

Desert Falls Player Guide





How to Compile and Run Program

- First navigate into the Server folder and start server by using compile.bat and run.bat. Or can manually run it by running cmd prompt at the location of the Server folder and typing "compile" and then "run". Then can run the game similarly by navigating to the parent folder, "Project3", and using compile.bat and run.bat. Or you can also manually run it by running cmd prompt in the folder "Project3" and typing in compile and run. Then cmd prompt will ask you to input the ip address of the server.
- **Player 1 must be fully loaded into the game and picked an avatar before player 2 can run and enter the game.**
- Server must be on in order for monsters to spawn

Special Device requirements

- The game is meant to be played with a keyboard, but can be played with a gamepad. Keyboard is required and is also recommended over the gamepad.
- Gameplay
 - Player is spawned in the desert with 5 different rooms. The first room is the spawn room where players can get familiar with controls and relax.
 - Player then can approach the 2nd room and the player can automatically spawn monsters if they get close to the palm tree near the entrance.
 - 3 monsters will spawn and players should stay within the room and kill the monsters by shooting them. A shooting sound will play when the player shoots, and when the player hits the monster. If a monster physically touches the player, the player's health will take a hit and start to go down. The monster will die and disappear once their health reaches 0. As the player progresses in each room, the monster's health will increase and be harder.
 - This will continue for 2 more rooms where monsters will spawn when the player gets close to the palm tree. Monsters will have more health compared to the previous rooms. **Note: players should stay in the room where the monsters are spawned or else they will not take damage.**
 - The last room is the boss room. Before approaching the boss room palm tree, there is a potion god to the right. Interact with the potion god with the interact button for him to release the potion. Then players can run over the potion and heal themselves back to max health. Then the player can approach the palm tree and spawn the boss. The boss has even more health and players can shoot them in the legs while maintaining distance from the boss. Once the boss dies, the game is over and a time will be displayed of how long the player took to beat the game.
 - If the player dies before completing the game. The player has to quit the game and re-run the game.

How to Play

- Controls (keyboard)

- **W/S:** Move avatar forward and backwards
- **A/D:** Move avatar left and right
- **Up/Left/Right/Down Arrow:** Orbit the camera in respective direction
- **Spacebar:** shoot
- **F:** interact
- **L:** toggle lights
- **1/2:** character selection
- **ESC:** Quit the game
- Controls (gamepad)
 - **X-Axis:** Turn avatar left and right
 - **Y-Axis:** Move avatar forward and backwards
 - **Rx-Axis:** Orbit camera left and right
 - **Ry-Axis:** Orbit camera up and down
 - **R2:** Shoot
 - **A:** Interact

Scripting

- We have a script to toggle the lights on and off (with the key “L”). We pass in a boolean into the script to determine the state of the lights. Then according to the boolean, we will get the light from MyGame and modify the Ambient, Diffuse and Specular accordingly.
- We also had a script to toggle ambient color for when an event happened in our game, but we decided not to use it in our final version of our game because we did not see it fitting our theme.

Networking

- We did not do much changes to the network protocol but we did add different useful messages that helped make our game work.
- A few messages we added are for creating ghost avatar, moving ghost avatar, creating monsters according to round, moving monsters and sending game details.

Genre

- Our game is a roguelike game, where the character crawls through generated levels, defeating monsters. Also in roguelike, death is permanent.

Theme

- Our theme is monster hunting. Our game takes place in the mountains, a desert area where players find monsters and hunt them down.

Dimensionality

- Our game is a 3rd person game where the camera is an orbit camera view.

Activities

- Combat and map explorations. Players can explore the map and find monsters to hunt.

Requirements

- **External models:**
 - Both of the characters in the character selection screen were custom made by Ezekiel Sung and Hung Truong with blender. With the uv-unwrapping in Blender,

we used paint to texture our external models. In addition, the potion god in the boss room was also created by Hung.

- **Networked Multiplayer**

- Our game is playable by a maximum of two players over the web. The ghost avatar correctly reflects which character the other player has chosen and correctly reflects the current character selected to the other player. Over the network, players can see the other player move and rotate as well.

