

Project: Dreamscape
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1. Introduction and Project Overview

Dreamscape is a primarily stealth, turn-based strategy game with horror undertones and elements. The game focuses on the player's avatar, a treasure hunter, with the ability to jump and cross different fantastical and supernatural worlds each with a different theme. The player visits these worlds, and each world contains a set of levels. The levels are then traversed in a set order. Each level then contains a set number of different kinds of enemies and obstacles laid out in a grid tile map. The player then traverses the level by sneaking their way to obtain the level's goal item of the level and then escaping from the level and enemies after obtaining the item. The player will then work through all the levels in each world and then after the final level the world is complete and then the player unlocks the following world. As the player works through the levels, they can gain unique items that help them get through the given levels. The end goal of the game is to work through each world's levels and gain the final treasure of each world.

2. Objectives

2.1 BUSINESS OBJECTIVES

The following is a list of business objectives:

Objective 1: Menus: The user selects from the following menus before playing the game:

- ❖ World Selection
- ❖ Player Menu
- ❖ Level Select
- ❖ Settings

Objective 2: Player: The player has the choice of choosing tools to bring into levels and increase their skills throughout the game.

- ❖ Tool Inventory
- ❖ Skill Points
- ❖ Strength Level
- ❖ Stealth Level
- ❖ Satchel Level

Objective 3: Levels: The player needs to find the special item and level exit to be able to complete the level and go to the next level. As the player advances the difficulty of the levels increases.

- ❖ Special Item
- ❖ Enemies
- ❖ Consumables
- ❖ Keys

Objective 4: Environments: During the game the player is able to interact with the environment this could include hazardous environments such as fire or an obstacle.

- ❖ Fire, Spikes, or Water
- ❖ Walls and fences

Objective 5: Player Movement System: The player is able to move a number of spaces and when it's their turn. Player has the option of using movement items and interacting with the environment to advance.

- ❖ Number of Moves
- ❖ Interact
- ❖ Items

Objective 6: Fighting System: Both the player and enemy would be able to initiate a fight and take turns between moves. The player has the ability to use items and possibly run away from the fight.

- ❖ Player and Enemies Turns
- ❖ Player Damage
- ❖ Escape Choice
- ❖ Items

2.2 SYSTEM OBJECTIVES

The following is a list of system objectives:

Objective 1: Menus: Implement a responsive UI/UX design that is intuitive and ensures smooth navigation on various device screens.

- ❖ Use input handling to manage the user input for navigating through the menu options.
- ❖ Create buttons for selection on the menu option.

Objective 2: Player: Data files will be used to store game data like player progress, tools inventory, and level status.

- ❖ Create a data structure for the tool inventory utilizing collections like lists and arrays to manage tools efficiently.
- ❖ Calculate and update player damage, escape chance, satchel size based on skill points invested.
- ❖ Use data storage to store and load the player and game progress.

Objective 3: Levels: Incorporate a grid-based map system for varied level designs.

- ❖ Implement efficient pathfinding algorithms to govern enemy movements and AI reactions to player's actions.
- ❖ Create different level layouts which includes items, enemies, doors, exits and hazardous environments
- ❖ Create triggers in the environment that responds and affects the player action.

Objective 4: Environment: Create level environment of the game. Ensure the environments are arranged in an interactive and engaging manner.

- ❖ Create a track and update system to make sure enemies and player cannot enter Obstacles
- ❖ Hazardous Environments should affect the health variables of the enemies and player
- ❖ Buttons should prompt the user to interact with certain environments and update the players movements points using variables

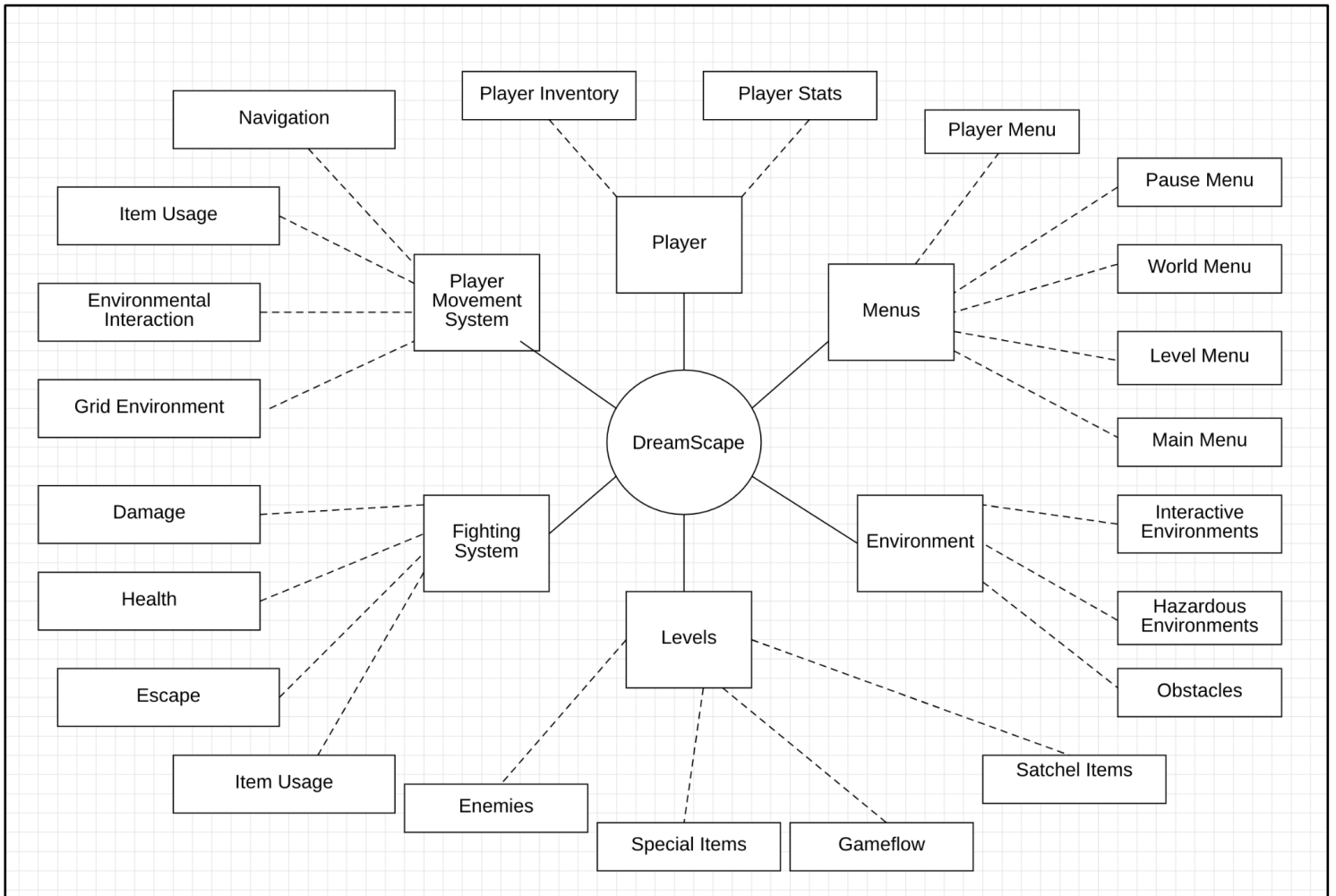
Objective 5: Player Movement System: Incorporate a flexible grid-based map system to cater to the varied level designs across different worlds.

- ❖ Create a data structure for the tool inventory utilizing C# collections like lists and arrays to manage tools efficiently.
- ❖ Navigate the grid base by dragging player path or clicking a grid to find the shortest path

Objective 6: Fighting System: Incorporate a turn based fighting system where the player and enemy can damage each other for a given amount of damage that then lowers their given HP bar until the player either successfully escapes or kills the enemy or the player dies.

