CSCI265 — Project Requirements Specification

All to Wander, an Adventure RPG

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Document Overview

Purpose

This document is the Software Specification Document for the All Who Wander project, a retro action-adventure RPG built in the spirit of the classic Legend of Zelda. The purpose of this document is to describe the project in full including its technological and architectural specifications, core gameplay experience, individual mechanics, art direction and aesthetic, and so on.

This document is *not* an implementational overview: the "how" of implementing the above is not discussed here in detail. For further implementational documentation, see the project's Design Document.

Project Objectives

All Who Wander is a student project designed to provide hands-on experience with software design as its own science. As such, final product and implementation are of secondary importance. Of primary importance, and the true objectives borne by this project, are:

- The acquisition of effective research skills through the act of research in a hands-on environment.

- The establishment of explicit, clear, and consistent requirements through the writing of specification and design documents.
- Effective team function including communication, conflict resolution, and compromise.

Intended Use

This document meant primarily for use in strategic planning by the Development Team and by the course's instructor. In a more real-world scenario, this document would also be intended for use by marketing entities, and managers from other departments to provide context.

This document is by definition a living document and will be updated regularly.

Executive Summary

Concept Statement

All Who Wander intends to be a sword-and-shield style top-down adventure game which emphasizes exploration and creativity over objectives and story. The Game's central features will be its carefully handcrafted open world, and an engaging real-time combat system. Auxiliary mechanics such as a basic leveling system and a crafting system will further incentivize exploration of the game's expanse. To the degree that is possible, the Game's story and art direction will be crafted to install within its world a sense of mystery and beauty, further servicing the central gameplay experience.

Scope

Only those functionalities essential to a top-down adventure game will be implemented. All Who Wander will implement no unique or mechanics, and will implement only a limited story.

The primary implementational goals relate to basic in-game functionality: player movement, combat controls and mechanics, interaction with the gameworld, and the gameworld itself. As the Game's emphasis is on exploration and combat, these systems will take priority. Of particular note: climbing, swimming, and jumping mechanics *will* be implemented which go beyond the simple movement controls expected in games of this type.

Of secondary importance are story, side quests, dungeons, and world-population. These facets of gameplay will be addressed on an as-able basis. Of limited importance are auxiliary mechanics, including a crafting system and a leveling system.

The saving and loading of games may be implemented, time permitting. User interface will be kept as simple possible in all regards.

Core Functionality

All deliverable functionalities, their priority, and a brief description of each, are as follows. Complete descriptions of each will follow further in the document.

- An open world (primary) broken into multiple regions, each themed according to their own biome. This world must present a set of "preferred-paths" from region to region, but allow for off-path exploration of the world.
- Walking, climbing, jumping, and swimming capabilities (primary) capabilities such that the entire gameworld might be accessible to the player without the need for hand-built points of ingress and egress.
- A diverse range of environmental features (primary) which effect world traversal, such as water through which to swim or walls to be climbed upon.
- Interactive game world elements (primary) such as non-playable characters, animals, plants, objects, buildings, and puzzles.
- A real time combat system (primary) incorporating melee and ranged weapons, as well as castable offensive and defensive magic spells.
- A slot based equipment system (primary) wherein weapons, spells, and the like are registered to keys/buttons for use in-game.
- A durability system (secondary) wherein weapons wear down and break over time, requiring the player to pick up new weapons as they explore.
- A "loot" system (primary) wherein slain enemies drop weapons or other items.
- An item and inventory system (primary) wherein numerous types of item are collected from the landscape or slain creatures, and used for various purposes.
- A story (secondary) which provides linearity and a sense of accomplishment to gameplay.
- Up to four dungeons (secondary) themed after the biomes in which they are found.
- A crafting system (tertiary) wherein collected items are combined into weapons and other, more useful items.
- A leveling system (tertiary) where the player's base stats increase with enemies slain, and enemies base stats increase with distance from the player's origin in the world.

