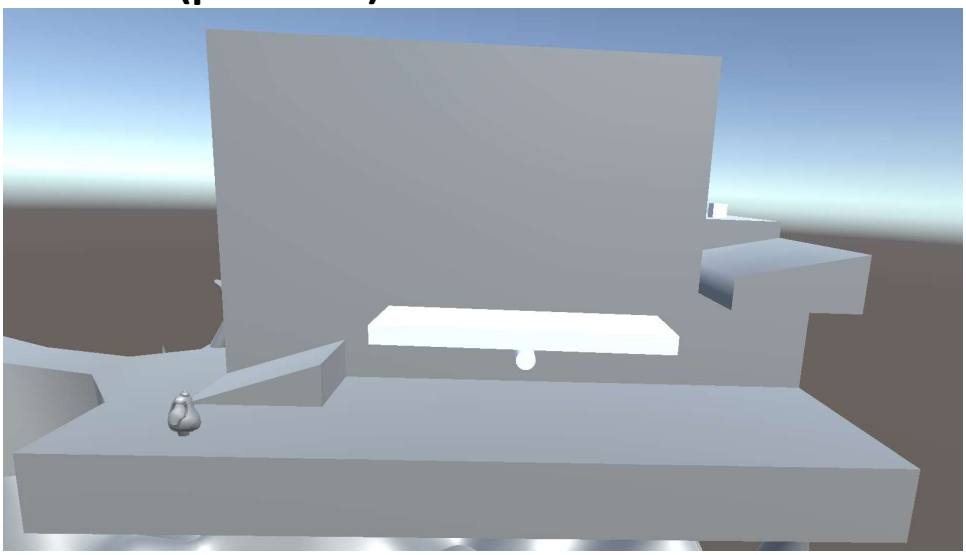
Final Project Writeup

Friday, March 24, 2017 3:09 PM

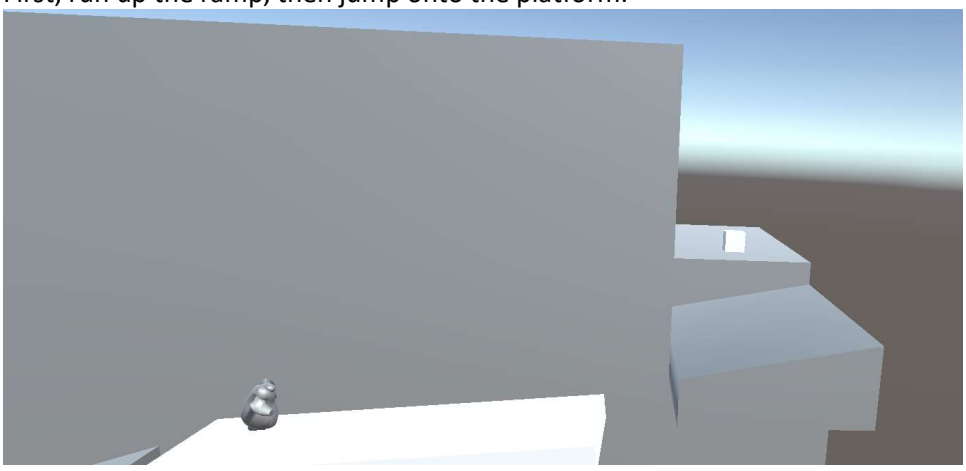
Walkthrough:

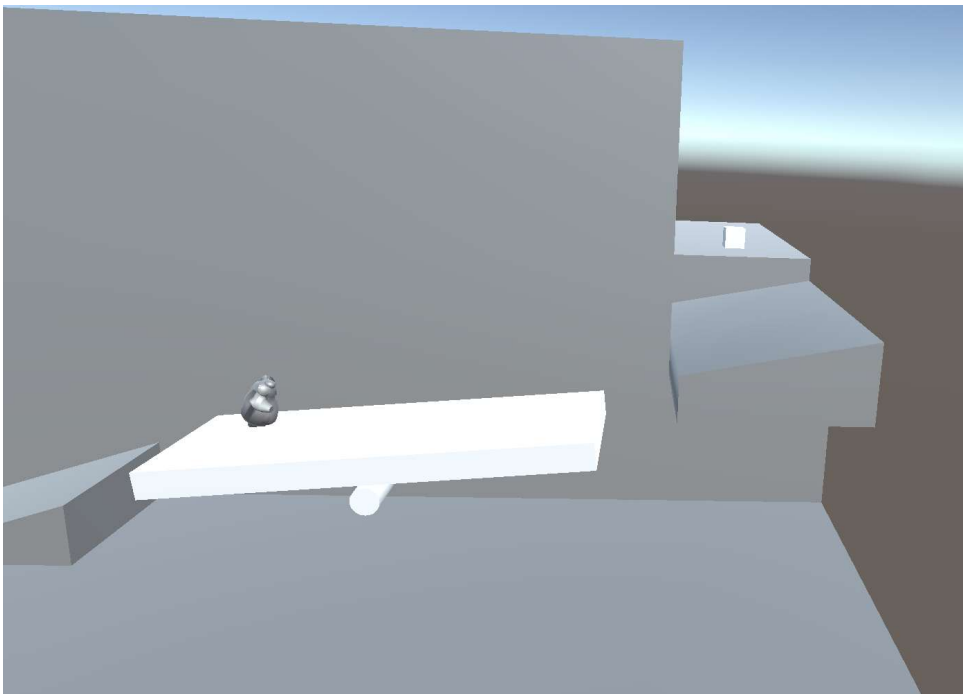
the objective is to reach the end of the "mountain" in this physics based platformer. The player is tasked with moving the "fatman" avatar to get past the obstacles in the course to the end.
The character moves according to the current perspective of the camera.
Controls:
W - move up
A - move left
S - move right
D - move down
Space - jump
1 - load scene 1 (platform)
2 - load scene 2 (weight and platform)
3 - load scene 3 (surfing platform & staircase)
4 - load final scene (boulder run)