- ❖ Develop a GUI to be able to display menus during fight scenes that show options for escape, fight, and items.
- ❖ Implement logic system to determine success or failure of escape attempt by player
- ❖ Develop damage calculations based on attack used or item used.
- ❖ Define enemy and player health levels using variables

3. Project Context Diagram



4. Systems Requirements

4.1 "MENUS" REQUIREMENTS

Requirement Title:	Menus
Sequence No:	001
Short description:	Main Menu
Detailed Description:	<p>GUI that concerns itself with the movement between different systems of the game and states of the game. Seamless transition between the Main Menu and submenus through buttons.</p> <p>The user has the option of the following from the Main Menu:</p> <ul style="list-style-type: none">- World Selection Menu- Player Menu- Settings Menu- Exit
Pre-Conditions:	<ul style="list-style-type: none">- the application should be open
Post Conditions:	<ul style="list-style-type: none">- The selected menu will be opened and the Main Menu should disappear.- If Exit is selected the game closes.
Other attributes:	

Requirement Title:	Menus
Sequence No:	002
Short description:	World Menu
Detailed Description:	<p>Interactive GUI that allows players to navigate between Worlds. The user has the option of selecting an unlocked World to play.</p> <p>Each World has a button that can be pressed. The respective World Button that is pressed opens the Level Menu of that World.</p> <p>The user has the option of the following from the World Menu:</p> <ul style="list-style-type: none"> - Circus World is a circus themed world with Levels - Return to Main Menu button returns the player to the Main Menu
Pre-Conditions:	<ul style="list-style-type: none"> - The World Menu must have been selected beforehand from the Main Menu. - All levels from a previous World should be completed before going to the next World. - The chosen World must be unlocked to be selected.
Post Conditions:	<ul style="list-style-type: none"> - The World Menu should close and the Levels Menu for the selected world should open. - If Return to Main Menu is selected the World Menu should close and the Main Menu should open.
Other attributes:	The first World is unlocked for a new game.

Requirement Title:	Menus
Sequence No:	003
Short description:	Level Menu
Detailed Description:	<p>Interactive interface that allows the player to navigate between Levels of a selected World. The user has the option of selecting to play an Unlocked Level from the Level Menu.</p> <p>The following options are available from the Level Menu:</p> <ul style="list-style-type: none"> - Level 1 - Is an easy level to teach the player how to play the game - Level 2 - is a medium level to push the player to use what they know - Level 3 - is a hard level to challenge players further to use everything they know
Pre-Conditions:	<ul style="list-style-type: none"> - The World must have been chosen from the World Menu to see the respective Level Menu. - A Previous Level should be completed before unlocking the Next Level.
Post Conditions:	<ul style="list-style-type: none"> - Update their current progress if a Level was completed. - If all levels are completed go back to the World Menu and unlock Next World
Other attributes:	The first Level of a world is always unlocked.

Requirement Title:	Menus
Sequence No:	004
Short description:	Pause Menu
Detailed Description:	<p>An interactive UI with buttons that can be accessed during gameplay. When the Pause Menu is opened the game is “frozen/paused” and new menu button options are available to the player.</p> <p>The user has the option to Exit to Main Menu or Unpause the game via the Pause Menu buttons.</p> <p>The following options are available from the Pause Menu:</p> <ul style="list-style-type: none"> - Unpause - Exit to Main Menu
Pre-Conditions:	<ul style="list-style-type: none"> - A level must be started and gameplay must not be paused. - Pauses gamestate when pause is selected. - Pause Menu becomes available to the user.
Post Conditions:	<ul style="list-style-type: none"> - Unpauses the current game state if unpause is selected. - Goes back to the Main Menu if Exit is selected. - No matter what button choice is selected, the Pause Menu will be closed.
Other attributes:	

Requirement Title:	Menus
Sequence No:	005
Short description:	Player Menu
Detailed Description:	<p>Interactive GUI that allows the player to update their Skills and Tools Inventory via buttons. Players can increase and decrease their Skill Levels and select tools for their Tools Inventory from the Player Menu.</p> <p>The following options are available from the Player Menu:</p> <ul style="list-style-type: none"> - Strength Level - Affects how strong the player is. This is checked when the player interacts with the environment or damages enemies. - Stealth Level - Affects how stealthy the player is. This is checked when the player interacts with the environment or tries to escape a fight. - Satchel Level - Affects how many Satchel Items the player can carry. - Confirm - Locks in the Skill Points the player has invested. - Tools Inventory - The Tools that the player chooses to take into a level. <p>The player can only select 3 Tools to include in their Tools Inventory. The tools they select to include must be unlocked in order to be added to their Tools Inventory.</p> <p>The player must have available Skill Points in order to increase a chosen Skill Level (Strength/Stealth/Satchel). If the player decreases a Skill Level the skill points are returned to the player. If Confirm is chosen the allocated Skill Points are locked to the level they were invested into permanently and can no longer be decreased.</p>
Pre-Conditions:	<ul style="list-style-type: none"> - The player should have the Skill Points to be able increase the selected Skill Level. - The player should have unlocked a selected tool in order to add it to their Tools Inventory.

Post Conditions:	<ul style="list-style-type: none"> - Update their current Skill Levels/Tools Inventory if changes were made. - When Confirm is chosen, Skill Levels are locked with the Skill Points that were invested into it.
Other attributes:	

4.2 “PLAYER” REQUIREMENTS

Requirement Title:	Player
Sequence No:	001
Short description:	Player Stats
Detailed Description:	<p>Values of the current Skill Points, Strength, Stealth, and Satchel Levels of the player. These values are used throughout the game and are consistent and unique to the player. These values can be seen, modified, and confirmed through the Player Menu.</p> <p>These stats will be used in the Fighting System to determine damage/escape chances.</p> <p>These stats will also be used during Gameplay in Levels to determine environment skill checks.</p> <p>The stats will also determine the size of the player's Satchel and how many Satchel Items they can carry.</p> <p>Player stat types:</p> <ul style="list-style-type: none">- Strength stat is a positive damage modifier.- Stealth stat is a positive modifier that helps with running away from fights.- Satchel stat adds a flat increase of storage space for ‘satchel’ inventory type item.- Skill Points are gained after completing a level and are invested into different Strength/Stealth/Satchel levels.
Pre-Conditions:	<ul style="list-style-type: none">- The player must have available Skill Points to allocate to desired stat type.
Post Conditions:	<ul style="list-style-type: none">- Update Strength/Stealth/Satchel Level of the player after investment of Skill Points and is Confirmed.
Other attributes:	

Requirement Title:	Player
Sequence No:	002
Short description:	Player Inventory
Detailed Description:	<p>Capability for players to view and manage their Tool Inventory. Option for players to save their current tool configuration.</p> <p>Player has two inventory type systems:</p> <ul style="list-style-type: none"> - Inventory system one is called 'Tools Inventory' where the player is restricted to 3 choices of Tools. - Inventory system two is called 'Satchel Inventory' where a player can bring initially 3 items that are of a Satchel Type (such as potions). This inventory type can be increased based on the player's 'satchel' stat.
Pre-Conditions:	<ul style="list-style-type: none"> - Special Tools in the Tool Inventory must first be Unlocked before being added. These tools are unlocked by completing Levels - Satchel size is determined by the satchel stat.
Post Conditions:	<ul style="list-style-type: none"> - Once Tool Inventory is saved those Tools can be used in levels.
Other attributes:	

