

Items Is Items

Software Requirements Specifications

Version: 3.0

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CS 481-483

3/15/2019

Revision Page

Version	Primary author	Description	Date completed
0.1	Jordan Betcher	Creation	10/16/2018
1.0	Jordan Betcher Job Betcher Annick Stefanin	Added everything	10/17/2018
2.0	Jordan Betcher Job Betcher Annick Stefanin	Polished	12/4/2018
2.1	Job Betcher	End of Sprint #1 update	1/24/2019
3	Jordan Betcher Job Betcher Annick Stefanin	End Quarter #2 update	3/15/2019

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1. Introduction

1.1 Purpose

The “Items is Items” game, is a top down 2D item adventure puzzle game. With an inventory UI that allows you to combine and store items and the ability to use items to interact with the world.

The intended audience of this document is our group so that each of us knows that part within this game and our advisers so that they know how and what we’re planning on doing.

1.2 Scope

“Items is Items”’s goal is to provide players with the experience of using all items they can find in creative and interesting ways to solve any challenge presented to them.

1.3 Definitions, Acronyms & Abbreviations

2D - Two Dimensional

GUI - Graphical User Interface

Items is Items - The name of the game

NPC - Short for “Non-Player Character” a character that is operated by the computer.

UI - User Interface

Poke - A technical term for communication

1.4 References

Example SRS: <http://www.dgp.toronto.edu/~ppacheco/course/444/spec.pdf>

User Classes: <https://softwareengineering.stackexchange.com/questions/62965/what-is-the-definition-of-user-classes-with-respect-to-software-use>

Operating Environment: <https://unity3d.com/unity/system-requirements>

How Fast your load times should be: <https://www.bluecorona.com/blog/how-fast-should-website-be>
<https://stackoverflow.com/questions/25728822/software-requirments-specification-srs-what-are-system-interfaces>

1.5 Overview

This document contains the requirements contained in the game, Items is Items. Within those requirements we cover components such as quests, combinations, items as well as the GUI.

2. Overall Description

2.1 Product Perspective

The product will be independant and totally contained not needing any outside sources apart from the player who will become a part of our system.

2.1.1 System Interfaces

None, this system is completely isolated from other systems.

2.1.2 User Interfaces

The program will consist of three main screens. There will be a Main Menu Screen, the Multiplayer Select Screen and the In-game World Screen. These will be broken into several more components to aid the user in navigating the game program. The player will also be able to interact with the characters in the overworld through a dialogue box that the player can prompt to appear.



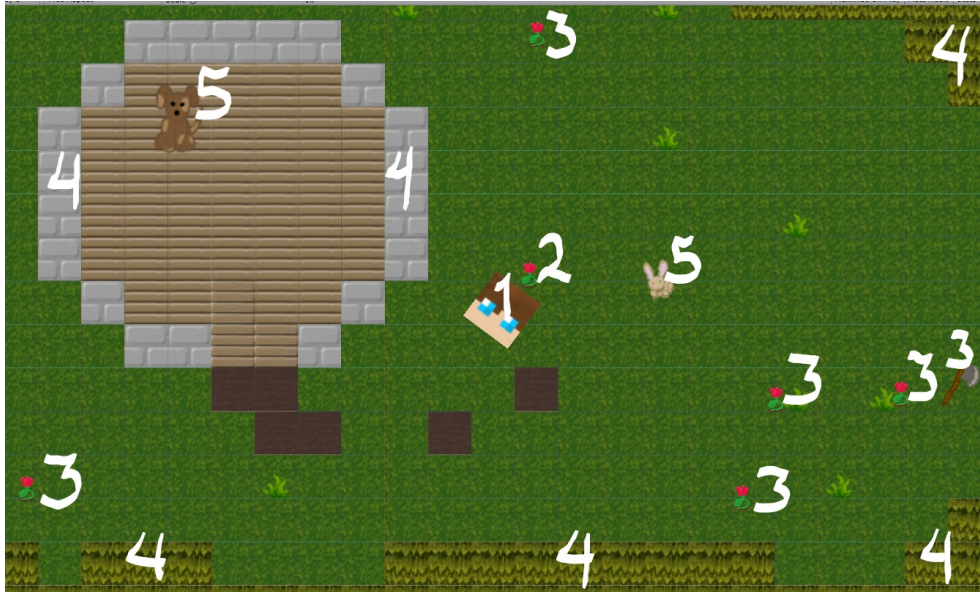
2.1.2.1 Main Menu

The Main Menu screen will be the first screen the user is greeted with when starting the program. It will consist of the game's title [pending] and three buttons below that, one which says 'new game' which will when pressed give a text box that allows the player to enter a name for that world and confirm, which then initialize a new world and character, switching the user's display to the World Screen. The second will say 'load game', which will when pressed clear the title and list the various saves the user has made on that world if any. The player can either go back to the main menu, or select a world to load which will then load the world and display the World Screen. The final button will simply say 'exit game' which when pressed will close the application.