Demographics

All Who Wander is game targeted towards the retro and indie game market. This market is motivated by nostalgia, and by a desire for exposure to simple games which require little emotional investment. Our game's main point of attractiveness would be novelty, and second to this, it's open world and exploration based (as opposed to story or combat-system based) gameplay experience.

Architectural Overview

All Who Wander will be implemented in Unity and as such, its internal architecture will for the most part be automatically maintained by the engine. What falls to the development team, the Game's "architecture" from a pragmatic perspective, is the assembly of game assets into a coherent gameworld which can be played, and the integration of custom written scripts which govern the functionality of these in-game objects.

Assumptions and Dependencies

All Who Wander will be implemented using the latest Stable Release of Unity (Unity 2021) — the latest version of Unity for which new features are not being added.

Therefore, All Who Wander should be playable on any modern desktop or laptop computer, regardless of operating system. Support for tablet devices may be limited, and there will be no explicit support for smart phones.

All Who Wander will have no further software, hardware, or communication assumptions or dependencies.

Functional Requirements

Player Controls

Input Devices

Let it be noted that All Who Wander will be configured for use with both a keyboard and mouse or with a wireless DualShock game controller. Specific mapping schema will be required for each.

Movement

Due to its open-world nature, world travel will require slightly more complex mechanics than simple four-directional movement — climbing, swimming, and jumping will also be required. As with any RPG of this type, interaction with game entities will also be possible.

All cliffs (tiles which separate higher elevation from lower elevation), and many walls of buildings will be climbable. To climb, a player will simply walk up to any climbable surface and press the interact key on their keyboard or computer. This will cause the player's avatar to grab onto the surface. Once on the surface, the player may move up and down or from side to side. To dismount the wall, the player will need to press the interaction a second time. Releasing the

player from climbing will cause them to fall, potentially causing damage if the high of the fall is too great.

Swimming will proceed much the same as climbing — the player must simply walk to a body of water and press the interaction key. This will cause the player to enter the water, where they will then move freely. To make landfall, the player need only move onto shore.

Jumping may or may not be implemented. If it is, jumping may be bound statically to a specific key. Otherwise, jumping may be associated with an equippable item. Jumping will likely be used to jump over holes, or from raised-platform to raised-platform.

Item Use and Equipping

All Who Wander will make use of a slot-based action system wherein "equippable" actions such as weapons, spells, and items in the more traditional sense are registered to "slots." Each such slot will be associated with a key or button on the input device.

To register an item to a slot (to "equip" the item), the player will pause and enter their inventory. Using the mouse or joystick, the player will select the item they wish to equip and strike the key they wish to equip it to. This will equip the item and un-equip any item already registered to that slot. Once equipped, the player need only strike the associated the item they wish to use.

All weapons — swords, spears, the bow and arrow, and so on — as well as magic spells will be considered equippable items.

Interaction

One key in specific will be omitted from the equipment system outlined above — the so-called interaction key. This key will be used to trigger interaction with an in-game entity, such as the initiation of dialogue with an NPC or reading of a signpost.

Combat

Overview

All Who Wander will present a real-time combat system with support for multiple types of melee weapon, a shield, a bow and arrow, and castable magic spells. As with most systems of this type, hitbox mechanics will be used to register successful attacks. Once an attack is registered within an entity's hitbox (player or enemy), some code will be executed in response.

By and large, real time combat systems are comprised of two parts: hitboxes and math. Each game entity stores within its in-code representation a handful of numerical fields — current and maximum health points, defensive and offensive stats, and so on. Players, enemies, and each weapon (such as swords and spears, but also including projectile weapons and magic spells) has

a hitbox attached to it.

When an attack is triggered, the hitbox associated with a given weapon or spell will move through the gameworld in accordance with the animation which displays it. If a hitbox attached to a weapon enters the hitbox attached to a player or enemy, then the attack is successful.