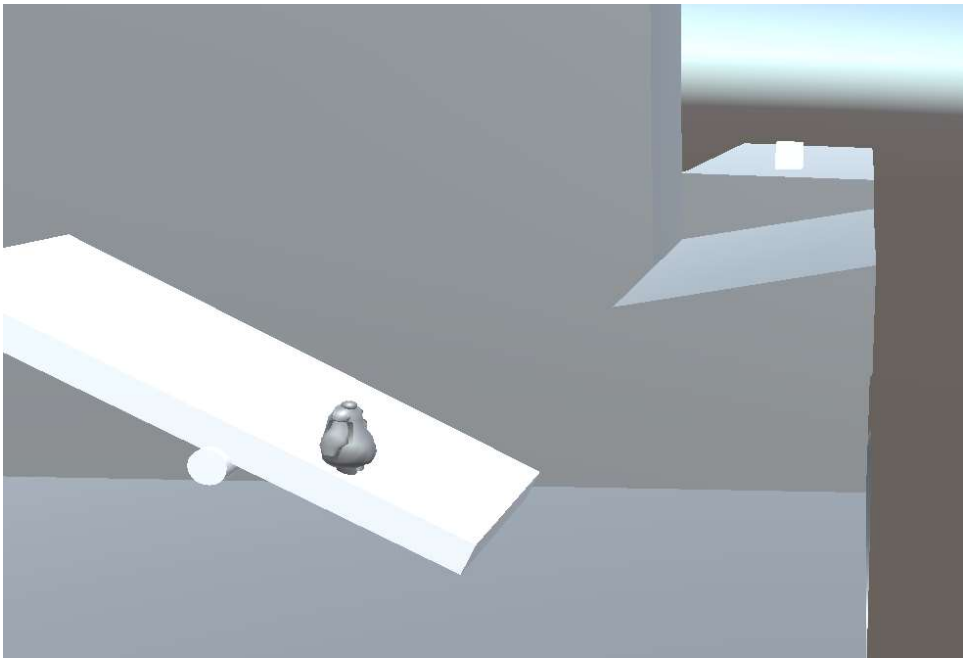
Scene 1 (platform)



The player is tasked with getting to the cliff on the righthand side by using the ramp and the shifting platform.
First, run up the ramp, then jump onto the platform.