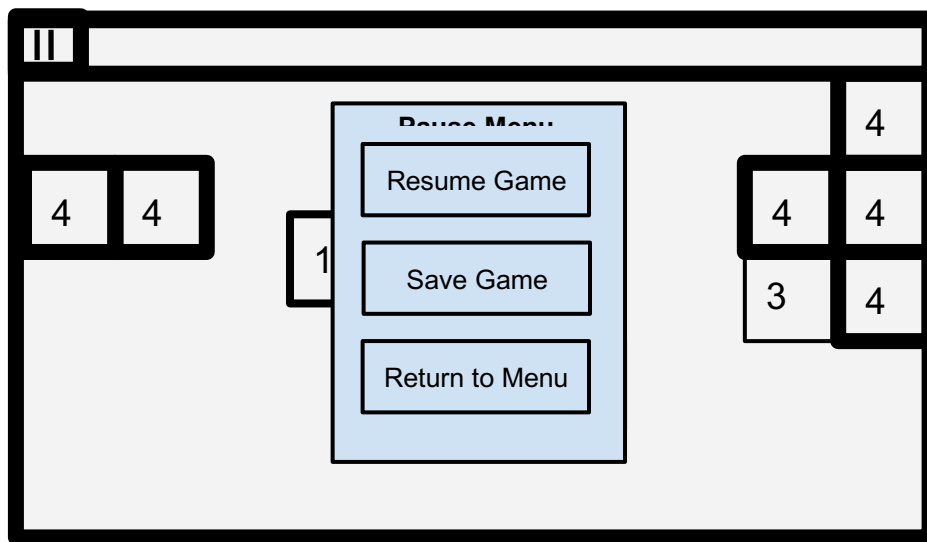
2.1.2.3 World Screen

The World Screen will be the screen on which the main gameplay will take place. It will display the 2D tiled game world from a top-down perspective. The world screen will move with the player, and everything on the screen will be interacted with with the mouse.



- 1: Is the player
- 2: Is an item that follows behind the player
- 3: Are the items that the player hasn't picked up
- 4: Is the terrain that the player can't walk through
- 5: Are NPCs

The player can press a small pause icon in the top left of the screen to exit the application, or press tab to pause the game. When the game is paused the player can 'resume game', 'save game', or 'return to menu'. The 'resume game' button will simply go back fully to the World Screen. The 'save game' button will allow the player to name their world, save it, and immediately return to the World Screen. The 'return to menu button' will save the game and switch the screen to the Main Menu.



2.1.3 Hardware Interfaces

The game will be run on Android devices.

2.1.4 Software Interfaces

The game will be built on Unity version 2018.1.9f2. Our code will use Unity's functions and methods.

2.1.5 Communication Interfaces

Our game will contain no need to interface with any outside programs.

2.2 Product Functions

The player uses items to interact with the world. By clicking NPCs to talk to them, gives you information which may be quests. When the player is discovering the world and questing, the player will encounter obstacles such as hostile monsters or puzzles blocking the path. The player can find solutions to these obstacles by finding the right item to distract a monster or solve a puzzle.

2.3 User Characteristics

General characteristics of our target audience are:

- Don't have a lot of time to play or only have 10-20 minutes
- Might need to stop at anytime
- Enjoy creative puzzles
- Like exploration

2.4 Constraints

Android 4.1+

2.5 Assumptions and Dependencies

None.

3. Specific Requirements

3.1 External Interfaces

The game will be run on Android devices. The game itself will save and load files locally within the game files, and each device which can access the game must have the game files fully downloaded onto its hardware.

3.2 Functional Requirements

3.2.1 Menu:

- User can start a new game
- User can load a previously saved game
- User can exit the program

3.2.2 In-Game:

3.2.2.1 User:

- User can move the character using left mouse click
- User can add items to inventory by running into them
- User can select items in inventory by left clicking them
- User can combine selected items by dropping selected item onto another item
- User can use item on another item by dropping selected item from inventory onto another item
- User can use item on self by dropping selected item from inventory onto self
- User can use item on NPC by dropping selected item from inventory onto NPC
- User can solve puzzles using items in their inventory
- User can receive physical reward upon quest completion
- User can receive progress on another quest upon quest completion
- User can receive progress on another quest upon item acquisition
- User drops all items in inventory on respawn

