

Software Requirement Specification

Back to the Roots Game

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Revision History

Name	Date	Reason For Changes	Version
Group	2/9/22	Drafting during first few meetings	1
Group edits	4/23/22	Add details now that project is fleshed out	2

1. Introduction

1.1 Purpose

This Software Requirement Specification (SRS) document describes *Back To The Roots* v1.0, and details the features and constraints of the interfaces, game design and data management.

1.2 Document Conventions

Glossary of Terms

Cafe	the menu where the player can view the garden's score and sell flowers
Currency	used to buy seeds and gained by selling flowers
Flower	items that the player cultivates to improve their score and gain currency
Gameplay Loop	the sequence of features the player will need to navigate through to continue gameplay, ie. purchase seeds, plant seeds, sell flowers
Minigame	the seed planting interaction that is used to determine whether a seed is successfully planted, and the characteristics of the resulting flower
Player	the user interacting with the game
Player Character	the avatar the player controls
Seed	items used to instigate the minigame and generate flowers
Shop	the menu used to exchange currency for seeds

1.3 Intended Audience and Reading Suggestions

The purpose of this document is to provide developers and users with an overview of the objectives, design, features, and requirements of the game. It is an outline of how the game receives, processes and stores user input as well as how it produces and presents intelligible output. Readers should use the table of contents to navigate to a specific area if addressing a question, developers should review Section 2 and Section 3 to understand the game's development, testers should look to Section 4 to make sure the game is operating as intended, and stakeholders should review Sections 4 and 5 to understand the features and nonfunctional requirements of the game.

- Section 1: Overview of objectives
- Section 2: Description, Design Considerations
- Section 3: External Requirements
- Section 4: System Features
- Section 5 : Nonfunctional Requirements

1.4 Product Scope

This document applies to *Back To The Roots* which is a flower gardening simulation desktop game. The player can navigate between their garden plots, a store for buying seeds, and a cafe that buys successfully planted flowers. The garden plots, shop, and cafe are all selectable town elements that open menus, allowing the player to make choices. The garden plots open a scene where the player is able to select a seed to trigger a minigame that will plant a flower if they successfully complete it. The mini-game involves attempting to guide roots to nutrients and water while avoiding rocks and other roots in the plot. The shop allows the exchange of currency for seeds, and the cafe allows the exchange of flowers for currency. The cafe appraises the player's garden based on the variety of colors, the volume of flowers, the vibrance of the flowers, and the distance between the flowers to determine the payout. The intent of these elements is to provide a gameplay loop that offers the player entertainment and a sense of achievement.

1.5 References

None.

2. Overall Description

2.1 Product Perspective

This game is intended to offer a mellow planting simulation experience for intermittent entertainment. The minigame and ability to appraise and sell the flowers the player grows create checkpoints that allow engagement times to vary. This is possible because of the automatic saving and loading that occur in the background throughout gameplay.

2.2 Product Functions

- Allow player to
 - Move through the game
 - Purchase seeds
 - Plant seeds
 - Play minigame
 - Sell flowers
- Save and load progress
- Change audio and video settings

2.3 User Classes and Characteristics

- Casual Players
 - These users will want to enjoy the gameplay loop of buying, planting and selling without trying to maximize their garden appraisal score, this is most likely the bulk

of players and the currency rewards should be balanced around making the game playable for them.

- **Competitive Players**
 - These players will be invested in the mechanics of their garden appraisal, the elements that improve ranking should be logical so that these players can understand what they need to do to maximize their score.

2.4 Operating Environment

This game is packaged into an executable that is intended to be run on computers running Windows 10.

2.5 Design and Implementation Constraints

The game will be created using Unity's 2D game engine, Unity objects are managed with C# scripts.

2.6 User Documentation

The prompts within the game should provide the necessary information to the player to provide a full understanding of the features.

2.7 Assumptions and Dependencies

For the purpose of this project, we are assuming players have some familiarity with standard video game controls.

3. External Interface Requirements

3.1 User Interfaces

The User Interface will utilize graphics, prompts and standard game conventions to be intuitive. The interface consists of a base Unity scene, the town map, that has clickable elements that launch other scenes which contain menus.

- The game will implement the standard PC game control scheme:
 - Click to navigate menus
 - WASD or Arrow Keys for movement
 - ESC to open menu
 - Unpause
 - Settings
 - Exit to Menu
 - Exit Game

3.2 Hardware Interfaces

Back to the Roots is a desktop application designed to be run on Windows 10.

3.3 Software Interfaces

Back To The Roots is developed for the Windows operating system using:

- Unity Editor Version 2020.3.32f1
- C# 9.0

4. System Features

4.1 Main Menu

- Objective: Navigate Main Menu
- Priority: High
- Source: Player
- Actors: Player, Game
- Flow of Events
 - Player launches game and is presented with a menu, menu has an example of the minigame navigation mechanic to provide familiarity and entertainment
 - Player can select “Continue Game” (if there is an existing save file) to move to the town map
 - Player can select “New Game” to move to the town map
 - Player can select “Settings” opening a new menu
 - Player can manipulate Sound Volume with a slider
 - Player can manipulate Music Volume with a slider
 - Player can manipulate Video Resolution with a dropdown menu
 - Player can toggle Full Screen on or off
 - Player can delete their Personal Best Record
 - Player can Exit Settings
 - Player can select “Exit Game”

4.2 Purchase Seeds at Shop

- Objective: Purchase Seeds
- Priority: High
- Source: Player
- Actors: Player, Game
- Flow of Events
 - Player navigates into proximity of shop
 - Player clicks on shop, opening it
 - Player left clicks desired seeds

- Seed is purchased and currency is decremented
 - Player is notified of seed acquisition and currency loss
 - Seed is unable to be purchased
 - Player is notified that not enough currency is available
- Player right clicks seed to sell it back
 - Player sells seed and currency is incremented
 - Player is notified of seed loss and currency acquisition
 - Player is notified there is no seed to sell
- Player exits shop to the town map

4.3 Plant Seed in Garden Plot

- Objective: Plant Seed in Garden Plot
- Priority: High
- Source: Player
- Actors: Player, Game
- Flow of Events
 - Player navigates into proximity of garden plot
 - Player clicks on garden plot, launching minigame scene
 - Player views owned seeds, drags seed to desired planting location
 - Minigame begins when seed is placed, camera zooms in
 - Player guides the root by moving the mouse in the desired direction
 - Player passes through nutrients, enhancing the vibrancy of the potential flower
 - Player collides with rock, killing the root
 - Player reaches water source, successfully planting the seed and adding a flower to the plot
 - Player exits minigame scene to the town map

4.4 Appraise and Sell Flowers

- Objective: Appraise Flowers, Present Sell Option
- Priority: High
- Source: Player
- Actors: Player, Game
- Flow of Events
 - Player navigates into proximity of the cafe
 - Player clicks on the cafe, launching appraisal menu
 - Player views the score and potential payout of their garden
 - The elements used to calculate garden value are displayed:
 - Variety rating and a count of unique colors
 - Volume rating and a count of total flowers

- Vibrance rating and an average nutrients per flower
 - View rating and the average distance between flowers
- Total Value Rating
- Personal Best
- Monetary value of garden
- Player chooses to sell their flowers
 - Currency gained
 - Garden plot cleared
 - Menu closed
 - Player character moved back to garden
- Player exits appraisal scene to the town map

5. Other Nonfunctional Requirements

5.1 Performance Requirements

- Saving and loading - the game should automatically save inventory contents (seeds and currency totals) and flower placements when they are updated so that the game can be played in intermittent sessions and not require user input to save progression.

5.2 Safety Requirements

The game will not affect or damage other applications, it will not stress hardware to the point of overheating.

5.3 Security Requirements

The initial version of this game does not require user authentication or interact with any user data, it will not ask for personal information from the player so it will not be able to compromise player information. The file used for saving and loading the game is a binary file, adding some difficulty to user's manipulating their progress through external means.

5.4 Software Quality Attributes

The UI will be intuitive and include prompts, and the user will be given written, visual, or auditory feedback on their input. The menus, player character, and minigame will react to input in under a second, and saving and loading will occur behind the scenes throughout gameplay.

6. ERD Diagram