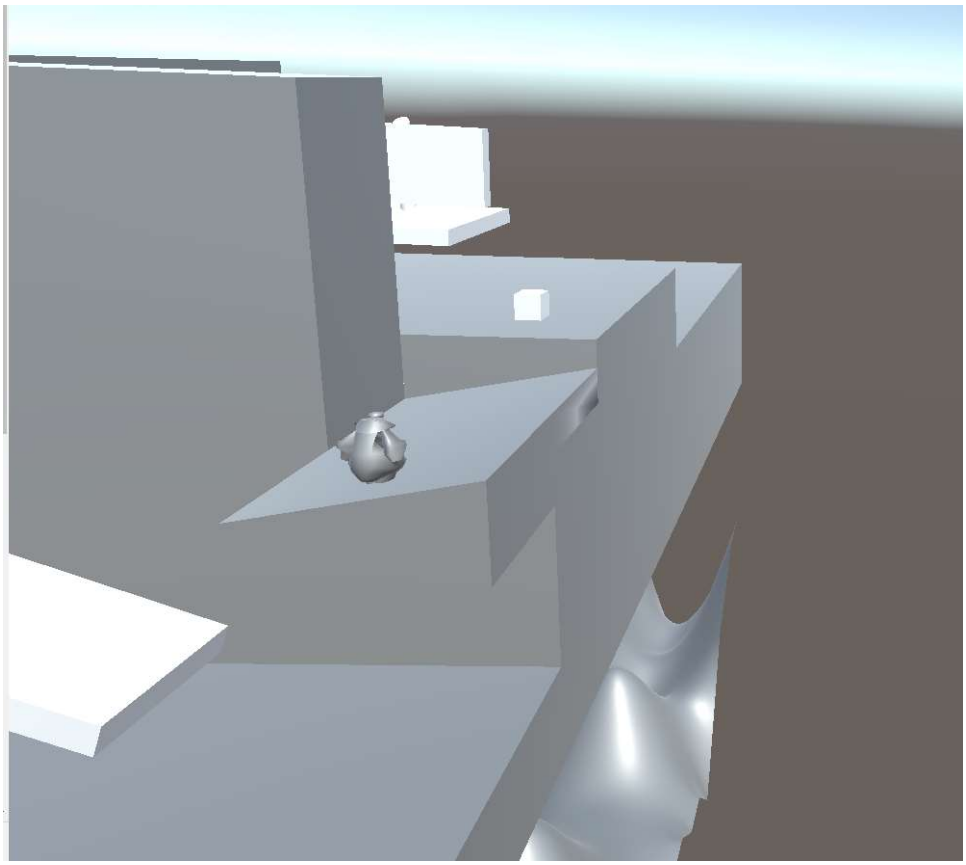






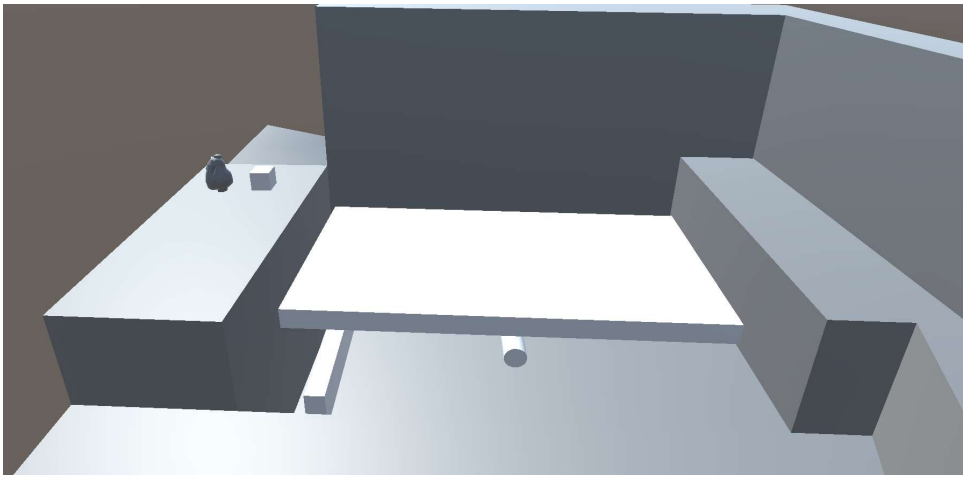
The platform shifts down left or right according to your position on the platform. Move quickly across the platform (or else the platform will be too low to jump from!) and jump to the cliff.

You are able to restart this portion of the level by pressing the "1" Key

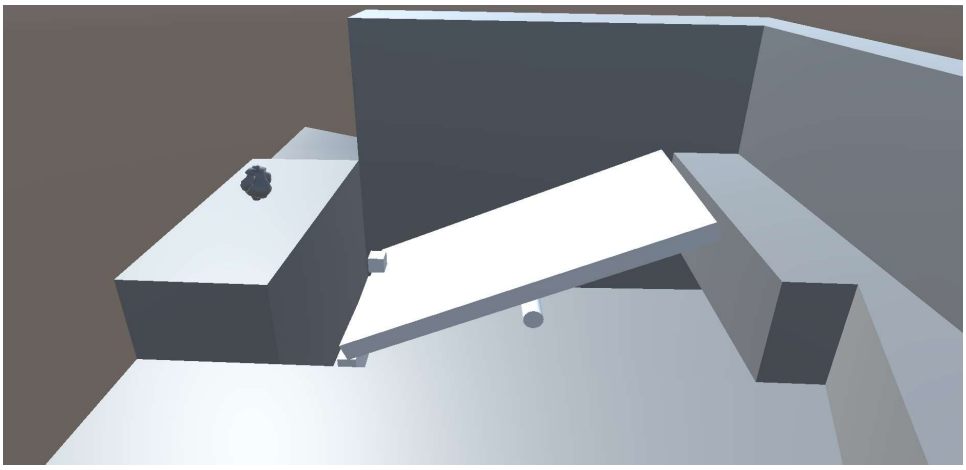


You have completed this portion. Press "2" to continue.

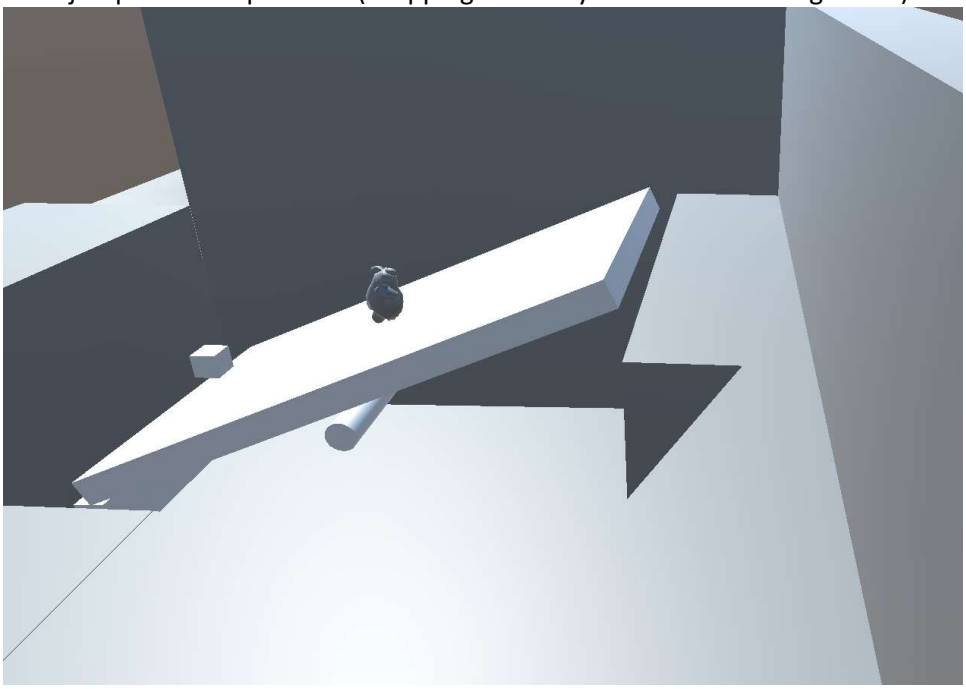
scene 2 (weight and platform)



The objective of this portion is to manipulate the cube to shift the platform into a more favorable position to cross with.
The cube is light enough to push by moving into it with your avatar.