Once a successful attack is registered, a function is executed to compute some simple math. The attacking entity's offensive stats are computed alongside the defending entity's defensive stats, and the defending entity's health points are reduced accordingly. Once an entity's health points reach zero, the entity dies. In the case of the player, this will end the game (or trigger a respawn).

Weapons

All Who Wander will support two types of melee weapons: swords and spears. Additionally, a bow and arrow will allow for ranged attached, and multiple types of arrow might be used such as fire, ice, lightning, or bomb arrows.
The differentiation between sword and spear might be purely aesthetic, but could also be functional. As an example, spears may be weaker than swords but have a chance of staggering an opponent (sending them flying backwards, or else stunning them momentarily). Alternatively, spears may have faster attack animations than swords.

A bow and arrow is an ideal weapon in many situations as it can be used from a distance. Finite supplies of arrows however, and a potentially weaker attack power, will play a role in its usage. It is this variation is the usefulness of weapons which makes a combat system engaging.

The bow itself will not be equippable. Instead, each type of arrow will be given its own space within the inventory, and be equippable. Once a player runs out of a given type of arrow, they will no longer be able to use it.

Shields

Shields will be used to block attacks. Shields will require holding the key mapped to the shield. If raised, a shield will take damage on behalf of the entity wielding it. To keep combat interesting, the use of other items will be prohibited while a shield is raised, and, movement speed will be reduced.

Durability

Weapons and shields will maintain a durability parameter, much like the health points associated with a living entity. This parameter will be reduced each time the item is used. Once its durability is reduced to zero, an item will break. A broken item will immediately exit the player's inventory, leaving an empty slot in its place.

Spells

The player will be able to cast magic spells, both offensive and defensive. Offensive spells will be treated as projectiles — game objects with their own hitboxes, moving through game space. Defensive spells will cast shields, provide buffs, increase health points, and so on.

Visually, a spell will trigger some type of sprite animation (numerous animations will be gathered from asset repositories, as needed). Shield spells will encase the player in a glowing circle. Each spell will be programmed and animated individually.

Players will have finite amounts of "mana" with which to cast spells, and each spell will have a cost associated with it. Once a player runs out of mana, they will be unable to cast more spells. Mana will be treated as loot the same as any other items, and can be refilled by collecting it.

Enemy AI

Enemies must of course have some sort of AI controller to trigger their motion and their own attacks upon the player. For the most part, a single generic AI should suffice for all enemies. This AI will likely require little more than a finite state machine which toggles between idle and walking while the player is out of view, and attack while the player is in view.

Depending on the specifics of a particular type of enemy's attack animation (or other specifics), it may be required to write slightly tweaked custom versions of the AI for enemies of that type.

Buffs and Status

Time permitting, simple buffs (conversely, debuffs) will be an ideal addition to the game. A buff is a temporary modification to the player's base stats such as movement speed or attack power. Buffs would be activated through the use of items or the casting of defensive spells. Each type of buff would bear its own specifics, and would have to be coded on its own merits. In theory, a buff-debuff system would require only a small flag placed on the screen to remind the player of its presence, and its duration. Once the buff's lifetime has been exceeded, it would be removed from the player.

Time permitting, status ailments and powerups would be make additional ideal addition to the game. Status ailments are similar to debuffs in nature, but provide effects beyond adjustments to a player's base statistics. For example, the "silenced" ailment in some games prohibits the player from casting magic spells for a short time. As with buffs and debuffs, each would have to be implemented individually.

Elemental Affinity

Time permitting, another worthwhile addition to the combat system would be elemental affinity.

Certain weapons, spells, and enemies might be affiliated with specific classical elements (fire, air, water, and earth). Enemies of a certain elemental class might be weak to their opposing element. Attacking such an enemy with a weapon or spell affiliated with this opposing element might do double damage. In some cases, enemies might be impervious damage from sources of any other kind.

The Open World

Background

Traditionally, in adventure games, players expect to be met with objectives sequentially so they might be told a story. This story sweeps up the player and carries them through the narrative and through the game's world, forcing them to invest in the characters and setting. If well implemented, the result of this experience is the same sense of immersion which one derives from a good book.