4.3 “LEVELS” REQUIREMENTS

Requirement Title:	Levels
Sequence No:	001
Short description:	Gameflow
Detailed Description:	<p>Inside a level, the game progresses by following the Gameflow. The Gameflow starts with the Player's Turn and the player will begin on a set area on the level map. They must find the Special Item then escape through the Level Exit to complete the level.</p> <p>The game is Turn Based and each level always begins on the Player's Turn.</p> <ul style="list-style-type: none">- When the player completes their turn the enemy takes their turn- Turns goes back and forth until the player completes the level, the player loses, or an enemy spots the player <p>If the player is spotted by an enemy the enemy enters an alert state.</p> <ul style="list-style-type: none">- In the Alert State, the enemy chases the player until it is on the same tile as the player.- If the enemy loses sight of the player, the enemy returns to a Neutral State- If the enemy reaches the same tile as the player then a fight will initiate in the Fighting System- If the enemy is defeated the player returns to the level and the enemy is gone- If the enemy defeats the player, the player loses the game and must restart the level. <p>When player gets Special Item:</p> <ul style="list-style-type: none">- The Level Exit opens and the player must escape through the open exit.- Enemies enter permanent alert mode.
Pre-Conditions:	<ul style="list-style-type: none">- The game must be open.- The level must be selected and played and entered.

Post Conditions:	<ul style="list-style-type: none"> - After level is completed the next level opens. - The player gains a new Tool that they can add to their Tool Inventory - The player gains Skill Points to invest into their Skills
Other attributes:	

Requirement Title:	Levels
Sequence No:	002
Short description:	Satchel Items
Detailed Description:	<p>Satchel Items are objects in levels that can be collected by the player that are stored in their Satchel. Satchel Items take up space in the player's Satchel Inventory. Satchel Items can have various attributes that affect the game and player.</p> <ul style="list-style-type: none"> - Satchel Items such as Consumables have various effects that temporarily increase the player's damage, health, or other stats temporarily. - Satchel Items like Keys can be used to unlock doors in the environment. - Satchel Items like a trampoline can move the player multiple grid tiles quickly saving the player movement points and avoiding danger.
Pre-Conditions:	<ul style="list-style-type: none"> - Items must be picked up and in the player's Satchel to be used. - The player must have Satchel space in order to pick up an item.
Post Conditions:	<ul style="list-style-type: none"> - Once an item is used or runs out it is no longer in the player's Satchel. - The Satchel Item's ability is activated.
Other attributes:	

Requirement Title:	Levels
Sequence No:	003
Short description:	Special Items
Detailed Description:	<p>Special Items are goals that the user must pick up in order to reveal the Level's Exit. It is an objective that must be reached in order to complete the level successfully.</p> <p>The Special Item will be hidden in a hard to reach location in the Level's Environment.</p> <p>Once the Special Item is reached the Level's Exit is revealed and the player must locate it.</p>
Pre-Conditions:	<ul style="list-style-type: none"> - The player must walk on top of the Special Item in order to collect it.
Post Conditions:	<ul style="list-style-type: none"> - The Level's Exit is revealed when the Special Item is picked up. - There will be an indicator in the players UI to show that the Special Item has been collected.
Other attributes:	

Requirement Title:	Levels
Sequence No:	004
Short description:	Enemies
Detailed Description:	<p>Enemies are units in the level that hinder the player from completing their goal. The enemies can move and/or do actions when the player turn is over and it's the enemies turn.</p> <p>There are various enemy types that have different forms of movement, attack, and vision.</p> <p>Enemies have different ways of detecting the player by using vision or tracking the player's movements or by guessing the player's position.</p> <ul style="list-style-type: none"> - Patrol Enemy moves along its path until the player is in the range of its vision. - Sentry Enemy is stationary and can rotate on its position so its field of vision can move and look for the player. <p>Enemies can move through the environment in many different ways or be stationary</p> <ul style="list-style-type: none"> - Patrol Enemy has a set path that it moves across. - Sentry Enemy is limited to a single grid space. <p>Enemies can attack the player in various ways such as using projectiles or by landing on the same grid and touching the player.</p> <ul style="list-style-type: none"> - Patrol Enemy will become alert and begin to follow the player. Once the enemy reaches the player the game will transition to the Fighting System and the player and enemy will fight. - Sentry Enemy can shoot projectiles that will damage the player if they are hit by them and can alert patrol enemies.

Pre-Conditions:	<ul style="list-style-type: none"> - Enemies start at the same position when a level is first started with full health.
Post Conditions:	<ul style="list-style-type: none"> - When the enemy runs out of health they are defeated and are removed from the level.
Other attributes:	

4.4 “ENVIRONMENT” REQUIREMENTS

Requirement Title:	Environment
Sequence No:	001
Short description:	Interactive Environment
Detailed Description:	<p>The Interactive Environment implements a variety of interactive objects. These objects of the environment could be pushed and manipulated during the game.</p> <p>When the player approaches an Interactive Environment a button in the UI appears to give the player the option to interact with it. Interacting with the environment costs the player Movement Points.</p> <p>Interactive Environments could include from the following:</p> <ul style="list-style-type: none">- Doors block the player’s path similar to Obstacles in the environment but if the player unlocks the door the door is removed and a new path is available to the player.- Switches can be interacted with to activate environmental effects that could affect the player positively or negatively. A Switch can light the floor on fire to hurt enemies but it could also limit the player’s movement as well.
Pre-Conditions:	<ul style="list-style-type: none">- Check if the player has enough Movement Points to interact with the environment.- Verify if the object or element is in a state where interaction is possible.- Must be the player’s turn.
Post Conditions:	<ul style="list-style-type: none">- Perform the specific action interaction with the object.- Change the state of the interactive object or element.
Other attributes:	

Requirement Title:	Environment
Sequence No:	002
Short description:	Hazardous Environment
Detailed Description:	<p>The Hazardous Environment implements obstacles that damage the player during the game. The player could respond to hazards through actions like avoidance. These hazardous objects could include from the following:</p> <ul style="list-style-type: none"> - Spikes - Water - Fire <p>The player could respond to Hazardous Environments through actions and tactics like avoidance or by using objects in their inventory. Some of the following objects include from following:</p> <ul style="list-style-type: none"> - Protective gear - Special potions
Pre-Conditions:	<ul style="list-style-type: none"> - Check if the player has the necessary items or abilities to interact with the specific hazards - Check if the player is on the Hazardous Environment
Post Conditions:	<ul style="list-style-type: none"> - Update and apply the effects of interaction with the Hazardous Environment
Other attributes:	

Requirement Title:	Environment
Sequence No:	003
Short description:	Obstacles
Detailed Description:	<p>The Obstacles in the environment are challenges that add complexity to the gameplay. The player has to overcome these physical barriers of the game.</p> <p>The player must navigate around these obstacles because they cannot be walked through. Depending on the difficulty of the level the Obstacles in the environment would be arranged accordingly.</p> <p>Harder levels will arrange Obstacles such that the player has a much harder time reaching their goal while easier levels will be less difficult.</p> <p>The obstacle environment includes walls, fences, or trash bags that the player cannot walk on top of.</p>
Pre-Conditions:	<ul style="list-style-type: none"> - Verify that the player is in close proximity to the Obstacle - Must block player
Post Conditions:	<ul style="list-style-type: none"> - Update the player movement to avoid the Obstacle - Player has to navigate around the Obstacle
Other attributes:	

4.5 "PLAYER MOVEMENT SYSTEM" REQUIREMENTS

Requirement Title:	Player Movement System
Sequence No:	001
Short description:	Navigation
Detailed Description:	<p>Players must navigate the grid environment during their turn. The grid shows valid movement tile paths and the number of spaces a player can move.</p> <p>User can press:</p> <ul style="list-style-type: none">- Drag and Drop: Users can drag a path for their character by dragging from the start to the desired endpoint.- Tile Click: Users can click on a desired grid tile; the game will calculate and display the shortest viable path to that location.- Zoom In/Out: To get a closer view or an overview of the grid.
Pre-Conditions:	<ul style="list-style-type: none">- It must be the player's turn.- Players must have sufficient movement points.
Post Conditions:	<ul style="list-style-type: none">- Player is relocated to the selected position.
Other attributes:	<ul style="list-style-type: none">- Grid Environment dictates valid paths.