Drop the cube onto the side the platform (do not jump in right away. Allow the platform to stabilize. Then jump onto the platform (dropping will risk your character being stuck.)



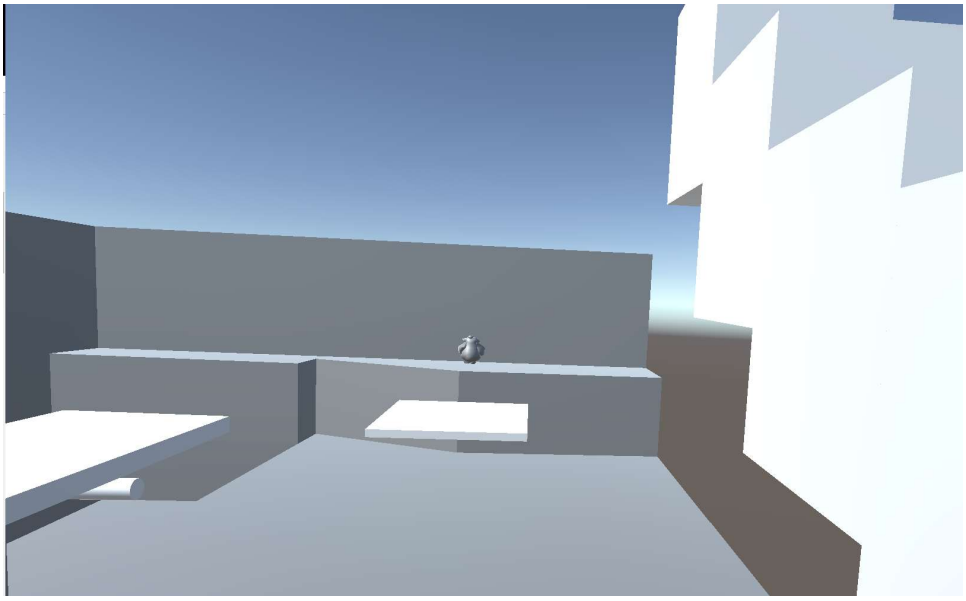
Move quickly across the platform as done in the previous section, and then jump onto the cliff. Once you have crossed the platform. Press "3" to continue.

Press "2" to restart this portion of the level if stuck.

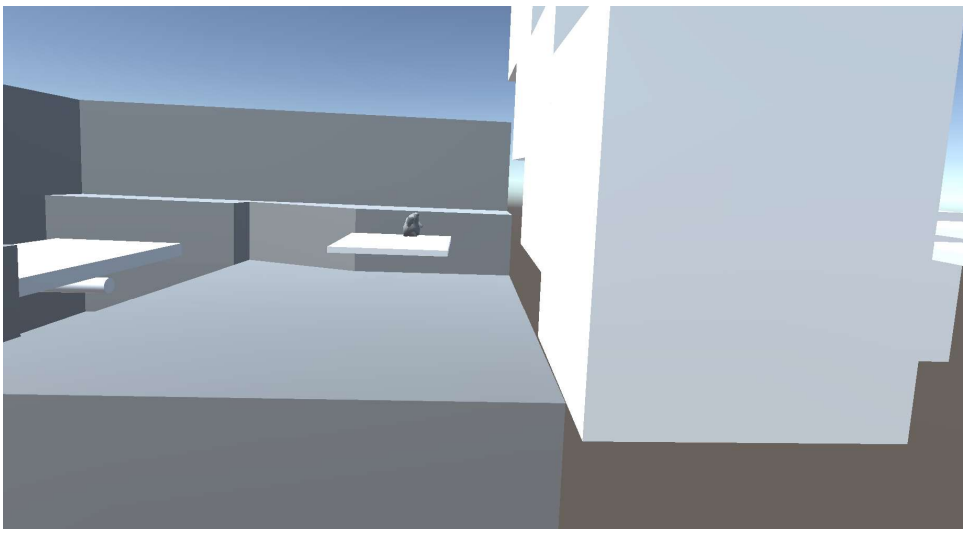
scene 3 (surfing platform & staircase)