The goal of an open world, therefore, should be to give the player the freedom to explore the world they've invested in more thoroughly than would otherwise be possible.

An open world should be a compliment to — and not a replacement for — traditional storytelling. This notion is critical to understanding the nuances of effective open world design. A good open world must provide the same foundational support to a game's story that a closed world does, while also liberating the player from boundaries and presenting them with ample world contents the way only an open world can.

This conjecture might seem out of place in a requirements specification, but it is essential context for understanding the following requirements:

- An open world must contain linear components (namely, the story).
- An open world must be varied and immersive.
- An open world must be richly populated with all manner of world-texturizing entities.

It should be noted that the choice to implement an open world without a coherent story is purely academic — an open world poses a more interesting and satisfying development experience than a simple story, and we lack the time to do both.

Requirements

In accordance with the above conclusions, the gameworld in All Who Wander must meet the following requirements:

- The gameworld will consist of a 3000 x 3000 grid of tiles (tile map).
- The world must be divided loosely into a 9 x 9 grid of regions, each 1000 x 1000 tiles across and tall, and each characterised by a unique biome or feature.

- The following regions must be implemented:
    - A forested region.
    - A volcanic caldera region.
    - A snowy mountain-top region.
    - A lakes-and-river-delta region.
    - A swamp region.
    - A desert region.
    - A grassland region.
    - A large metropolitan town.
- Each region should contain some core element such as a dungeon. Accessing the core element in each region might serve as the game's main objective.
    - Time permitting, each core element should be accessible only by completing a series of puzzles.
    - Some regions might contain dungeons — smaller levels disconnected from the main world. Each dungeon should consist of a sequence of rooms, and a boss fight at the end.
    - Some or all regions should boast a small town.
- Connecting these regions must be a system of interconnected linear paths.
    - Along these paths, story elements and events will be placed.
    - Along these paths will be placed the main world-establishing scenery.
    - Obstacles (such as enemies or puzzles) should be placed along these paths.
- Travel by off-path world traversal must be possible.
    - Off-path travel must be made treacherous by way of circuitous or slow travel, or else the presence of more monsters to be fought.
    - Treasure, puzzles, and other world-populating entities should be placed off-path to the degree that is possible within time constraints.
- Littered throughout the world must be items (food, coins, raw materials, etc.).
- Littered throughout the world must be appropriate scenery such as statues, ruins, buildings, and so on.

Building the World

The gameworld in All Who Wander will be handcrafted tile by tile, and layer by layer. Likely, a rough outline of a continent-like landmass will be sketched in accordance with the above specifications. From this, progressively more detailed sketches of this world (and eventually, of each region) will be created which fill in further detail.
At each step, checks will be performed to ensure that the emerging game world conforms to any story which might be taking shape (and vice versa) and take advantage of game mechanics as needed.

Eventually, these sketches will guide construction of the gameworld inside Unity's built-in tile map editor.

Regions and Paths

Splitting a world up into regions with core features connected by paths might seem rudimentary, but it is an important restriction to impose in the context of an open world. Should a story be implemented, it will occur either in the central features in each region or else on the paths between them. Off-path areas would exist to contain auxiliary world-populating entities.

In other words, segmenting the open world into on-path and off-path regions is essential to any storytelling which might be implemented.

Off-Path Areas

Traditionally, off-path areas in closed-world games would take the form of minor offshoots from the main path wherein side quests and the like would be hidden away. Off-path areas in an open world serve much the same function, except they would require more intensive exploration of the wilderness in order to find. This, and there would be more of them, ideally.

Time permitting, side-quests and treasure of all types might be distributed throughout the world in All Who Wander.

Non-Player Characters

In order to limit scope, non-player characters will be consigned to paths and towns unless explicitly needed elsewhere by the story. These characters will be limited to simple, static phrases of dialogue chosen randomly upon interaction.