Requirement Title:	Player Movement System
Sequence No:	002
Short description:	Item Usage
Detailed Description:	<p>Players can utilize Satchel Items from their inventory. The items have distinct abilities that can impact the game, such as modifying movement, interacting with the environment, or affecting other players.</p> <p>When an item is used or consumed, each item carries its own movement point cost so using items carries its own risk and reward. A player can either spend a movement point to use an item and not move on the map or not utilize an item and move more on the map.</p> <p>Users can access their inventory and select a Satchel Item such as:</p> <ul style="list-style-type: none"> - Consumables: To boost the player's attributes temporarily. Potions, elixirs, and other consumable items. Can enhance player stats like damage output, health regeneration, or even provide temporary skills. Varies based on the consumable's attributes. - Keys: Interact with specific elements in the environment. Door keys, chest keys, etc. Unlocks doors, chests, or other sealed areas in the game world. Typically a fixed movement point cost, but might vary depending on the significance of the area being unlocked. - Movement Items: Aid or alter the player's navigation within the grid. Jump boots (to skip tiles), teleportation stones, etc. Enables players to traverse the grid more efficiently, evade hazards, or even save movement points in critical situations. The cost could be high for items that offer significant movement advantages, balancing their powerful effects.
Pre-Conditions:	<ul style="list-style-type: none"> - Players must possess the item in their inventory.

Post Conditions:	<ul style="list-style-type: none"> - Effect of the Satchel Item is applied. - Satchel Items will get consumed or the count will go down.
Other attributes:	<ul style="list-style-type: none"> - Some items may have limited uses or durations.

Requirement Title:	Player Movement System
Sequence No:	003
Short description:	Environmental Interaction
Detailed Description:	<p>Players can interact with specific pieces of the environment by Interacting with the Environment with an on screen button. These interactions can offer benefits, challenges, or advance the player towards their goal.</p> <ul style="list-style-type: none"> - Approach the Environmental Piece: As players navigate the grid, they may come across interactable pieces. If in proximity, the option to interact will become available. When interacted with the interactable piece will activate its effect. Interactable environment pieces could be switches that open doors, hiding spots, or hazards. - Select Interaction Option: Upon nearing an environmental piece, players will be signaled that it is interactable. If interacted with these environments, players will be presented with interaction options. They might see options like "Inspect", "Use", or "Manipulate", depending on the nature of the environmental piece. When using an interaction object a short description will be presented about the object. - Confirm Interaction: Once an option is selected, players will be given a brief description of the chosen action and its potential outcome. They then have the chance to confirm this interaction, solidifying their choice and triggering the related in-game event or consequence.
Pre-Conditions:	<ul style="list-style-type: none"> - Players must be adjacent or in close proximity to the environment piece.
Post Conditions:	<ul style="list-style-type: none"> - Outcome of the interaction takes effect.
Other attributes:	<ul style="list-style-type: none"> - Some interactions may consume player action points or turns.

Requirement Title:	Player Movement System
Sequence No:	004
Short description:	Grid Environment
Detailed Description:	<p>Understand and Navigate the Grid. The grid environment displays the game space where players navigate, showcasing obstacles, interaction points, and movement paths.</p> <ul style="list-style-type: none"> - Zoom In/Out: Players can adjust the view of the grid for a closer look at specific tiles or a broader overview of the entire game space. Mechanism: By pinching in or out on their screen, players can smoothly zoom in or out. This action allows for a dynamic camera adjustment, focusing on the minutiae or the grand scheme, depending on the player's current need. - Pan the Grid: To explore different areas of the grid or follow their character's movement, players can pan across the grid environment. Mechanism: By dragging their finger across the screen, the camera will pan, following the direction of the movement. This gives players the freedom to explore every nook and cranny of the grid environment, ensuring they don't miss out on any opportunities or threats. - Access Grid Legend: To avoid confusion and to provide clarity on the various symbols, icons, and markers within the grid, players can access a comprehensive grid legend. Mechanism: Tapping on a dedicated "legend" icon or button will bring up a detailed guide. This guide will break down the meaning behind each icon/symbol on the grid, helping players understand potential hazards, points of interest, or specific pathways.
Pre-Conditions:	<ul style="list-style-type: none"> - Player is in the game space.
Post Conditions:	<ul style="list-style-type: none"> - Player has a clearer view and understanding of the grid environment.
Other attributes:	<ul style="list-style-type: none"> - Grid updates dynamically based on game state and player actions.

4.6 “FIGHTING SYSTEM REQUIREMENTS” REQUIREMENTS

Requirement Title:	Fighting System
Sequence No:	001
Short description:	Health
Detailed Description:	<p>Monitor and update Health status of player and enemy. This manages the survival of the player and enemies. This determines the Damage that the player and enemies can take before losing/dying.</p> <p>During a fight the players health can be affected by:</p> <ul style="list-style-type: none">- The use of items such as consumables to improve their Health.- Taking Damage from enemies will lower the Health of the player, similarly enemies will take Damage and lose health if the player attacks them.
Pre-Conditions:	<ul style="list-style-type: none">- Update current Health if Damage was taken.- A fight has to be initiated in the level for the Fighting System to start.
Post Conditions:	<ul style="list-style-type: none">- Player is defeated if their Health hits 0 and the Fighting System state ends and the level is restarted- Enemy is defeated if their Health hits 0 and the player is returned to the level in the same position where they last were.
Other attributes:	

Requirement Title:	Fighting System
Sequence No:	002
Short description:	Escape
Detailed Description:	<p>Allows the player to disengage from fight. This provides the player the option of avoiding confrontations. The success of escaping is determined by the player's Stealth Level and a dice roll.</p> <p>During a fight if the player chooses to Escape:</p> <ul style="list-style-type: none"> - The attempt to Escape must be during their turn. This choice takes up the player's entire turn. - A Random Number Generator is used to determine the success rate of Escape based on stealth, the higher the stealth means the player has a higher chance of Escaping.
Pre-Conditions:	<ul style="list-style-type: none"> - The player can only Escape if it's the player's turn. - A fight has been initiated beforehand.
Post Conditions:	<ul style="list-style-type: none"> - If the Escape was successful, return the player to level over world. - Player gains extra Movement Points for that turn only if the escape was successful. - The fight ends without a winner and the enemy is still in the level. - If failed to escape it returns to the enemy turn and the enemy can attack.
Other attributes:	

Requirement Title:	Fighting System
Sequence No:	003
Short description:	Damage
Detailed Description:	<p>During a fight, both players and enemies have the opportunity to deal Damage based on their strength stat.</p> <p>Damage dealt is influenced by the strength of the attacker. Higher strength means more Damage</p>
Pre-Conditions:	<ul style="list-style-type: none"> - Player Damage is determined by their Strength Skills. - Must be attackers turn for an attacker to deal damage. - A fight must be initiated.
Post Conditions:	<ul style="list-style-type: none"> - Calculate health points after an attack is done. - If player/enemy health points end up to zero the fight ends.
Other attributes:	