This will be the longest portion of the level

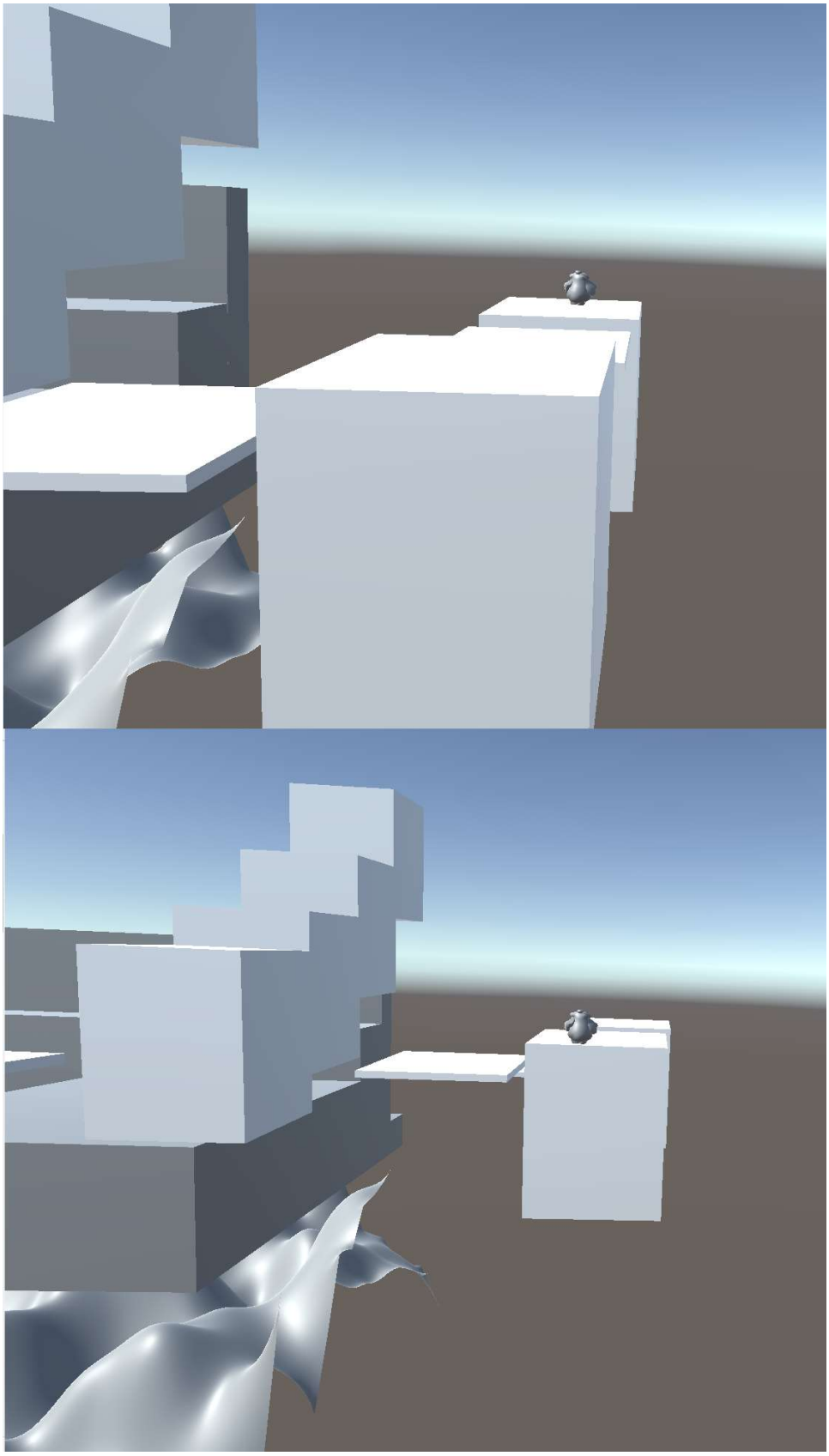
Remember that you are able to press "3" to restart this portion of the level.

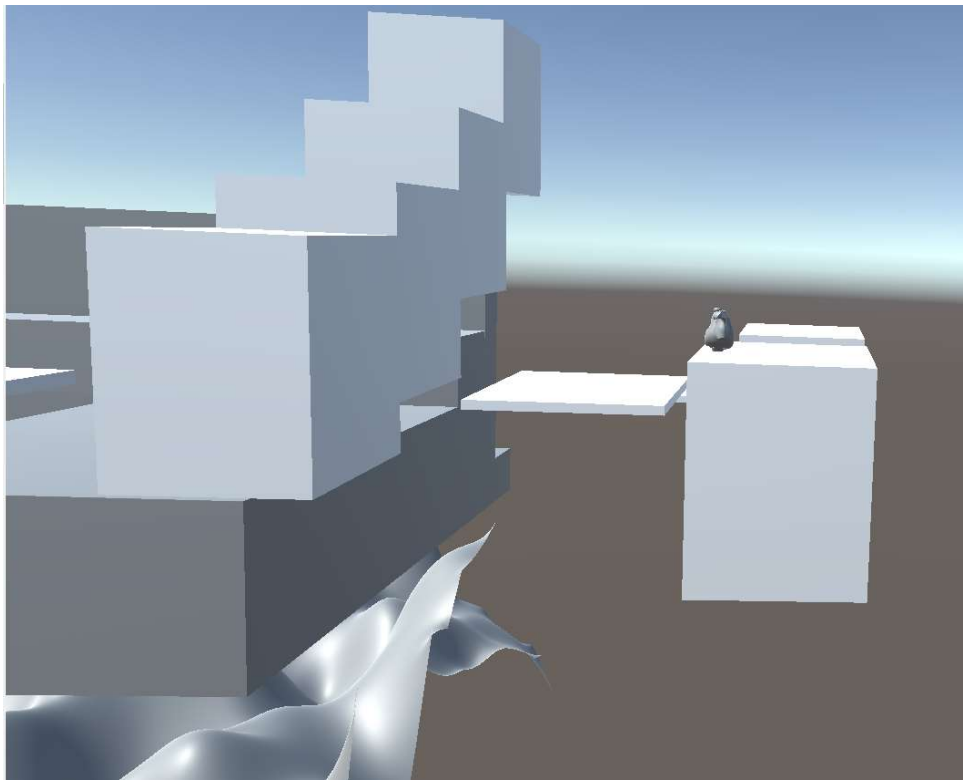


The objective is to "surf" the platform by running on it with your avatar. You will need to surf the platforms and understand the movement of the platforms without needing to see you moving it. Be careful that it is possible for your avatar to outrun the platform's surfing speed and run off so take your time.