3.2.2.2 NPC:

- NPC can move towards items it is attracted to
- NPC can move towards other NPCs it is hostile to
- NPC can run away from other NPCs it is scared of
- NPC can return to their selected station
- NPC can use items it touches
- NPC can give quests to user through dialogue
- NPC can complete quest when user drops asked item onto them

3.2.2.3 Items:

- Item can be dragged from inventory to be combined with another item
- Items can be used on another item to destroy an item
- Items can be used on another item to affect an item
- Items can be used on an NPC to affect an NPC
- Items can be used on a character to affect the character

3.2.2.4 Item Effects:

- Items could destroy another item
- Item could change another item's color
- Item can teleport other item on touch

3.2.2.5 GUI:

- There is a button that restarts the level

3.2.2.6 Quest:

- When Users clicks a quest giver a text box pops up showing the quest
- Giving the quest item moves the quest to the next state
- Giving the quest item can spawn a reward

3.3 Use Cases

3.3.1 Menu Functionalities

Use Case Name:	Exit Game
Priority:	Normal
Precondition:	In the Main Menu
Trigger:	Click the Exit Game button
Purpose:	Exit the Game
Operations:	Close the Main Menu
Output:	The Game is closed

Use Case Name:	New Game
Priority:	Normal
Precondition:	On Menu Screen
Trigger:	Click the New Game Button
Purpose:	Create a new Game

Operations:	Create a new Game State Create Game name Close the Main Menu Open new world
Output:	The new Game is created Player is now in the world

Use Case Name:	Load Game
Priority:	Normal
Precondition:	On the Main Menu Screen There are Games to Load
Trigger:	Click the Load Game Button
Purpose:	Load a Game
Operations:	Open up a file explorer The player selects the save file Extract game state from file Close the Main Menu Open up the game with the game state
Output:	The Game state is loaded Player is now in the world

Use Case Name:	Pause Game
Priority:	Normal
Precondition:	In the Game World
Trigger:	Click the Pause Button
Purpose:	Pause the game
Operations:	Pause the Game Open the Pause Menu
Output:	The game is paused The pause menu is opened

Use Case Name:	Return to Menu
Priority:	Normal
Precondition:	In Pause Menu
Trigger:	Click the Return to Menu button
Purpose:	Return to Main Menu
Operations:	Save the game Close the Game Open the Main Menu
Output:	The Main Menu is displayed

Use Case Name:	Save Game
Priority:	Normal
Precondition:	In the Pause Game
Trigger:	Click the Save Game Button
Purpose:	Save the Game to be Loaded in the Main Menu Later
Operations:	Open a file Explorer to get the save spot and name Compress the gamestate and store it as a file
Output:	The game data in a save state stored in the save area

Use Case Name:	Resume Game
Priority:	Normal
Precondition:	In the Pause Menu
Trigger:	Click the Resume Game Button
Purpose:	Resume the Game

Operations:	Close the Pause Menu Unpause the Game
Output:	The Pause Menu is gone The Game is Unpaused

3.3.2 Item Functionalities

Use Case Name:	Use Item on Item in World
Priority:	High
Precondition:	In Game world Item is Selected The Item in World is interactable
Trigger:	Click onto the Item in World
Purpose:	Use the Item on the Item in World
Operations:	The Item is deleted The Item in World now has Item use state added
Output:	The Item in World has a new state

Use Case Name:	NPC Uses Item
Priority:	High
Precondition:	In Game world NPC movement Item in World
Trigger:	NPC touches Item
Purpose:	Uses the Item on the NPC
Operations:	The NPC moves and touches the Item in the Game world.
Output:	The NPC now has the effects of the Item.

Use Case Name:	Player Uses Item
Priority:	High
Precondition:	In Game world Item Selected over Character
Trigger:	Player drops item on their Character
Purpose:	Uses the Item on the Character
Operations:	The player drops selected item on their Character
Output:	The Character now has the effects of the Item.

Use Case Name:	Use Item on Item
Priority:	High
Precondition:	In Game world Item is Selected
Trigger:	Click onto another Item
Purpose:	Combine the Items
Operations:	Delete both Items Create the new Item
Output:	The two items are gone but now a new Item follows the player in the inventory

3.3.3 Character Capabilities

Use Case Name:	Player can Move
Priority:	Very High
Precondition:	In Game world
Trigger:	Left click on place in the world
Purpose:	Move the character

Operations:	Changes the position of the character in a direct line in the vector direction of where the user clicked
Output:	The character is in the position where the user clicked

Use Case Name:	Select Item
Priority:	Very High
Precondition:	In Game world
Trigger:	Click on an Item in the Inventory
Purpose:	Select an Item
Operations:	Turn off collision from the item The Item follows cursor/finger Highlight All Items that the selected item can be used with
Output:	The Item no longer collides There are highlighted terrain There are highlighted Items

Use Case Name:	Character Picks up Item
Priority:	High
Precondition:	In Game world Item in Game world
Trigger:	Character touches item
Purpose:	Place the Item in inventory
Operations:	The Character moves to touch an Item and the Item is placed in their Inventory.
Output:	The Item is now in the player's Inventory.