Enemies and Spawning

As with any adventure RPG, All Who Wander will boast a number of different types of enemies such as goblins, skeletons, slimes, and so on. Some enemies will be generic throughout the entire gameworld, while others might be exclusive to specific regions.

For the most part, enemies will be spawned in pairs or triplets. Spawn points will be placed strategically, by hand, throughout the gameworld. Spawn points will occur regularly along paths, and irregularly in logical locations throughout the off-path areas of the world.

Other Interactive Elements

Other interactive world elements might include puzzles, treasure, side quests, and so on. There are no strict definitions or easy formula for these objects. Ultimately, populating the game's world with enough to make it feel full will require no more or less than effort and care.

As such, time permitting, the game's world will be populated with whatever can be thought of to the degree that is possible.

Dungeons

A small handful of dungeons will be placed at strategic locations within the world. These dungeons will serve two purposes: to provide objectives, and to house key items, magic spells, or other such capability-increasing entities which will ramp-up a player's abilities once attained.

Additionally, dungeons will be essential to any story which is implemented.

Likely, these dungeons will be themed in accordance with the regions in which they are embedded (a fire themed dungeon in the volcano region, for example). Each dungeon will consist of a series of rooms traversed in sequence, terminating in a boss-fight. The solving of a dungeon will require the collection of keys rewarded to the player through combat or else puzzle solving. Each key will unlock further areas of the dungeon.

As a matter of scope limiting, dungeons may be scaled down to include only a single key obtained by the solving of a single puzzle, followed by a boss battle.

Items and Crafting

Overview

Items will be in-game objects which provide utility to the player. Items within the game will provide the user with the means of customising their character's power level, fortitude, open up areas of the game world, and have other uses. All Who Wander will require multiple subsystems working in tandem to create a functioning item system.

Specific types of item will be discussed on a per-type basis below. In general, the following requirements must be imposed items and the item-system:

- Items will be in-game objects existing within the gameworld until they are collected by the player. They will then enter the player's inventory.
- Every item will be represented in-game and within various user interfaces by their icon.
- In-game, items can be interacted with by the player.
    - In-game, items will be highlighted using a colored border around their sprite.
    - Each in-game item will bear its own hitbox, for use in various interactions.
- Using the hotkey mapping system, items will be usable by the player.
- Items will be classified based upon their roles within the larger gameworld, and upon which subsystems they interact with (crafting materials, loot, weapons, storyline, etc.).
    - A sensical class hierarchy for items will be implemented in-code.
    - A database of all items within the game world will be maintained and managed, as well as smaller databases based on the items classes.
- Items may be restricted from use until a character's level has reached a certain point, items that have this restriction should show this information clearly upon inspection.

Weapons and Spells

Weapons and spells will be a central category of item within the game, and the following requirements will be imposed upon them:

- Weapons and spells will be classified as types of items.
    - Weapons will be further classified into swords, spears, bows, and arrows.
- Each spell will be an entirely independent, one of a kind item-type.
- Weapons and spells will be collected by the player through various means:
    - For the most part, weapons will be dropped by enemies in accordance with the loot system, or else found in chests.
    - Spells will be acquired by the player at specific points (in dungeons, for example).
    - Weapons and spells will not be constructable via a crafting system.
- Weapons and spells will be equippable.
    - Only a single of each type of weapon (sword, shield, etc.) will be equippable at a time.
    - Different weapons will modify the player's sprite.
- Each individual weapon will have unique stats, varying off base stats for that weapon type. The offensive and defensive stats of a weapon (or shield) will be factored into the mathematics of the combat system
- Each spell will have its own unique stats.
- Spells will drain a player's mana. Once out of mana, no further spells can be cast.