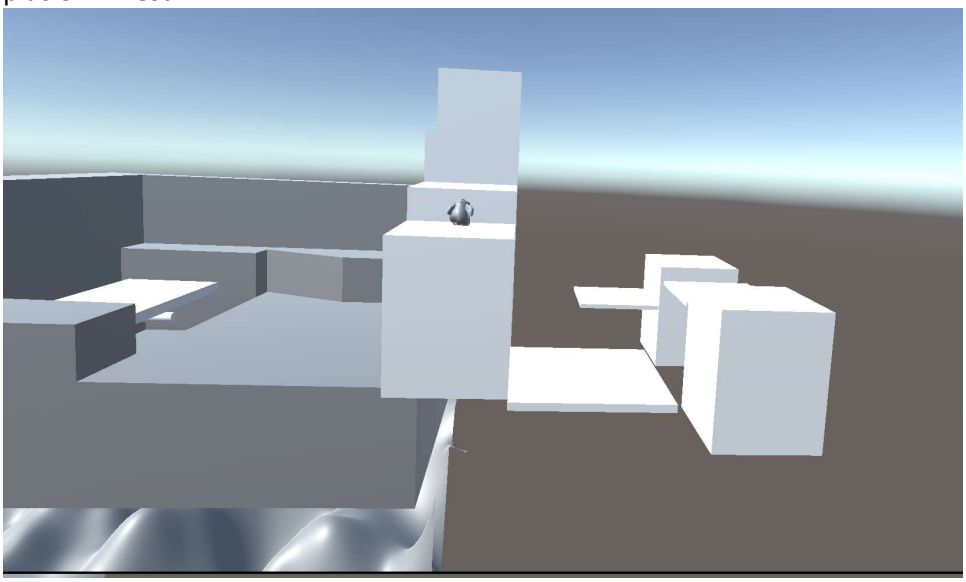


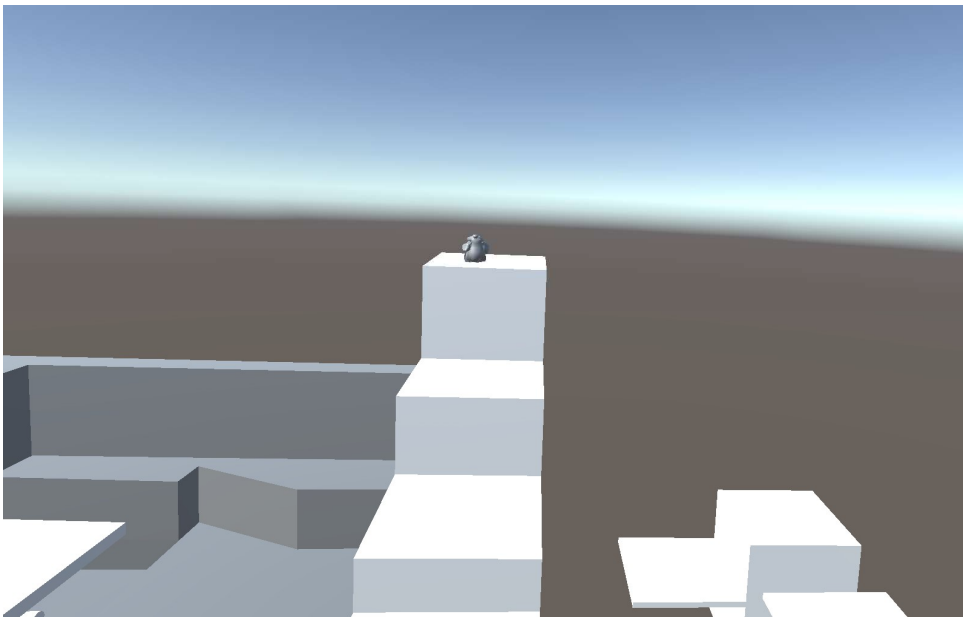
for the first platform, "surf" right until your platform hits the next one. Then jump on it.





Proceed by using the same concept when "surfing" the barely visible platform south, and finally the final platform west

