coding knowledge. This program consists of creating a story, whether it be for a game or real-life event simulation for job training. These stories are created through scenarios (boxes) and their corresponding decisions (arrows), which advance the story and may lead to differing outcomes. The user will be able to create and play their stories through our two "game" modes: editor mode and player mode. In editor mode, the user will be able to create new stories or edit existing ones. Conversely, in player mode, the user will be able to load their save file and test or play through these stories. The user will also have the choice to go back to editor mode if they would like to make adjustments. Because Pick-a-Path is an executable file, this makes the game playable on any platform that supports Java.

III. Glossary

GUI – Graphical User Interface. A type of user interface that allows users to interact with electronic devices through graphical icons and visual indicators.

Developer – Person or persons involved in creating, designing, testing, etc. of a given software.

CPU – Central Processing Unit. The brains of the computer where most calculations take place.

GPU – Graphics Processing Unit. A programmable logic chip specialized for display functions.

RAM – Random Access Memory. The hardware in a computer where the operating system, application programs, and data in current use are kept so they can be quickly reached by the device's processor.

HDD – A computer Hard Disk Drive. The mechanism that controls the positioning, reading, and writing of the hard disk.

IDE – Integrated Development Environment. A software application that provides facilities to computer programmers.

IV. User Requirements Definition

1. Bug fixes related to deleting boxes/arrows
    a. Arrows that are deleted from the box should not still show up in dialog options
    b. Boxes should not jump around when arrows are created
    c. More sensible behavior in saving situations
2. Items that players can acquire
    a. Possessing the correct item allows options to be selected that would not otherwise be available
    b. A means of creating, deleting, selecting, and tracking all items in a scenario must be provided to the game creator
    c. A means of displaying an inventory of currently possessed items should be available for the game player
    d. A tool for describing Boolean expressions of item possession (e.g. a magic wand or a sorcerous staff but not a BlackRock stone [which dampens magic]) would make item use very flexible at the cost of some game creator complexity
3. Saving functionality
    a. Robust saving scenario independent from serialization
    b. Save functionality in addition to Save As functionality
    c. Autosaving feature
    d. Ability to record progress in a playable game
4. Interface improvements
    a. Use Java 2D to create better looking boxes/arrows
    b. Scroll bar or an equivalent functionality
    c. Arrow numbering to control order that options will be displayed and a way to change said numbering
    d. Bring most recently selected box/arrow to the front so as to not be hidden by other objects
    e. More attractive player mode dialog boxes
5. Separate player mode programs
    a. a separate program that runs the player mode only, but still uses the same code base and GUI
    b. A text-based mode that allows a user to play a game with only a keyboard in the terminal
6. Simple running and execution
    a. Create Windows executables with Launch4J for the creation and playing tools so that Windows users can run it by double-clicking an icon
    b. Create a Mac executable for the creation and playing tools so Mac users can run it by double-clicking an icon