Requirement Title:	Fighting System
Sequence No:	004
Short description:	Item Usage
Detailed Description:	<p>Utilize Items during a fight for various advantages. Players have the option to use Items during their turn in a fight. These items can offer various abilities, including healing, enhancing strength, or providing escape opportunities.</p> <p>During a fight the player uses Items by choosing the Item during their turn, thereby taking up their turn. Once the Item has been chosen the Item's ability is activated</p>
Pre-Conditions:	<ul style="list-style-type: none"> - A fight has been initiated. - The player has items in their inventory. - Must be in the player turn
Post Conditions:	<ul style="list-style-type: none"> - The effect of the item is applied, and its count may decrease from the inventory.
Other attributes:	

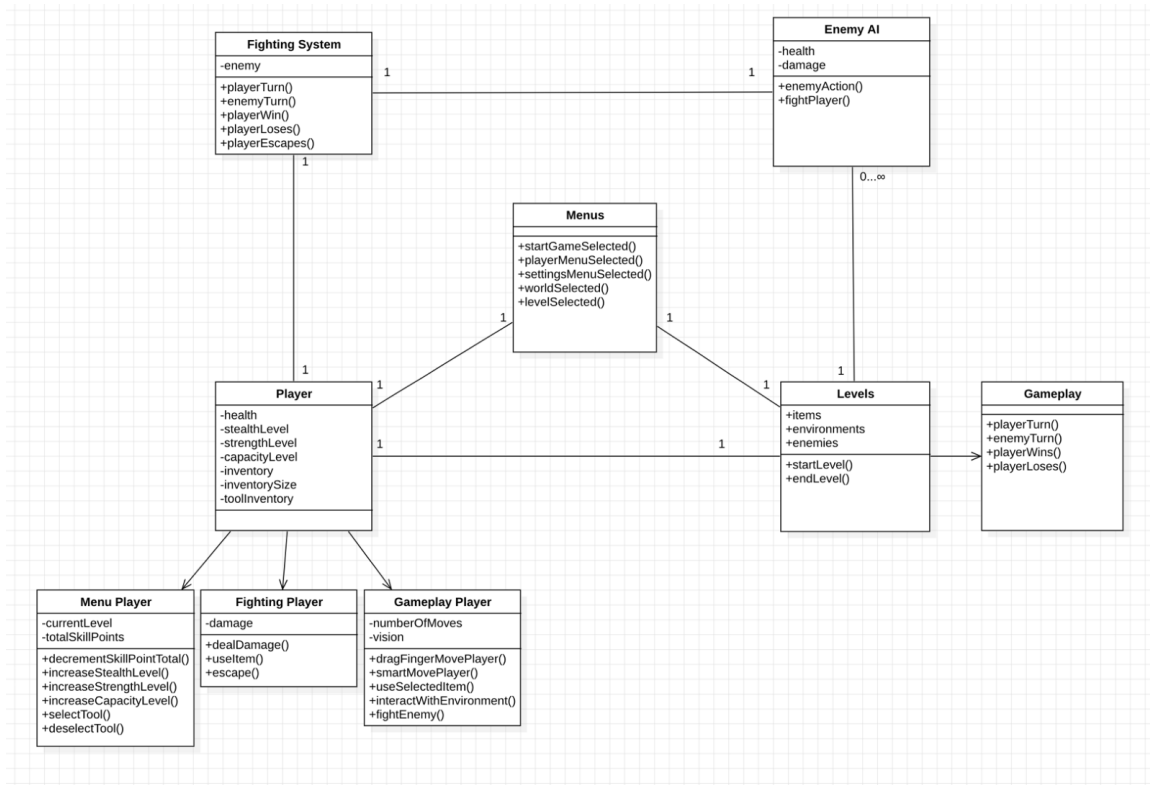
5. Software Processes and Infrastructure

5.1 HARDWARE AND INFRASTRUCTURE

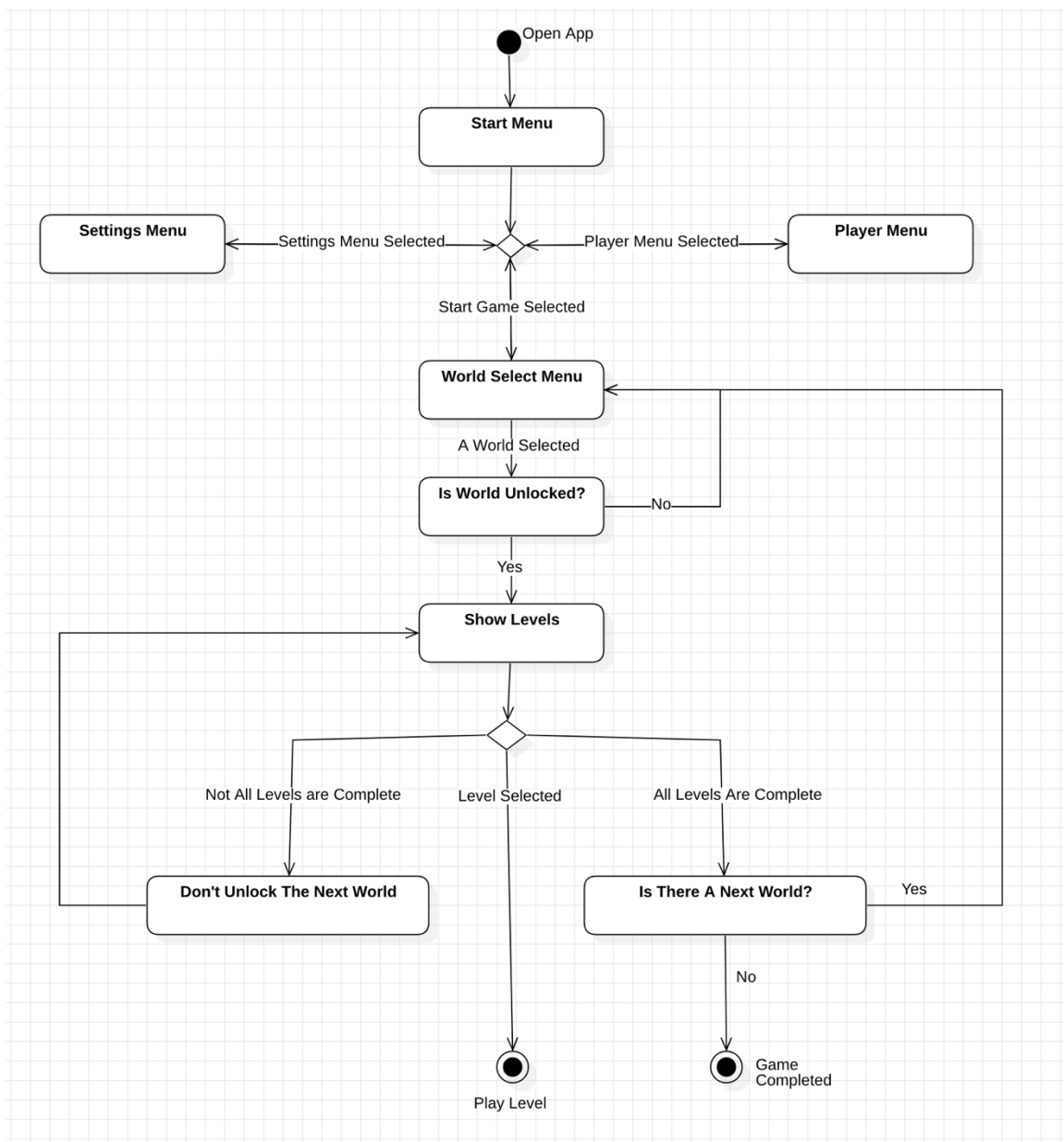
- Unity 2023.1.18
- Android Version Arctic Fox SDK Android 5.0 Lollipop