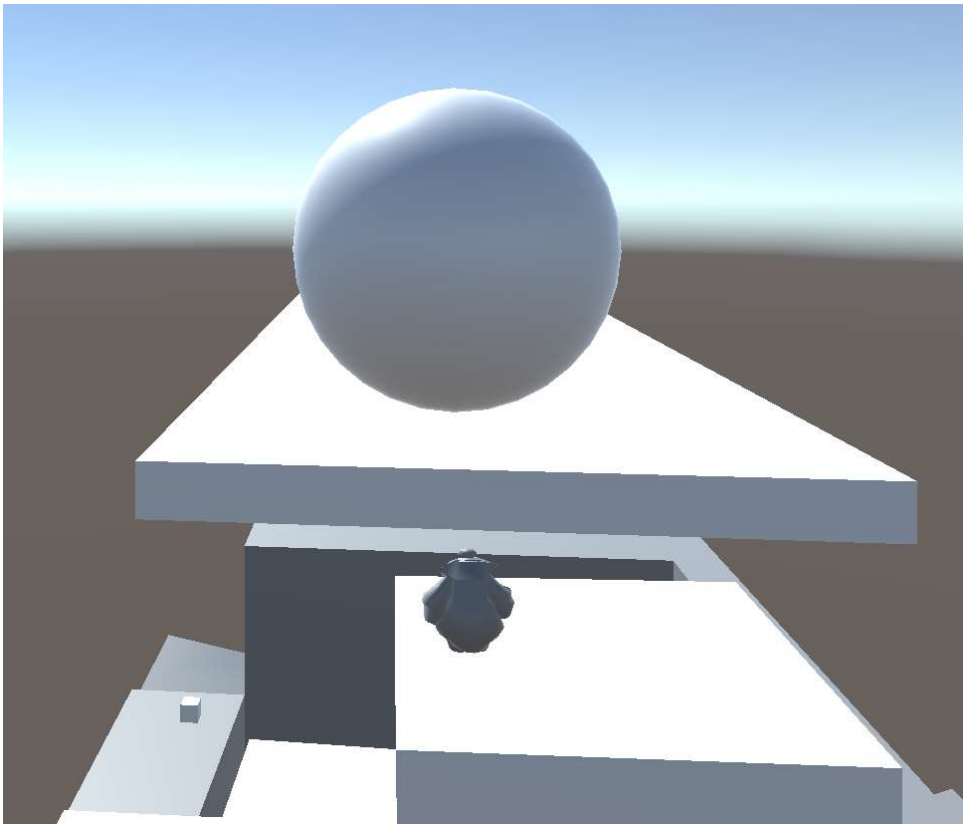


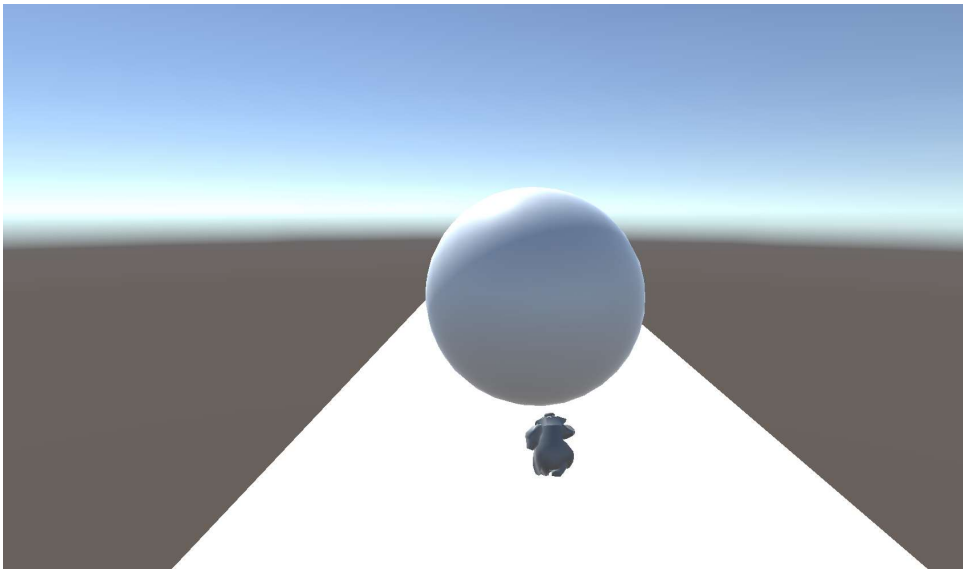


Make your way up the staircase. As the steps are very high, jump from the center of your current step rather than jump from the edges.

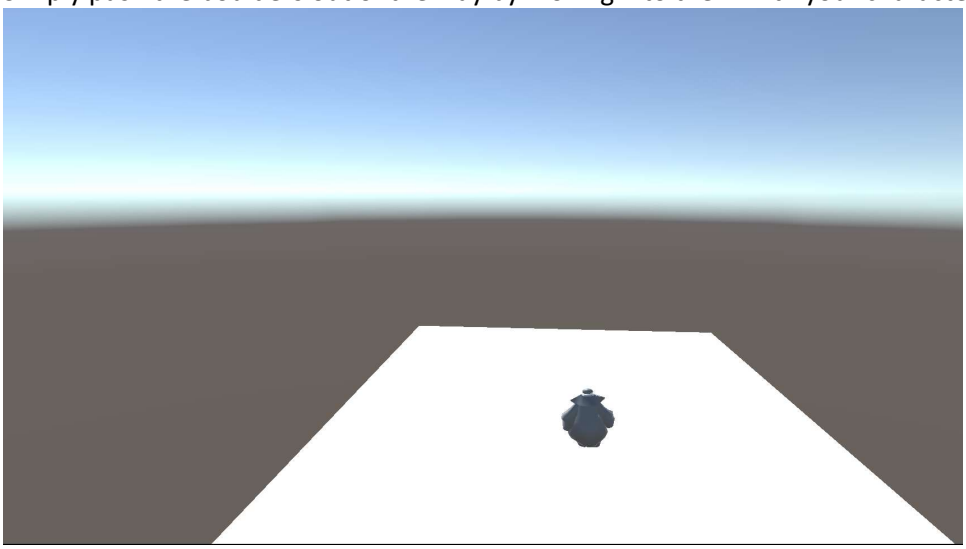
Press "4" when at the top step to proceed.

Scene 4: boulder run





Simply push the boulders out of the way by moving into them with your character.