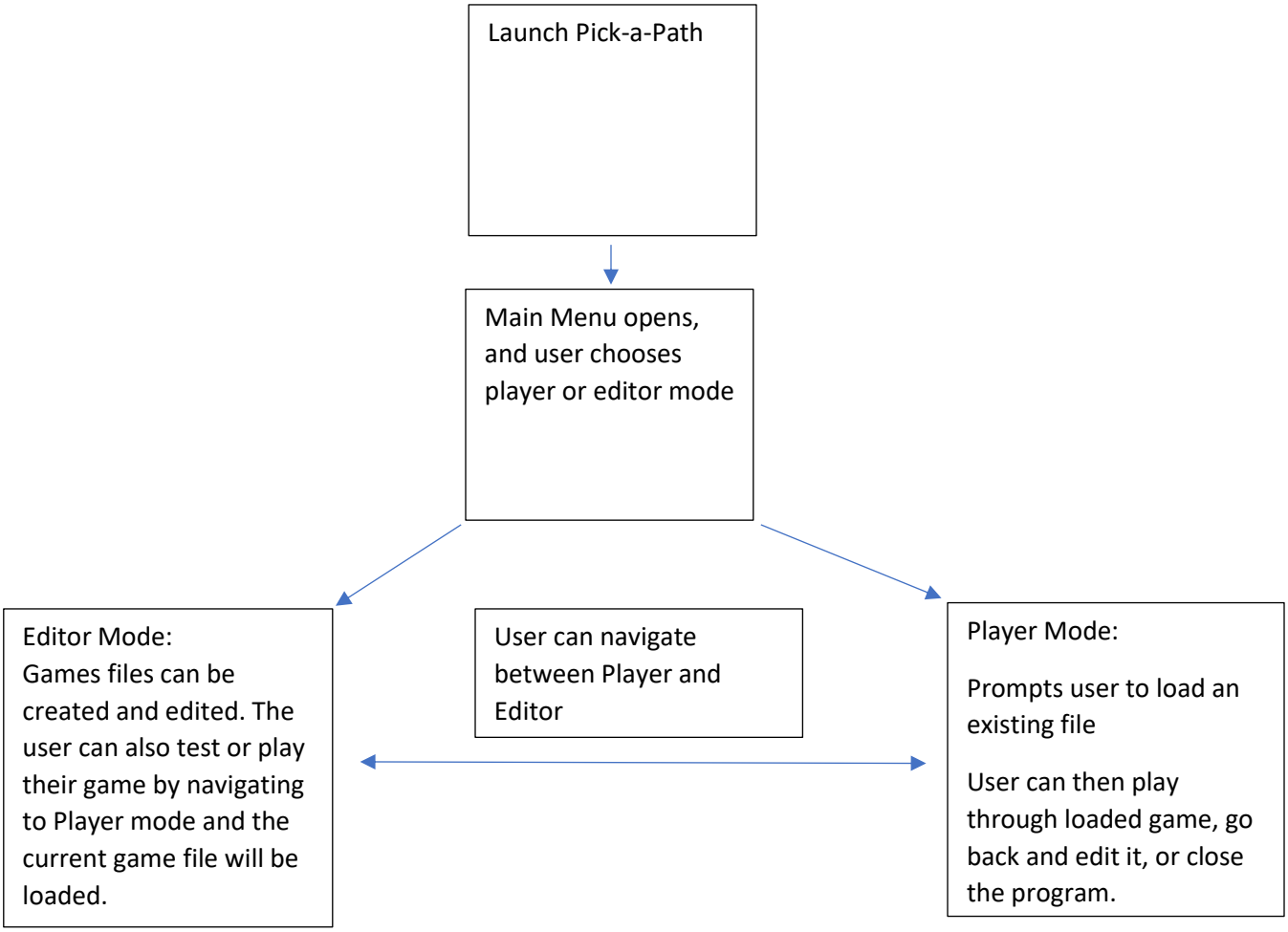
V. System Architecture

The components within our system are our editor mode, player mode, and a main menu. The editor mode saves to a file, then the contents of that file is then opened by the player mode and/or the text-based game mode to play the game. Each mode has a unique GUI that displays the information created by the user. The editor mode is where the game is created and saved, and the player mode is where the game can be played, tested, and then return to editor mode. However, the console game mode is only meant to play the game, not to return to editor mode and work on the game they are playing. The main menu will be the first GUI the user interacts with when opening Pick-a-Path, and this will let them choose between editor mode and player mode.

VI. System Requirements Specification

Purpose
Pick-a-Path is a tool to facilitate decision and text-based game creation. It has a mode for development and for playing existing games.
System Description
Pick-a-Path is a program that runs on Windows operating systems and will run on Mac OS in the future. Based on previous system testing, Pick-a-Path should be able to run on machines with low-end processing power and standard RAM. Pick-a-Path files are small, so no more than 5GB should be necessary to install the program and contain the files that produced by it.
How it Works
Pick-a-Path will be able to run independently from the IDE in the form of an application and will boot into a main menu. From the main menu the user will be able to select either developer or player mode. In developer mode the user will be able to create a decision-based game using boxes, arrows, and objects or a text-based game that presents text situations and allows for free response in order to interact with the game.
Hardware Requirements
CPU: Intel Core i3-3210 3.2 GHz / AMD A8-7600 APU 3.1 GHz or equivalent
RAM: 2GB
GPU (Integrated): Intel HD Graphics 4000 (Ivy Bridge) or AMD Radeon R5 series (Kaveri line) with OpenGL 4.4
HDD: 5GB for the program and game files

VII. System Model



VIII. System Evolution

Pick-a-Path is a downloadable application written in Java. One of our goals is to allow users to play Pick-a-Path without having to go to editor mode, instead they can play just using the console. Another goal is to add items into editor mode, so that the creator can make more complex decisions for their game. We also want to be able to save the progress of a game the user is playing so they can continue their game where they left off. We will also be using Java 2D to enhance the look of Pick-a-Path and make it more visually appealing. These graphics will not be very graphically demanding, so almost all modern computers should be able to run this program. Lastly, we have stretch goals to fix various, small bugs we experienced last semester with deleting boxes and arrows. We do not anticipate any changes due to hardware, other than perhaps our file taking up more hard drive space. We will also be cleaning up our base code and adding comments so looking back on the code we wrote will be easier to understand. This will help us allow for future expansion, and if our program is ever open source, contributors can understand our code easier and add their own code.

IX. Product Designers Approval

The undersigned acknowledge they have reviewed the Pick-a-Path Product Design Specification document and agree with the approach it presents. Any changes to this Requirements Definition will be coordinated with and approved by the undersigned or their designated representatives.

Role:	Project Manager	Date:	1/25/2019
Print Name:	Olivia Langley		
Signature:			
Role:	Design/Testing	Date:	1/25/2019
Print Name:	Lucia Ristea		
Signature:			
Role:	Developer	Date:	1/25/2019
Print Name:	Logan Murphy		
Signature:			
Role:	Developer	Date:	1/25/2019
Print Name:	James Erpenbeck		
Signature: