

Homework 2, Team C

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Chapter 1

PlantUML Diagrams

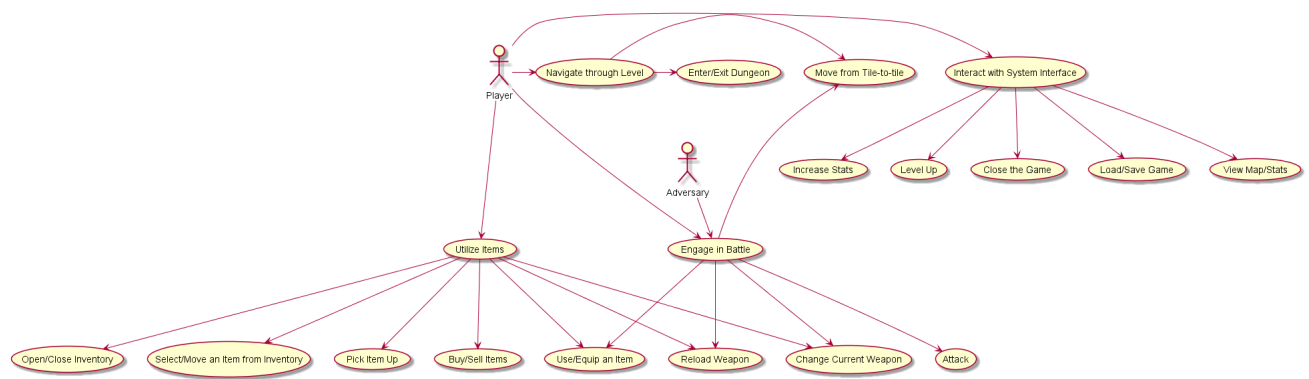


Figure 1.1: UML diagram - Jared Zook

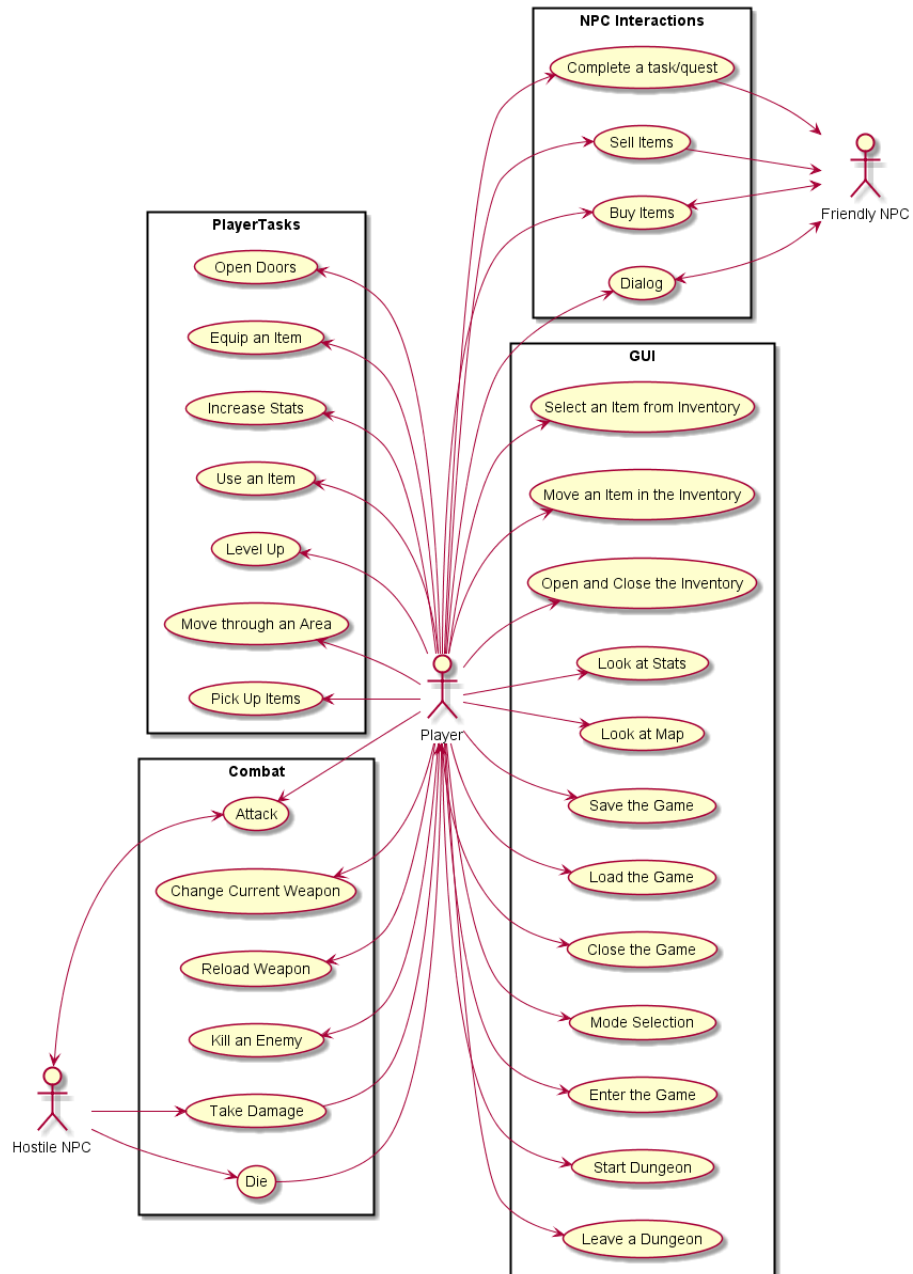


Figure 1.2: UML diagram - Lance Wells

Chapter 2

Use-Case Specifications

2.1 Kurt Blasdel

2.1.1 Open and Close the Inventory

Actor: The Player.

Goal: Open the inventory, or close the inventory when finished.

Summary: The player opens up the inventory in order to view or use items, or the player closes the inventory when they are finished.

Related Use-Cases: Select an item from inventory; Move and item in the inventory

Steps:

1. The player presses the i key
2. An inventory window will open, allowing the player to do things with items in the inventory
3. Pressing the i key again will close the inventory screen

Alternative: The player may also click the Inventory window icon to open/close.

2.1.2 Reload Weapon

Actor: The Player.

Goal: The players weapon will be reloaded with ammo

Precondition: The player has a weapon equipped that takes some form of ammo.

Precondition: The player has the correct type of ammo for the weapon.

Summary: The player will fill their weapon with ammo that they may have.

Steps:

1. Press the reload button
2. Subtract the correct amount of ammo from the players ammo resources
3. Add the amount from step two to the ammo in the players weapon

2.1.3 Look at Stats

Actor: The Player.

Goal: Open the stats screen and close when the player is finished.

Summary: The player opens up the stats screen in order to view stats, or alter them, or the player closes the stats screen when they are finished.

Related Use-Cases: Increase Stats

Steps:

1. The player presses the c key
2. The stats window is opened displaying current stats and stat points
3. Pressing the c key again will close the stats window

Alternative: The player may also click the stats window icon to open/close.

2.2 Elizabeth Hernandez

2.2.1 Move Avatar

Actor: The Player

Goal: Change the position of the player's avatar

Preconditions:

1. The player is not viewing a selection screen
2. The player's character is not suffering from an effect that prohibits movement

Summary: The player directs their avatar to move into an adjacent space.

Related Use-Cases: Collect an Item, View the Map, Attacking an Enemy, Sustaining Damage, Dialogue, Buy an Item, Sell Items

Steps:

1. The player moves their avatar into a space containing an item
2. The player presses the selection key
3. The item is removed from its space
4. The item is added to the player's inventory

Alternatives:

1. Step 1: The player faces their avatar at an adjacent space containing an item
2. Step 4: The item is used immediately

2.2.2 Collect an Item

Actor: The Player

Goal: Collect an item for use by player

Preconditions:

1. Avatar movement is allowed for the player

Summary: The player collects an item from the immediate area.

Related Use-Cases: Move Avatar

Steps:

1. The player moves their avatar into a space containing an item
2. The player presses the selection key
3. The item is removed from its space
4. The item is added to the player's inventory

Alternatives:

1. Step 1: The player faces their avatar at an adjacent space containing an item
2. Step 4: The item is used immediately

2.2.3 View the Map

Actor: The Player

Goal: Display where known objects are in relation to the player's avatar

Preconditions:

1. Avatar movement is allowed for the player

Summary: The player views a large-scale map of their current area.

Related Use-Cases: Move Avatar, Enter a Dungeon, Leave a Dungeon

Steps:

1. The player presses the map key
2. The player's standard view of the area is replaced by a map of the area
3. The player moves their avatar
4. The player presses either the escape key or map key
5. The player's view of the area is returned to its standard format

Alternatives:

1. Step 3: The player chooses to enter or leave a dungeon
2. Step 3: The player proceeds directly to Step 4

2.3 Jordan Lynn

2.3.1 Sell Items

Actors

- Player
- Shopkeeper
- Warehouse Manager
- Second Player

Preconditions

- Player or Players must be in close proximity of each other.
- Two trading parties looking to purchase must have enough money for exchange.

Summary

Player will exchange item for currency with another player or shopkeeper.

Steps

1. Player comes in close proximity of second party to trade with.
2. Player initiates trading menu.
3. Player selects item to sell from inventory.
4. Player confirms sell.
 - (a) If second party is another player that player too confirms sell.
5. Currency is taken from the second party and given to the player, as well the item is taken from the player's inventory.

2.3.2 Close the Game

Actors

- Player

Preconditions

- Access to menu

Summary

The player ends the game by closing it through the in game menu.

Steps

- Player opens in game menu and selects "End Game".
- Player will confirm exit of game.
- Game will auto-save and close.

2.4 Brett Menzies

2.4.1 Equip an Item

Actors: Player

Preconditions: Play has an equitable item, and the necessary skill to use the item

Summary: The Player equips an item, changing their stats appropriately

Terminates: When item is equipped or returned to inventory

Related use cases: Select an Item from Inventory

Steps:

1. The user Selects an Item from Inventory
2. The user clicks on an equipment slot on their equipment display.
3. The system checks if the active item is equitable in that location and the user has the necessary skill.
 - If valid: system equips the active item to character and recalculates player stats, transporting previously equipped items to inventory if necessary.
 - If invalid: system prints message in dialog box explaining what conditions failed.
4. Alternative: The user right-clicks anywhere, deactivating and returning the item to its previous location.

2.4.2 Use an Item

Actors: Player

Preconditions: Player has usable item in inventory, valid target, and necessary skill

Summary: The Player uses his/her skill to use an item on a target

Terminates: After item is consumed or returned to inventory

Related use cases: Select an Item from Inventory

Steps:

1. The user Selects an Item from Inventory
2. The user clicks on a target map tile.
3. The system checks if the target is valid and the user has the necessary skill to use the active item.
 - If valid: system applies items effects to target; item is consumed.
 - If invalid: system prints message in dialog box explaining what conditions failed.
4. Alternative: The user right-clicks anywhere, deactivating and returning the item to its previous location.

2.5 Michael Mueller

2.5.1 Killing an Enemy

Actors: Player,Enemy

Goal: Remove an eliminated enemy

Preconditions:

1. Player is able to attack enemy
2. Enemy has low enough armor to be fatally wounded this attack

Summary: The player attacks an enemy, dealing a lethal blow.

Related Use-Cases: Attack, Leveling up, dialog

Steps:

1. Player get close enough to attack the enemy

2. Player attacks, slaying the enemy
3. Enemy rewards the player

2.5.2 Die

Actors: Player

Goal: Lose the game

Preconditions:

1. Player has just recieved a fatal amount of damage

Summary: The player was dealt a lethal blow displaying loss dialog and choice to restart.

Related Use-Cases: Attack, Dialog, close the game

Steps:

1. Player takes a form of lethal damage
2. The game displays a possible death animation
3. Game Over dialog
4. Pop up menu of choices appears
5. Player choices what to do

2.6 Ronnie Rodriguez

2.6.1 Increase Stats

Actor: The Player.

Goal: Recieve stat boosts after obtaining sufficient experience points.

Precondition: The player has obtained sufficient experience points to increase in level, thus enabling a stat boost.

Summary: The player chooses which stats they would like to apply a permanent boost to after increasing in level.

Related Use-Cases: Level Up

Steps:

1. Player opens menu via input.

2. Player navigates to 'Player Stats' section of menu.
3. Player has 5 points they can distribute among different stats like Def, Atk, Mag, etc.
4. Player navigates to stats using controller input and applies points accordingly.
5. Player selects 'confirm' button in stats menu.
6. "Confirm point allocation?" prompt displays along with yes and no options.
7. If no is selected, prompt goes away and player can continue to allocate points as desired.
8. If yes is selected, prompt closes and permanent stat boosts are initiated in accordance with point allocation.

Alternative: The Player has not increased in level, and therefore has no points to increase stats with.

2.6.2 Level Up

Actor: The Player.

Goal: Kill enough enemies and/or complete enough tasks to gain enough experience points to increase in level.

Precondition: The player is killing enemies and completing quests, which grants them experience points.

Summary: The player obtains enough experience points to increase in level, which grants them points to permanently increase their stats.

Related Use-Cases: Increase Stats

Steps:

1. Player has not yet obtained the amount of experience points required to level up.
2. Player kills enemy or completes quest that puts them at the required amount of experience points to level up.
3. "Level Up!" prompt displays with accompanying victory sound. Gameplay is not interrupted.

4. Player initiates 'Increase Stats' procedure (see above).

Alternative: The player has not obtained enough experience points to increase in level.

2.6.3 Move Item in Inventory

Actor: The Player.

Goal: Rearrange items within the inventory to allow for better organization and faster access

Precondition: The player has item(s), and they would like to rearrange those items within the inventory

Summary: The player chooses an item and then the spot they would like to move that item to within the inventory

Related Use-Cases: Equip an Item, Use an Item

Steps:

1. Player opens menu via input.
2. Player navigates to 'Inventory' section of menu.
3. Player chooses 'Rearrange' option in 'Inventory' section.
4. Player chooses item to move via input.
5. Item chosen is highlighted.
6. Player navigates to spot in inventory they would like to move item to.
7. Player selects desired spot via input.
8. If spot selected is empty, highlighted item is moved to this spot and item's previous spot becomes empty.
9. If spot selected is not empty, highlighted item is moved to this spot and item that was previously occupying the selected spot is moved to original item's spot.

Alternative: The Player has no items, and therefore nothing to rearrange.

2.7 Lance Wells

2.7.1 Buy an Item

Actor: The Player.

Goal: Purchase an item and have it placed in the inventory.

Precondition: The player has access to a merchant that is able to sell items

Summary: The player loses some currency in exchange for an item placed in their inventory

Related Use-Cases: Sell an item; Dialog

Steps:

1. Be close enough to the merchant to be able to communicate.
2. Begin dialog with the merchant.
3. Select a "buy" option.
4. Indicate a desired item from the display.
5. Merchant detracts the specified amount of money from the player.
6. Receive an item in inventory.

Alternative: The Player does not have enough money and receives a message indicating such.

2.7.2 Enter a Dungeon

Actor: The Player.

Goal: Enter a dungeon from some sort of menu option.

Precondition: The player has access to the option to enter a dungeon and is not currently in a dungeon

Summary: The player begins to play in a dungeon after a menu option

Related Use-Cases: Leave a Dungeon

Steps:

1. Select an "Enter Dungeon" button.
2. Select a "Confirm" button.
3. Be moved into a dungeon environment.

2.7.3 Leave a Dungeon

Actor: The Player.

Goal: Leave a dungeon from some sort of menu option.

Precondition: The player has access to the option to leave a dungeon and is currently in a dungeon

Summary: The player leaves a dungeon and is moved to some menu or lobby

Related Use-Cases: Enter a Dungeon

Steps:

1. Request a "Leave this dungeon" menu through some button press.
2. Select a "Confirm" button.
3. Be moved into a specified menu environment.

2.7.4 Dialog

Actors: The Player, Friendly NPC

Goal: Converse with an NPC to a desired plot point.

Precondition: The player has access to a conversable NPC.

Summary: The player navigates a conversation via contextual button presses.

Related Use-Cases: Buy an Item, Sell an Item.

Steps:

1. The player indicates a request to communicate with a nearby NPC via a button press.
2. A box with "greeting" dialog is displayed.
3. The player must then press buttons with according textual decisions to communicate.
4. The player closes the conversation with a "Goodbye" textual decision button.

2.7.5 Multiplayer Selection

Actors: The Player

Goal: Select a menu option to begin either single-player or multi-player

mode.

Precondition: The player must be at a menu with the option to begin playing.

Summary: The player picks the 'multi-player' option from a menu and is sent to host a session or join a section. Multiplayer will work through a system where each player is playing in real time with each other. Situations like attacking will be pseudo-turn based by having a cool down on each attack. This will allow our system to seem turn based when really it is real time. **Steps:**

1. The player selects 'multi-player'.
2. The player is then directed into a menu which prompts the user to either host or join a session.
3. The player picks 'host'.
4. The player is then sent into a game with the option for users to join at-will.

Alternative:

1. (Step 1): The player picks 'single-player' and is sent into the game without the option for other players to join.
2. (Step 4): The player picks 'join' and is sent to a menu which prompts the user for an ip address which then connects them with a host.

2.7.6 Complete a task/quest

Actors: The Player, Friendly NPC

Goal: The player successfully completes a quest

Precondition: The player must have completed all tasks for a quest.

Summary: The player opens a quest log and completes a quest through a series of button presses.

Steps:

1. The player opens a 'quest log'.
2. The player indicates which quest that they would like to attempt to complete via some button press.

3. The player indicates that they would like to complete that quest via some button press.
4. The player completes a quest and all according rewards are split into respective inventories.
5. The quest is now indicated as being complete for the hosting player.

Alternative: The player does not have all objectives complete and cannot choose to complete the quest.

2.7.7 Start the game

Actors: The Player

Goal: The player successfully starts the game.

Precondition: The player must not have the game already started.

Summary: The player starts the game through the java virtual machine and is directed to a main menu.

Steps:

1. The player chooses to run the game through the java virtual machine.
2. The game begins, transitioning to a main menu.

2.7.8 Open doors

Actors: The Player

Goal: The player successfully opens a door.

Precondition: The player must be within operable range of a door.

Summary: The player opens a door after checking for keys and codes.

Steps:

1. The player indicates that they would like to open a door through some button press.
2. The door is then checked to see if it requires any sort of keys/codes or if it is locked.
3. If the door is locked, the player is then prompted for a key or a code.

4. If the door requires a key, an appropriate key is then removed from the player's inventory.
5. The door is unlocked.
6. The door is opened.

Alternative:

1. (Step 3): If the door requires no key, or is not locked, the door opens without further prompts.
2. (Step 4): If the door requires no key, but requires a code, the player is then prompted for a code which is entered via a keypad.
3. (Step 5): If the player does not have the appropriate key, the player is then informed as such and the door remains locked.

2.7.9 Change Current Weapon

Actors: The Player

Goal: The player successfully changes their currently equipped weapon.

Precondition: The player must have two or more weapons ready to change.

Summary: _____

Steps:

1. The player indicates that they would like to change weapons through some button press (e.g. 1,2,3,etc.)
2. The system then checks if the player has a weapon in the desired slot (e.g. 1,2,3,etc.)
3. If the player has a weapon in that selected slot, the player's active weapon is then changed to that weapon, leaving the old weapon intact.

Alternative:

1. (Step 3): If the player does not have an equipped weapon in that slot, the player then switches to an empty hand.

2.8 Zachary Yama

2.8.1 Attacking

Actor: The Player **Goal:** Deal damage to an enemy or object and destroy it. **Preconditions:**

1. The player is allowed and has the ability to attack.
2. The player has a valid weapon to attack with.
3. The player has enough ammunition or durability to attack.

Summary: The player attacks an entity, dealing some damage. **Related Use-Cases:** Kill an Enemy, Reload Weapon **Steps:**

1. The player uses the attack action.
2. A valid hitbox collision is checked for.
3. Ammunition and/or durability are reduced.
4. Damage is calculated and applied to any hit entities.
5. Visual elements are instantiated.

2.8.2 Reloading Weapon

Actor: The Player **Goal:** Replenish weapon ammunition. **Preconditions:**

1. The player is allowed and has the ability to reload.
2. The player has a valid weapon to reload with.
3. The player has enough ammunition to reload.

Summary: The player decides to replenish their weapon(s) ammunition.

Related Use-Cases: Attack **Steps:**

1. The player uses the reload action.
2. Inventory ammunition is reduced by the amount held in the weapon(s).
3. Weapons ammunition is replenished.
4. Visual elements are instantiated.
5. Ignoring input for some time or other side effects are applied.

2.8.3 Take Damage

Actor: The Player, NPC, Enemy, Wall, Entity **Goal:** Reduce an entities health. **Preconditions:**

1. The entity is damageable.
2. The entity is not already destroyed.
3. The entity has collided with a damaging component.

Summary: An entity has been damaged and health is reduced accordingly.

Related Use-Cases: Attack **Steps:**

1. Calculate and apply damage received.
2. Reduce armor durability.
3. Apply side effects.
4. Visual elements are instantiated.

2.9 Jared Zook

2.9.1 Save the Game

Actor: A single player.

Goal: Avoid starting the game over by saving progress.

Precondition: The player is not engaged in battle.

Summary: Save points are placed in specified locations found just prior to boss battles. They are represented as items. The player engages the save, chooses a name for their file, and saves the game.

Related Use-Cases: Pick Up Items, Use an Item
Steps:

1. Player picks up the save item.
2. Player selects a slot to save the game from menu.
3. Player enters a name for the saved location.
4. Player selects "Save" button.