Use Case Name:	Place Item in World
Priority:	High
Precondition:	In Game world Item is Selected
Trigger:	Click onto Ground
Purpose:	Place the Selected Item
Operations:	Deselect the item and change it's position onto the ground
Output:	The item no longer follows you in your inventory and instead is lying on the ground.

3.3.4 NPC Capabilities

Use Case Name:	NPC Rotates
Priority:	Very High
Precondition:	In Game world
Trigger:	Smellable Desirable Item is detected in the Game World
Purpose:	NPC Rotates
Operations:	Smellable Desirable Item is detected within NPC smell range but not view range.
Output:	The NPC rotates to locate smell

Use Case Name:	NPC Moves towards Target
Priority:	Very High
Precondition:	In Game world
Trigger:	NPC sees Desirable Item
Purpose:	NPC can move to a selected destination

Operations:	A Desirable Target is within the NPC's sight range
Output:	The NPC moves to Target

Use Case Name:	NPC Returns to Base
Priority:	Very High
Precondition:	In Game world
Trigger:	NPC is off of Base and Timer hits 0
Purpose:	Returns NPC to their original position
Operations:	NPC coordinates do not match Base coordinates and Wait timer is at 0
Output:	NPC moves back to Base

Use Case Name:	NPC QuestGiver Dialog Appears
Priority:	High
Precondition:	In Game world NPC is a QuestGiver Has a QuestStateDialog
Trigger:	NPC is clicked
Purpose:	NPC shows Dialog
Operations:	None
Output:	A Popup is shown

Use Case Name:	NPC QuestGiver Dialog Disappears
Priority:	High
Precondition:	In Game world NPC is a QuestGiver Has a QuestStateDialog

	NPC already clicked
Trigger:	Dialog is clicked
Purpose:	NPC go through Dialog
Operations:	The dialogue box times out and disappears.
Output:	The dialog box is removed

Use Case Name:	NPC QuestGiver Rewards Quest
Priority:	High
Precondition:	In Game world NPC is a QuestGiver Has a QuestStateQuest NPC already clicked
Trigger:	Item is dropped on NPC
Purpose:	NPC detects dropped item and enters end-of-quest state.
Operations:	Drag an item from inventory onto the NPC
Output:	The NPC gives a reward

3.4 Performance Requirements

95% of the time screens should load in less than 1 seconds for mobile.

95% of the time it should take less than a tenth of a second for an object to react upon interacting.

3.5 Design Constraints

Hardware Limitations:

- Our game plays on mobile devices, so each control needs to be used via touch screen.

3.6 Software System Attributes

Items-to-Items will be a reliable single and multiplayer game capable of running on android devices. The player can play it both casually and seriously, though it caters to the more casual gamer. It will be persistent, where they don't have to worry about saving as it the world will remain even when you aren't playing, the save / load function is for multiple worlds.

4. RTM Requirements Traceability Matrix

Use Case ID	Description	Product Functionality (SDD)	Test Case #
3.3.1	Exit Game: Allows the player to close the program	2.2.1	N/A
3.3.1	New Game: Allows the player to generate a new world instance and character	2.2.1	N/A
3.3.1	Load Game: Allows the player to continue on a saved world	2.2.1	1.b
3.3.1	Save Game: Allows the player to store their current world-data	2.2.1	1.a
3.3.2	Use Item on Item in World: Item is used on item in world	2.2.2.3	5.d
3.3.2	NPC Uses Item: Item is used on NPC	2.2.2.2	5.c
3.3.2	Player Uses Item: Item is used on Character	2.2.2.1	5.b
3.3.2	Use Item on Item: Item is used on another item	2.2.2.3	5.a
3.3.3	Player Can Move: Character follows player clicks/touches	2.2.2.1	2.a
3.3.3	Select Item: Player picks up an item to use	2.2.2.1	4.c
3.3.3	Character picks up Item: Item is moved from in-world to player inventory	2.2.2.3	4.a
3.3.3	Place Item in World: Item is removed from player inventory to world	2.2.2.3	4.d
3.3.4	NPC Rotates: NPC Rotates to detect Smellable Item	2.2.2.2	3.e

3.3.4	NPC Moves towards Target: NPC can move towards a selected destination	2.2.2.2	3.b
3.3.4	NPC Returns to Base: Returns NPC to their original position	2.2.2.2	3.c