Consumables

Consumable items will be items which, once used, are removed from the player's inventory. Examples might include potions or elixirs, offensive items like bombs, and so on. The following requirements will be imposed upon them:

- Consumable items are a class of item, examples include arrows, bombs, potions, keys, storyline objects, and so on.
- Consumables may be created by the player using the crafting system, or collected within loot drops.
- Consumables will be equippable.
- Within the inventory, consumable objects will be stacked such that multiple instances occupy the same slot in the inventory, or the same slot within the hotkey system.
- Many consumable objects will, once consumed, have some effect on the player's stats:
    - Some consumable objects may increase a player's health points.
    - Some consumable objects may provide a combat buff.
    - Consumables which act upon scaling base stats (such as health points, which increase with level) should provide a percentile boost to those stats as opposed to fixed-amount boosts.

Loot Drops and Chests

Chests and loot-drops will both give items to the player. Chests will be scattered throughout the gameworld, and will be openable with a key (itself, an item). Loot drops will occur when a player defeats an enemy.

The following requirements will be imposed upon loot drops and chests:

- Chests will be scattered throughout the gameworld. If a player is within interaction range of a chest and they then use a key item (equipped to a hotkey), the chest will open.
- Loot drops will occur when the player slays an enemy in game.
    - Higher-level enemies will drop better items.
    - Loot drops will appear as "bag" items in the place where the slain enemy once stood.
- Both loot drops and chests will, once activated, present a small pop-up interface presenting 3 randomly selected items contained to the player.
    - The player will select which items, if any, they want to keep. These items will be moved to the player's inventory.
    - Once opened, an algorithm will randomly populate the contents of the chest of loot bag.
- Chests will not vary in the quality of items contained.
- Opened chests will disappear after 2 minutes. Opened loot bags will disappear after five minutes. Both will disappear instantly if their entire contents are taken by the player.
- A set number of chests will exist in the worst at any given time. When one chest disappears, another will spawn elsewhere in the world.

Crafting

A crafting system will allow the player to take mundane items such as monster parts and minerals and turn them into more useful items for the player. The following requirements will be imposed on the crafting system (if it is implemented):

- The crafting system will let the player select items in their inventory and combine them into other (better, rarer, more useful) items.
- The crafting system will provide its own interface, but can only be invoked by accessing crafting tables located in towns and other key locations.
    - This interface will present three slots to the player — two to hold the input ingredients, and one to display the output.
    - Items will be selected from the players inventory to be used in the recipe.
    - Once those the two items are slotted, if they are a viable combination to create an item than the item should appear in a third spot of the UI element and the two items placed before should destroy themselves.
    - If the items do not match a recipe then that will be indicated to the player.
- A signpost will be placed next to each crafting table presenting instructions to the player.

- NPCs should randomly provide a player with crafting recipes.
- Recipes do not need to be known to be used.
- Many types of objects, particularly consumable objects, will be craftable using this system.

Leveling

All Who Wander will present a very simple leveling system. Levelling will be handled by an experience point system, in which killing monsters or completing specific tasks, quests, dungeons, or activities grants an amount of experience points. Each time a player gains enough experience points, their level will increase.

The following requirements will be imposed on the leveling system:

- The player's character will see an increase in base stats such as health points, mana points, and base attack strength with each level earned.
- Character death will not impact character level.
- Experience points will be shown by a floating text above the character sprite whenever experience has been given, and if possible, a small bar or number should show the progress to the next level.
- Enemies will award experience points based on their difficulty with tougher enemies awarding higher point values.
- A character will not lose a level once it is gained.

Story

All Who Wander will provide players with a very basic story to drive player behaviour and investment in the game. The purpose of the story should be twofold: it should provide the player with a basic understanding of their purpose within the game's world, and it should also provide an understanding of game mechanics through the use of tutorials and exposition.

The main story of All Who Wander will be the classic story of a hero who overcomes hardship and enemies to ultimately provide a greater service to the world he or she exists within.

The following requirements will be imposed upon the story:

- NPCs, in-game entities, and in-game objects will dispense a story that fits within the open world style of the game and will be short succinct micro stories that fulfil the greater thematic ideals of greater service.
- NPCS should provide a story to the player through dialogue.
    - Other player actions will be disabled while a dialogue box is open.