Alternatives: The player exits the menu without saving. **Postcondition:** Player returns to normal gameplay. Player's location, stats, and inventory are saved for later use.

2.9.2 Load the Game

Actor: A single player.

Goal: Retain the progress made from playing previously.

Precondition: The player previously saved at least one game.

Summary: The player can resume play at last saved location with inventory and stats intact.

Related Use-Cases: Save Game, Select Item from Inventory

Steps:

1. Player selects "Load Game" menu from start menu.
2. Player selects the slot to load.

Alternative: The player begins a new game. **Postcondition:** The player's chosen previous location, stats, and inventory are restored.

2.9.3 Select an Item

Actor: A Single Player.

Goal: To enable the ability for the player to use an item.

Precondition: The player is not viewing any other menu.

Summary: The player selects an item from inventory, such as a weapon, and is then free to equip it.

Related Use-Cases: Equip an Item

Steps:

1. Player enters inventory.
2. Player scrolls down to desired item.
3. Player chooses "Select".

2.10 Morgan Holbart

2.10.1 Enter the Game

Actor: A Player.

Goal: Start the game from the menu

Preconditions:

1. The player is currently in the starting menu

Summary: The player attempts to start the game

Related Use-Cases: Load Game

Steps:

1. The player selects the start button
2. The player presses the input to activate the start button

2.10.2 Open Doors w/ Regard to Keys

Actor: A Player.

Goal: Open a door adjacent to the player

Preconditions:

1. The player is standing adjacent to the door
2. The player has any key required to open the door
3. The player is not currently in combat

Summary: The player stands next to a door, faces it, presses the use action, and the door opens if he holds the key

Related Use-Cases: Move Through an Area, Interact, Move Avatar

Steps:

1. The player moves adjacent to a door
2. The player faces the door
3. The player interacts with the door

2.10.3 Craft Item

Actor: A Player.

Goal: Craft an item.

Preconditions:

1. The player has selected X components to craft together from the crafting menu
2. The player has the selected components in his inventory
3. The components selected to craft together will compile into a valid recipe
4. The player has an inventory slot available to put the crafted item in

Summary: The player selects components to craft, if he has the components and an inventory space, and it makes a valid recipe, it will craft the item.

Related Use-Cases: Open Crafting Screen

Steps:

1. The player opens the crafting screen
2. The player selects a number of components
3. The player presses the craft button

Chapter 3

A Brief outline of Multiplayer

Multiplayer will be a Drop-In-Drop-Out cooperative dungeon adventure. Each player will need to have their own copy of the game running in separate instances. To start, one player creates a game with multiplayer drop-in enabled, and then the rest of the players subsequently join his or her game.

When in multiplayer mode, The game and NPC's will continue as they would have in single player mode, except for the specific cases outlined here. For example, NPC's will react to the actions of all players as if one player had done them, and treat all players equally.

1. Only one dungeon floor will be active at any time; to change levels, a majority of players must be present at the door and agree to move to a new floor, At that time all players are transported to the new level
2. When a player leaves the game, any items they have not dropped or traded away leave with them.
3. When a player joins the game they start with only the same items as a new player on level 1, but will be given the median number of experience points / levels of all players when the current dungeon floor was first entered.
4. Once a player joins the game, they will spawn next to any living player who is not in combat. If no players are outside of combat, they must wait to re-spawn.
5. layers dieing in multi-player mode will be treated the same as a player dropping out and immediately coming back in to the game.

6. If the dungeon is ever without any living players, the game is lost.
7. The high score in each player's game will be attributed to the list of all players who ever joined the game during that dungeon run.

Multiplayer mode will naturally have its own difficulties and advantages. The game may need to scale the number of enemy NPC's up to achieve a more enjoyable difficulty for large teams. However, High level loot chests and bosses will not be more plentiful. the deaths of players will drain high level items from the game, forcing the players to work with fewer items and health benefits than a single-player character that had advanced to the same place.

Players will need to play as a team and evenly distribute loot to make up for the changes in gameplay. If a player starts carrying the team by hoarding high level items, their death could end the whole game. Recently spawned players level is only that of the team median when the dungeon was first started, and they will have no weapons, protection or health benefits left to aid them in combat; Because of this, the living players will need to protect and nurture "the new guys". Players may have the ability to distribute their experience points or levels in a different way each time they spawn, giving them an increase in adaptability to potentially make up for items and equipment their death cost them.