5.2 UML DIAGRAMS

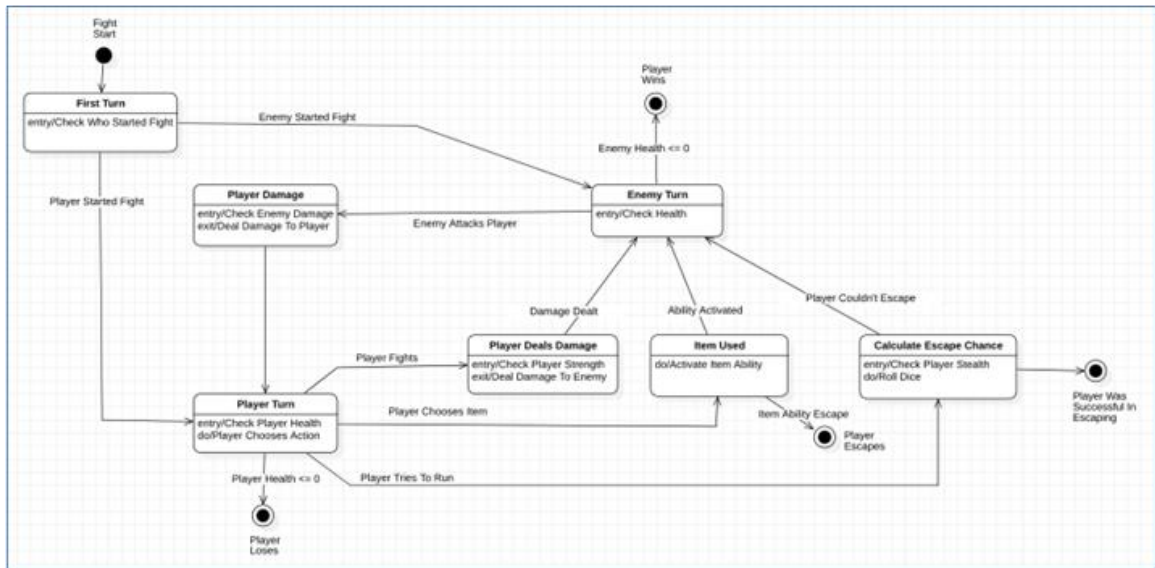
UML DIAGRAM: "UML-CLASS-GAMESYSTEM"



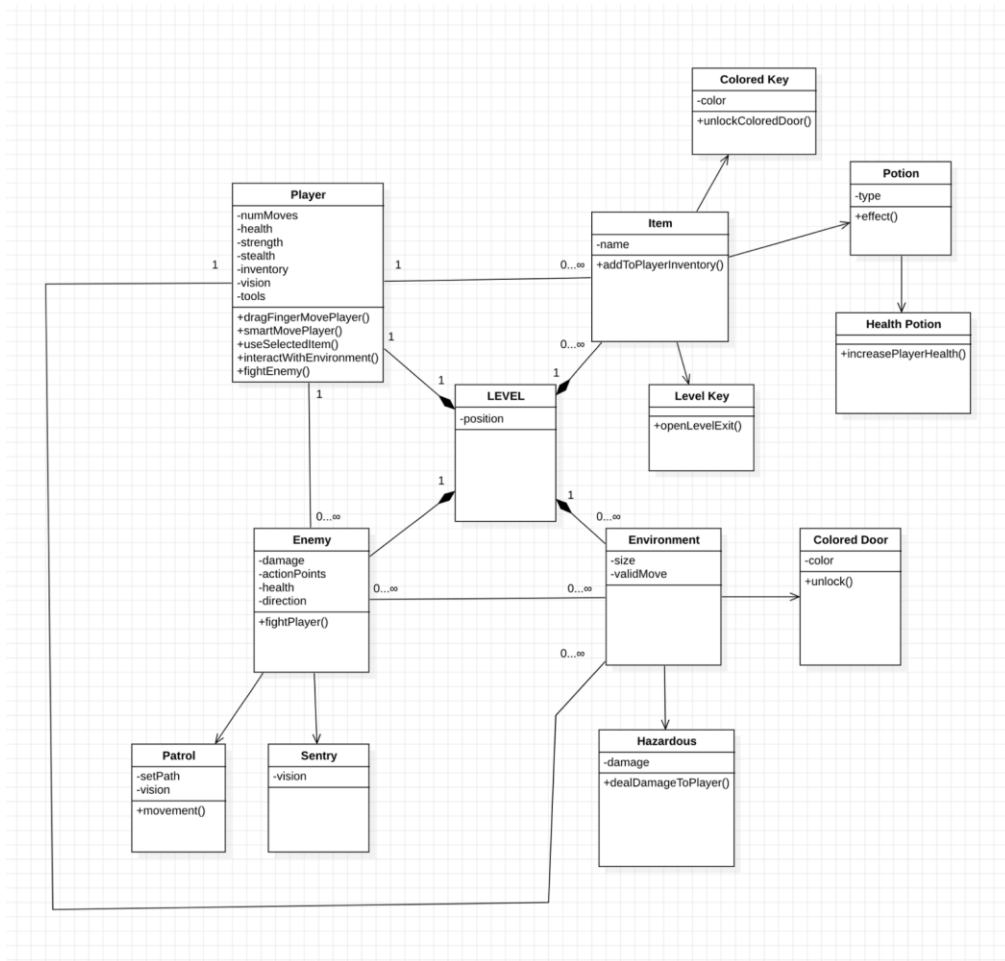
UML DIAGRAM: "UML-ACTIVITY-MENUS"



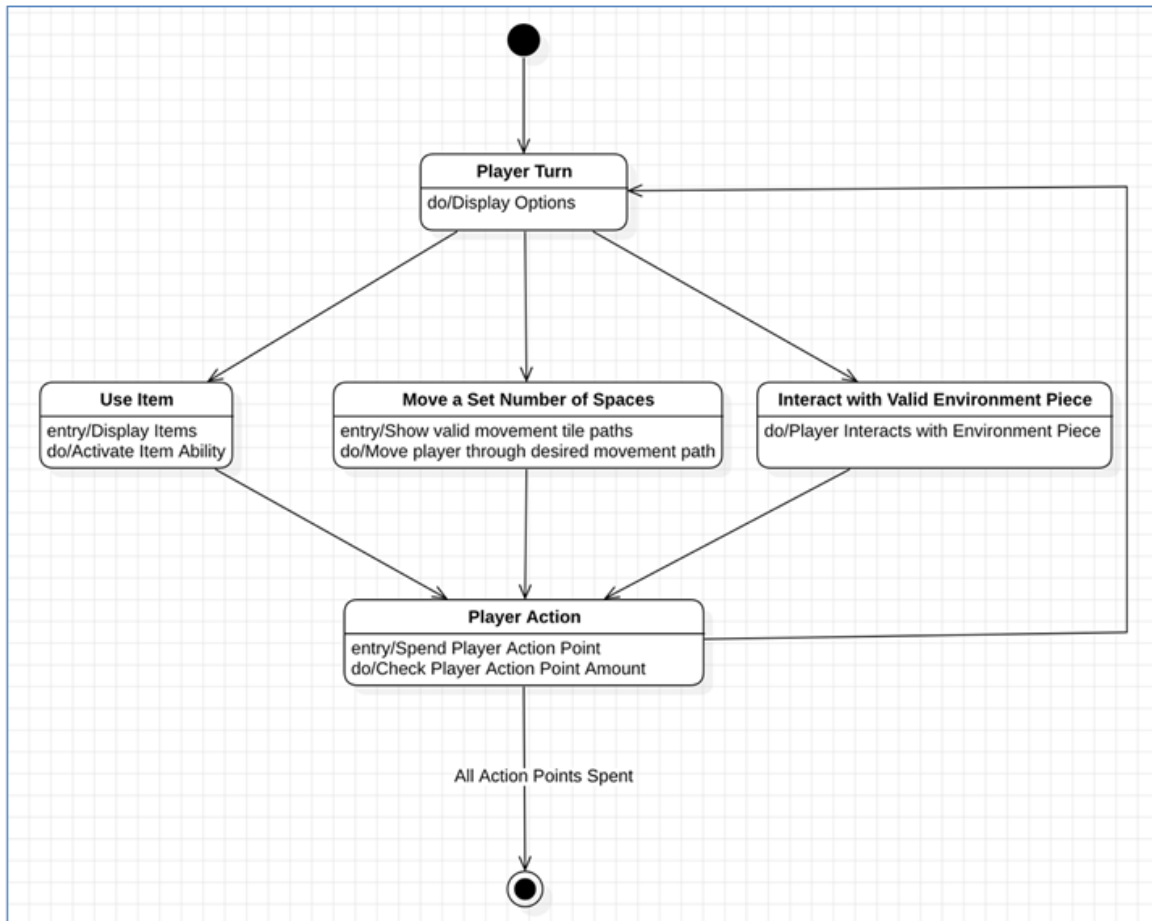
UML DIAGRAM: "UML-STD-FIGHTINGSYSTEM"