- **Scripting**

- We have a script to toggle the lights on and off (with the key “L”).

- **Skybox and Terrain**

- We have an outdoor mountain type skybox that features some rocks. Skybox was done with 6 cube images in the skybox folder. Our terrain was done with an image-based height map to simulate the mountains with 5 different rooms.

- **Lights**

- We have a script that toggles on and off the light with the key “L”. We also have a spotlight in the character selection screen that is not very visible due to the skybox.

- **3D Sound**

- We have 3D sound attached to all our monsters and the boss. In addition, we have sound for when we shoot and when the bullet hits the monster, indicating a hit. Then we have background music that is on the whole time.

- **HUD**

- Our initial huds instruct players on what to press to pick the character that they wish. Then after the character has been selected, the HUD will show the player’s health. When the game is over, the HUD will then display how long it took them to beat the game.

- **Hierarchical SceneGraph**

- We used hierarchical SceneGraph with our palm trees. We created a node group for the trees and created the trees in the node group as the children.

- **Animation**

- We have skeletal animation using keyframes for multiple models in our game. We first have a basic walking forward animation for both of our characters. In addition, “chon” has a bowing animation when interacting and “clash” has a clap animation.
- Our monsters also have a running animation for when it chases the player.

- **NPCs**

- Our NPCs are all of our monsters and the boss. The monsters and the boss are controlled by an AI controller that targets the player and chases after them.

- **Physics**

- The potion god is guarding the potion and when the player interacts with the god, the god will drop the potion and land on the ground for the player to pick up. We used physics and physics objects to keep the potion from falling infinitely.

- **Additional Notes**

- Our game supports FSEM and windowed mode by having the player select which mode they want in the beginning.
- We did not hard-code IP addresses, we asked the player to input the server IP in the command prompt.
- Our game functions as a single player game

Requirements Not Working

- Other than being able to see each other over the network and seeing the other player's location and rotation, there is nothing else that multiplayer about the game
 - When spawning the monsters in multiplayer, the 2nd player will crash because it is trying to spawn the monsters at same time but cannot. But the game will continue to work for player 1.
- Could not get spotlight to fully work during the character selection screen

Techniques Above Requirements

- We did not use any techniques that went beyond the requirements.

Contribution of each member

- **Hung Truong**
 - Terrain and heightmap
 - NPC class and NPC controller
 - Potion God and "Chon" models
 - Animation for his "Chon" model
- **Ezekiel Sung**
 - Sound
 - Skybox
 - Physics
 - "Chlash" model and animation
 - Animation for monster
- For the rest we mainly worked on it together. We took turns being the driver and observer and we used teamviewer to program together.

Custom Made Assets

- Potion God Avatar and texture
- Chon Avatar, animation and texture
- Clash avatar, animation and texture
- Animation for monsters
- Imaged-based heightmap

Permission for Other Assets

- Palm Trees: Tree object and texture was from cgtrader.com made by user LiviufLOW, free of use.

- Monster: Monster object and texture was from cgtrader.com made by user nelya-ushakova, free of use.
- Potion: Potion object and texture was from cgtrader.com made by user rekteldesign, free of use.
- Boss: Boss golem object and texture was from cgtrader.com made by user AFKSociety, free of use.
- Hit Sound: Hit sound was from freesound.org made by user thefsoundman, free of use.
- Shoot Sound: Shoot sound was from freesound.org made by user xtrgamr, free of use.
- Background Sound: Background music was from freesound.org made by user PearceWilsonKing, free of use.
- Skybox Images: “elyvisions: Skybox Images” by elyvisions licensed CC-BY 3.0: <https://opengameart.org/content/elyvisions-skyboxes>

RVR-5029 Lab Machines

- Tested on lab Machines WOLFENSTEIN and DOOM.
 - Different ports did different weird things to our game but the most stable port we found was port 6007, which needs to be modified in the run.bat file in the server folder and in the project3 folder. Port 6007 for some reason does not play our background sound, but does play on different ports. Although different ports mess with our game differently.