- The story will be vague and follow a very basic idea that fits within the small scope of the game.
- Some NPCs will dispense snippets of lore or backstory when spoken to.
- Lore objects — static in-game objects such as signposts — will provide the player further understanding of the world as a whole through interaction.
    - Lore objects will not provide information about specific storylines or quests but rather should flesh out the world in which the player character exists.
    - Lore objects are stationary, not lootable, and do not change the information they provide.

User Interface

Overview

All Who Wander will require a number of user interfaces to relay information to the user, and to act as a buffer for when the game is paused or is starting. The aesthetic, look, and feel, of these various user interfaces will mimic that of the in-game aesthetic — namely, a retro 2D pixel style.

Game Overlay

In accordance with the visual interfaces of other games of this type, and the requirements specified, the following constraints will be expected of the overlay screen:

- The in-game heads-up-display or “overlay” must always be present whilst the in-game. Other interfaces such as the inventory screen will be drawn over this and the gameworld in a layered fashion.
- Details relevant to the user must be presented in a clear and easy to view manner. Relevant details are as follow:
    - Health Points.
    - A button to pause the game/open the settings .
    - A hotbar that contains 10 slots that can be filled with items .
    - An inventory button that shows all items/consumables that the player has picked.
    - Additional space to accommodate for other information displays like Score/Coins, or mana (magic power).
    - A game map with current players position relevant to the game world.
- The in-game overlay must occupy less than 25% of the screen view.
- The in-game overlay must relay information quickly and accurately in real time, if a game player is damaged then it should be shown in the overlay immediately.

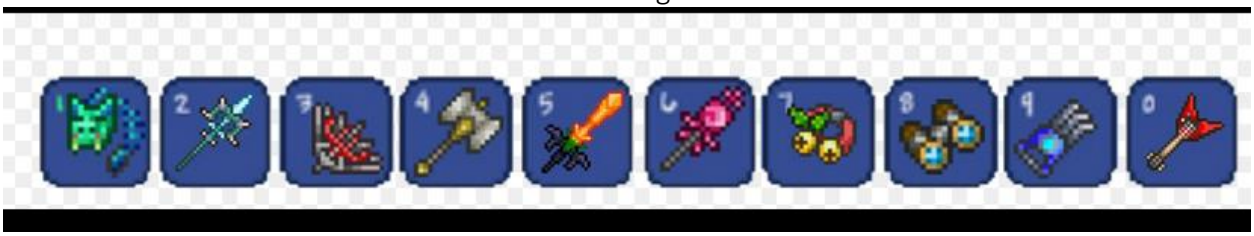
Inventory

- The game will pause, and the inventory will open if the inventory button is selected in the game overlay.
- Must display all user items in an easy to read and view manner.
- All items contained within the inventory must be able to be moved to any other position in the inventory.
- All items must be able to be assigned a hotkey. If an item is assigned a hotkey, then it will be moved to the hotbar that displays in the game overlay and can be activated or used by hitting whichever hotkey was assigned to said item.
- Any item that is obtained must immediately be present in the inventory.

Overlay Hotbar

- The hotbar must contain 10 slots wherein items are to be registered.
- The hotbar must display the key associated with each item it contains.
- The hotbar must display the icon of each item, and the amount available if applicable.
- The hotbar must be sufficiently large so that a user can easily identify all items and hotkeys within the hotbar
- If a user hits a key that has been assigned in the hotbar, the corresponding item will be used/activated immediately.

Hotbar Design Idea



Pause Screen

- If the settings/pause button is pressed in the overlay, then the game will pause immediately, and the settings menu will be displayed.
- Within the menu, options to exit, save, or load a game, along with game settings must be present.
- Exiting the menu must resume the game.

Game Settings

- Selecting the game settings button from within the pause/settings screen must display all editable game options with applicable toggles for each setting.
- The user must have the option to save the changes they have made.

- Exiting from the game settings menu will return the user to the pause screen.