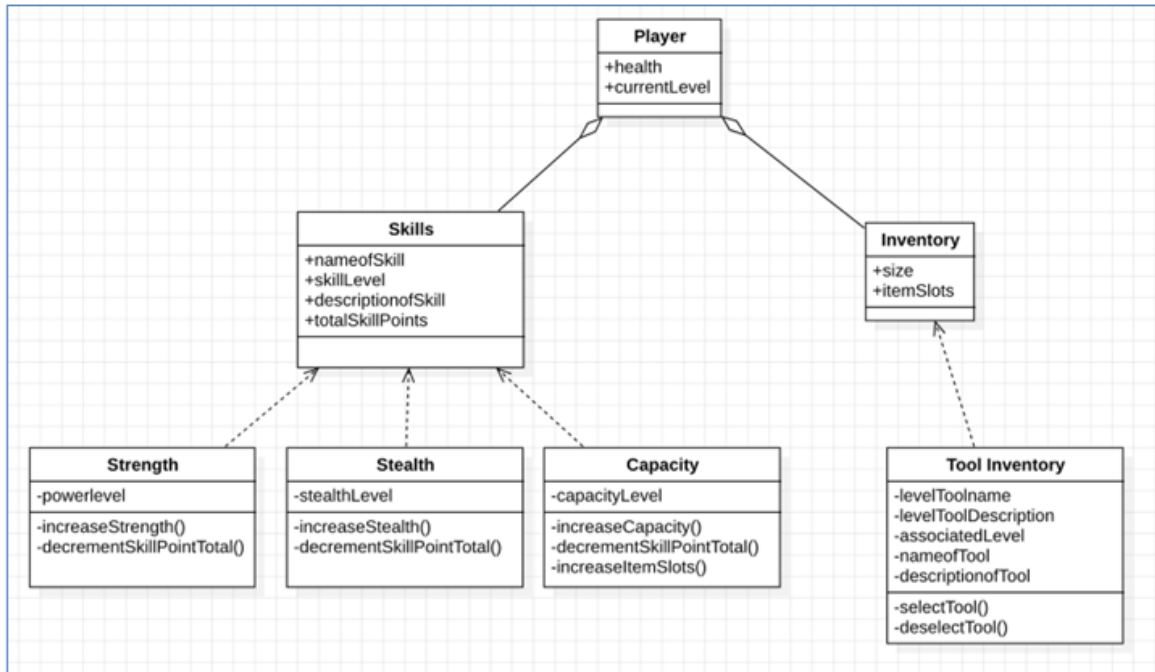
UML DIAGRAM: "UML-CLASS-LEVELS"



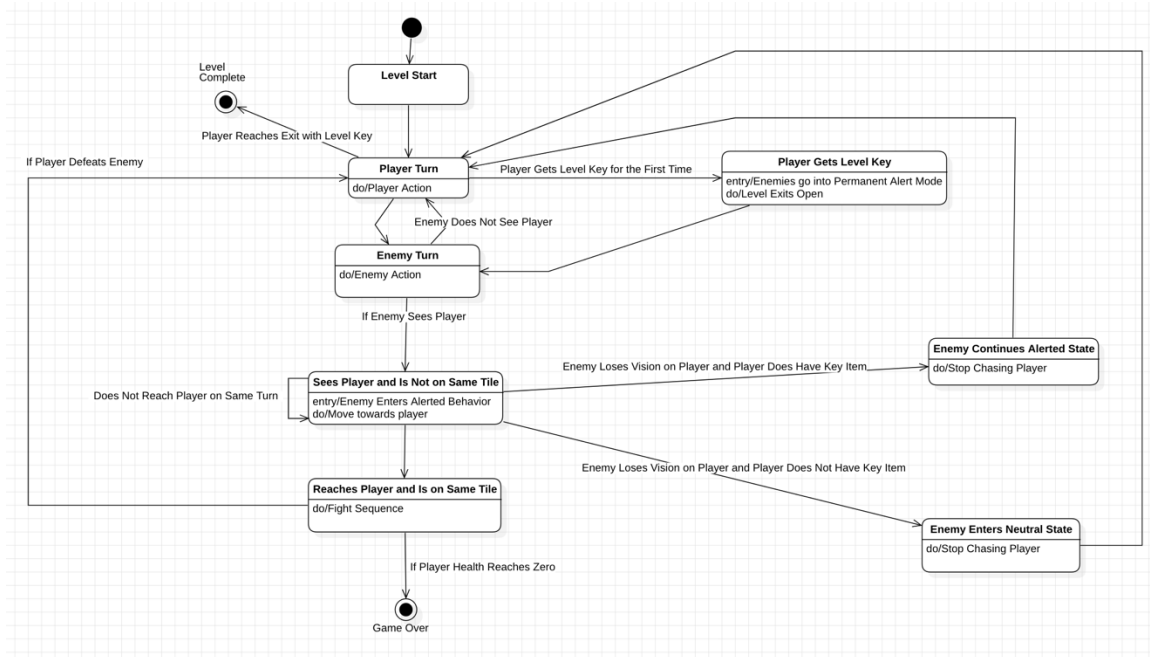
UML DIAGRAM: "UML-STD-MOVEMENTSYSTEM"



UML DIAGRAM: "UML-CLASS-PLAYER"



UML DIAGRAM: "UML-STD-GAMEPLAY"



5.3 CONCEPTUAL DATA MODEL

- C#
- SQLite

5.4 SCREEN SHOTS

None available at this time

5.5 TEST PLAN

TEST CASES: "MENUS"

Project Name: Dreamscape
Test Case Name: Menus
Test Case Id: CSE3310/Fall 2023/Team5/Menus

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Tap on the app icon.	System should open and the main menu should be displayed. Ensure that the navigation is available for the player.	
TC2	When on main menu screen, tap start button	System should take user to the world select screen	
TC3	Swipe left or right on world menu icons	No navigation issues or getting stuck between menus. Allows users to cycle between available worlds to play.	
TC4	During gameplay, locate and tap on the 'pause' button	Level should 'pause' or remain frozen while pause menu is opened	
TC5	Open the app and scroll through the different menus and submenus.	The performance of the menu and submenu should not have any issues, delays or freezes during transitions between menus.	