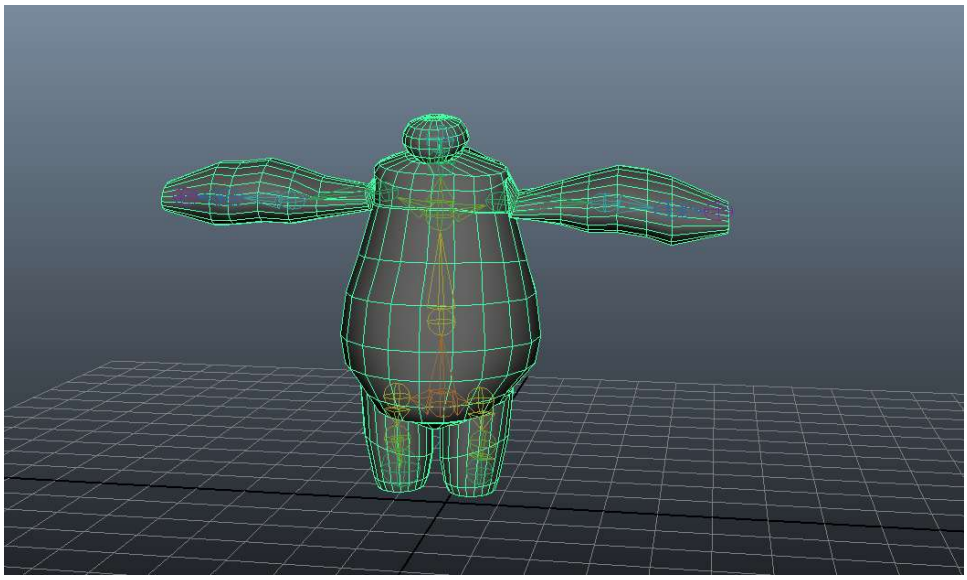


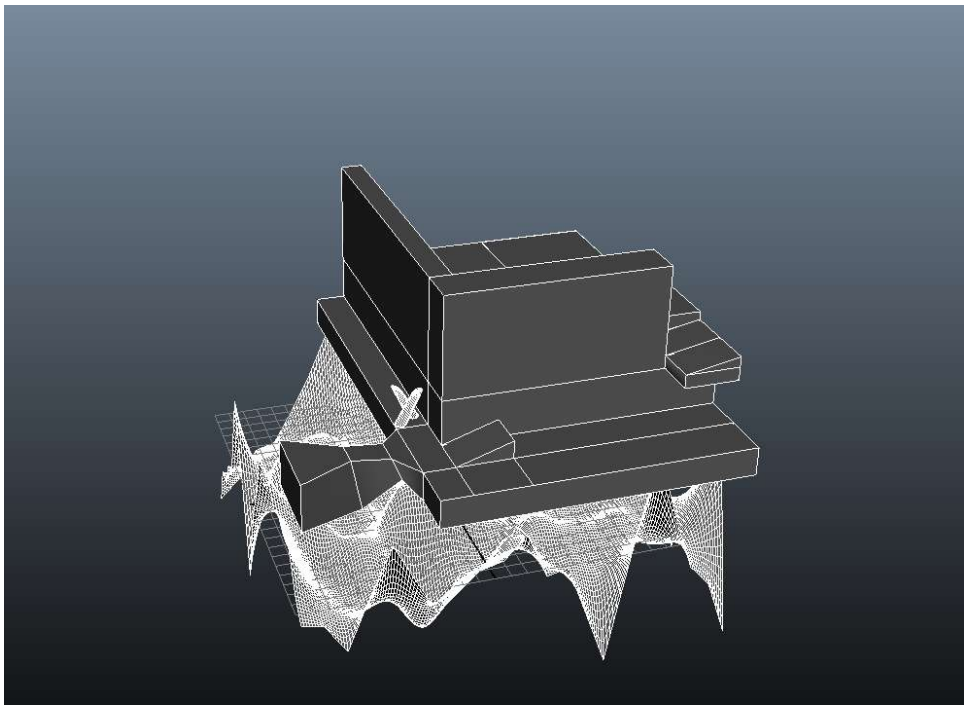
Congrats, you have reached the end of the obstacle course!

Assets

Maya generated assets:

- The Fatman player avatar
    - Modeled in Maya. Recycled from Homework 3
    - Imported at 0.1 scale with Unity's character animations

- 

- The solid grey map
  - Modeled in Maya
  - The terrain below the level
    - The terrain was randomly generated from the procedural terrain generation script from in Homework 2.
  - 

Unity assets

- Cube Gameobjects as platforms
- Cylinder Gameobjects as hinges for shifting platforms
- Sphere Gameobjects as boulders

Logic

I've implemented the platforms as a cube Game objects. The platforms that are attached to cylinders as hinges/pivots would be still until disturbed by player interaction such as applying weight to portion of the platform by standing on it or dropping an object with weight onto it. It would sink down towards the heavier side while the other side would be lifted up; the platform is rotated around the cylinder pivot. The platforms in Scene 3 would have frozen y axis but the player can "surf" them by running on them, causing them to slide along the X & Z axis according to

the horizontal direction of the running force that the player pushes onto the platform. The physics of the world are very much "gamey" but serve to allow the avatar to manipulate the objects in order to transport the "fatman" to the end of the obstacle course. Everything can collide with another object to force movement (if the game's rules allow them to). Pretty much everything that is a unity gameobject can be manipulated.

There's only two Unity scripts used in the project. The first one was the moving camera that moves as the player moves the avatar. It translates the camera with an offset calculated from the difference in the player's position from their previous position each time it updates. The other script skips to the different obstacles in the courses using "1, 2, 3, or 4" keys.