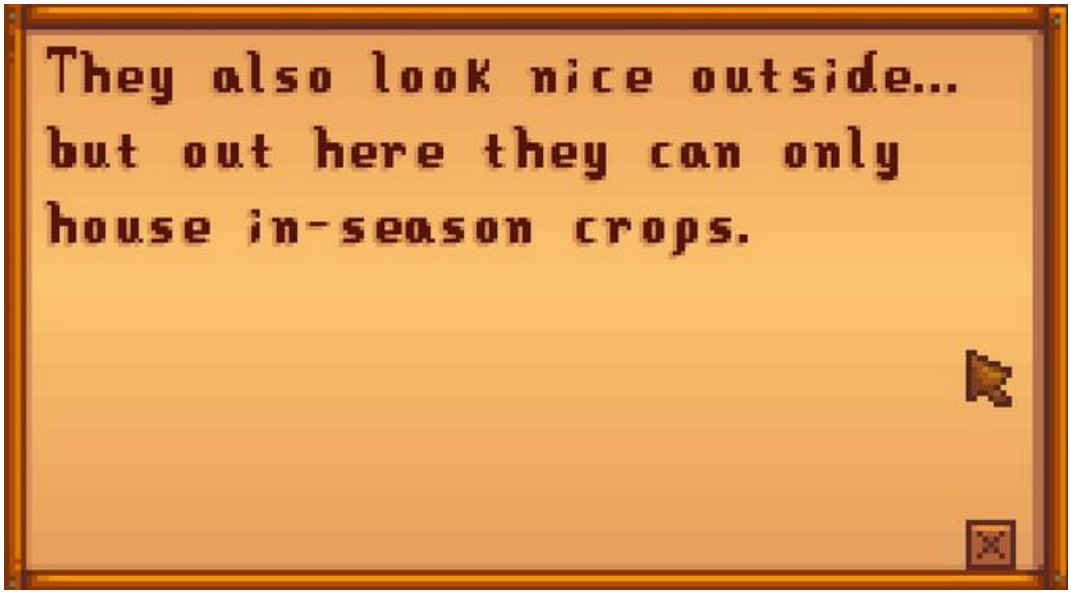
Start Screen

- Must be the first screen presented when the application is first run
- Must allow user to select game entry options like start a new game, load a saved game
- Must also have a button to display the game settings menu

Dialog Boxes

- Must be general enough to use with any text prompt the game may want to display to a user.
- Must be clear enough to easily read.
- Must be able close the dialog box quickly.
- Game pauses when a user is presented with a text prompt.

Game Dialog UI Idea



Art Direction and Assets

Aesthetic

The use of 2D sprites and 16x16 pixel art tiles will give the game an overall retro feel. All Who Wander is set in a post apocalypse like world where ruins are scattered about but with no explanation as to how things became the way they are. On the surface level, the game appears to be bright but with subtle undertones of darkness. The open world aspect of the game will serve to act as this bright component. Giving the user a sense of adventure and opportunity, but also loneliness. On the other side, the dungeons serve as the darkness component, where the art style becomes more dark and eerie. The in-game sound will also be reflected in these changes between overworld and underworld.

Assets

All Who Wander will make use of two main types of asset — sprites (2D images) and audio.

The bulk of the visual entities present in All Who Wander originate from a singular game-asset collection purchased via the Unity Asset Store, known as the Super Retro World : Complete Collection. A handful of other small asset packs with congruent art styles to the aforementioned have been collected, and may be used for various purposes.

Further purchase of visual assets for animated enemy/creatures may be required. Where possible, some other visual assets may be drawn for the project by team members, for various purposes.

Sound effects and music will be gathered from royalty-free asset repositories.

Non-Functional Requirements

All Who Wander and its encompassing academic assignment impose no further non-functional requirements, excepting for the completion of all project-related activities and documentation.

To be specific: no performance, maintainability, safety, security, or quality requirements are imposed. As well, there are no external-interface requirements which require consideration.