3. Test Cases: "Player"

Project Name: Dreamscape
Test Case Name: Player
Test Case Id: CSE3310/Fall2023/Team5/Player

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Locate and select the 'tool' option.	Opens available tool list System should allow the player to select up to three tool items the player can take into a level.	
TC2	Complete a level	When a level is complete, a tool item should be unlocked and allowed to be selected by the player to take into a new level	
TC3	Navigate to and press the 'skills' button from the world menu.	Upon entering skills menu: Player should be able to see their skill points Player should be able to see character skills Player should be allowed to invest skill points into skills	
TC4	Observe the end-of-level results screen.	When a player completes a level their skill point amount should increase.	
TC5	Locate and select the player menu from the world menu screen	When a player invests a skill point into a chosen skill then it should update the player's strength, stealth, or satchel attribute accurately. Check if it reflects the character's current abilities.	

4. Test Cases: “Levels”

Project Name: Dreamscape
Test Case Name: Levels
Test Case Id: CSE3310/Fall2023/Team5/Levels

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Enter a patrol enemy detection radius	The enemy should enter an alert state and chase the player	
TC2	Acquire the level’s special item	The level exit is unlocked and all enemies enter the alert mode	
TC3	Enter the level exit after acquiring the special item.	The level should be completed and a new tool should be unlocked	
TC4	Use a satchel item	The effect of the satchel item is activated	
TC5	Use all the available movement points and end turn	Each enemy on the map takes their turn to move/attack	
TC6	Die before reaching the exit	The player loses and the level restarts	
TC7	Pick up a satchel item	The item is added to the player’s satchel inventory	

5. Test Cases: "Environment"

Project Name: Dreamscape
Test Case Name: Environment
Test Case Id: CSE3310/Fall 2023/Team5/Environment

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Navigate to a door and interact with the door	Player should be presented with an option to open door upon interaction If the locked door is locked, the player should have the corresponding key to open the door. The door should open if the player has enough Movement Points or a given item, creating a new path.	
TC2	Locate and activate a switch.	The switch should trigger an environmental change or effect, such as lighting a fire, affecting players/enemies or opening a door.	
TC3	Find and end turn on a tile with fire effect.	The player should receive damage.	
TC4	Search and interact with a wet or water tile.	The player should receive a 'wet' or 'slowed' condition affecting player movement cost.	
TC5	Attempt to pass or move through walls or obstacles	The player should be unable to pass through but able to navigate around the obstacle.	

TC6	With no movement points left, attempt to interact with a close environmental interactable object	<p>The interaction should not be possible if the player lacks sufficient Movement Points.</p> <p>Player is notified they do not have sufficient movement points to interact with the object</p>	
TC7	Use inventory items on hazardous objects.	The item from the inventory should appropriately mitigate or enhance interaction with the hazard object.	
TC8	Attempt to move with no movement points left	The player is notified that they do not have enough movement points to move.	

6. Test Cases: "Player Movement System"

Project Name: DreamScape
Test Case Name: Player-Movement-System
Test Case Id: CSE3310/Fall 2023/Team5/Player-Movement-System

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Drag from player and make a path to desired location tile	The game should display the path and move the player along it when confirmed.	
TC2	Click player character and click desired tile location	The shortest viable path should be displayed and the player moved along it upon confirmation.	
TC3	Pinch and expand on screen	The grid should zoom in/out accordingly, giving a closer view or an overview of the level environment.	
TC4	Use a satchel Item from inventory.	The chosen item's effect is applied and its count is reduced or marked as consumed in the satchel inventory.	
TC5	Interact with an environment piece in a level	The interaction should trigger the specific in-game event or consequence associated with the piece.	
TC6	Drag movement through and around obstacles	The player should be able to move according to the grid's rules, avoiding obstacles and hazards.	

TC7	Swipe across the screen in level	The camera should pan smoothly, allowing the user to explore different areas of the grid without having to move.	
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7. Test Cases: "Fighting System Requirements"

Project Name: Dreamscape

Test Case Name: Fighting System Requirements

Test Case Id: CSE3310/Fall 2023/Team #5/Fighting-System-Requirements

Test Case No.	Test Case Description	Expected results	Outcome Pass, Fail, Other (comments)
TC1	Select 'attack' button during fight scene	The player attacks an enemy. The enemy should lose health points. Health loss is calculated by the strength stat of the player	
TC2	Let enemy attack player	The player health points should decrease based on damage dealt by enemy attack	
TC3	Select the 'run' button during fight scene	Player is given the chance to escape the fight The chance of escape should be calculated using the player's stealth stat	
TC4	Select 'item' button and select valid item from inventory in fight scene	Player inventory should be correctly displayed with items that can be used in a fight sequence. The player's selected item should have its effect activated	
TC5	Let player health reach zero	Results in a player game over and level restarts	

6. Assumptions and Constraints

6.1 ASSUMPTIONS

The following is a list of assumptions:

- Exit is randomized with no obstruction
- Enemies will be generated in the same place
- No need for a save because it is a demo
- User knows how to play video games

6.2 CONSTRAINTS

The following is a list of constraints:

- Team lacks game development skills
- Schedule very aggressive
- Creating extra worlds creates time constraints
- Art style and assets take time to create
- Limited knowledge with game art creation and animations
- Slow learners

6.3 OUT OF SCOPE MATERIAL




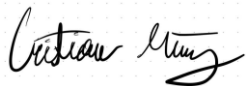
The following is a list of “out of scope” material:

- Polished, finished animations and game art
- Music and sound design
- Effective Error handling
- Create a World 2 and World 3
- Create level 4 and 5 in world 1
- 3D Game
- Role playing game
- Multiple different enemies
- In Depth story
- Advanced AI pathfinding
- Store
- Player Cosmetic Skins
- Character creation

7. Delivery and Schedule

Task/Milestone Description	Anticipated Start Date	Anticipated End Date	Status {Complete, In Progress, To Be Completed-TBC}	Comments
Prepare UML diagrams	9/10/2023	10/4/2023	Complete	Deliverable UML document
SRA document (Includes project objectives, Requirements and UML diagrams)	10/17/2023	11/2/2023	In Progress	Deliverable will be the SRA document. All stakeholders agree on the content of the SRA by signing in section 8.
Menus	11/03/2023	11/10/2023	In Progress	Player Menu, skills Menu, Inventory(tools) need to be completed
Fighting System	11/03/2023	11/20/2023	In Progress	Item Usages needs to be completed
Levels	11/03/2023	11/23/2023	In Progress	Enemy Alert States,Satchel Items, Sentry enemy,keys ,Special Items need to be completed
Player Movement System	11/03/2023	11/20/2023	In Progress	Movement Items,Usages of consumables need to be completed.
Player	11/03/2023	11/15/2023	In Progress	Player Stats,Levels, Tools Inventory, Protective Gear, Movement Drag need to be completed
Environment	11/03/2023	11/20/2023	In Progress	Interactive Environment ,Hazardous Environment ,Obstacles need to be completed.
Test Plan Delivery	11/2/2023	11/16/2023	Completed	Deliverable will be the Test plan document.
External Documentation (i.e. User Manual)	11/28/2023	11/30/2023	Completed	Team
Final Milestone: project delivery	11/26/2023	12/5/2023	Completed	Deliverable will be the final project binder plus product demo

8. Stakeholder Approval Form

Stakeholder Name	Stakeholder Role	Stakeholder Comments	Stakeholder Approval Signature and Date
Bahram Khalili	Client		
Retty George	Client Project Manager		
Rafael Aldaco	CEO/Developer		
Mary-Rose Tracy	Developer		
Diana Rios	Developer		
Cristian Munoz	COO/Developer		

Appendix:

<https://unity.com/releases/editor/archive>

<https://developer.android.com/studio>

https://www.youtube.com/watch?v=1pz_ohupPs&t=343s&ab_channel=Brackeys -
Fighting System