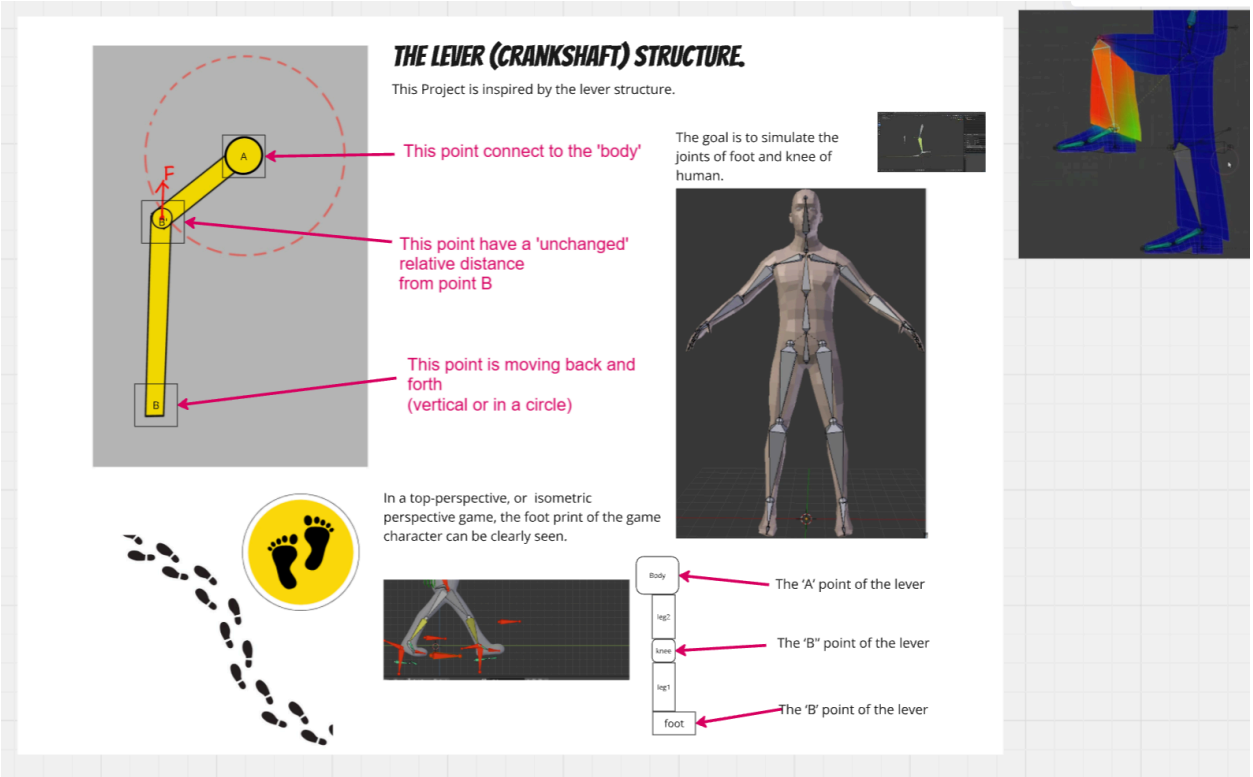
Report of Assignment 4

Link to the GitHub：

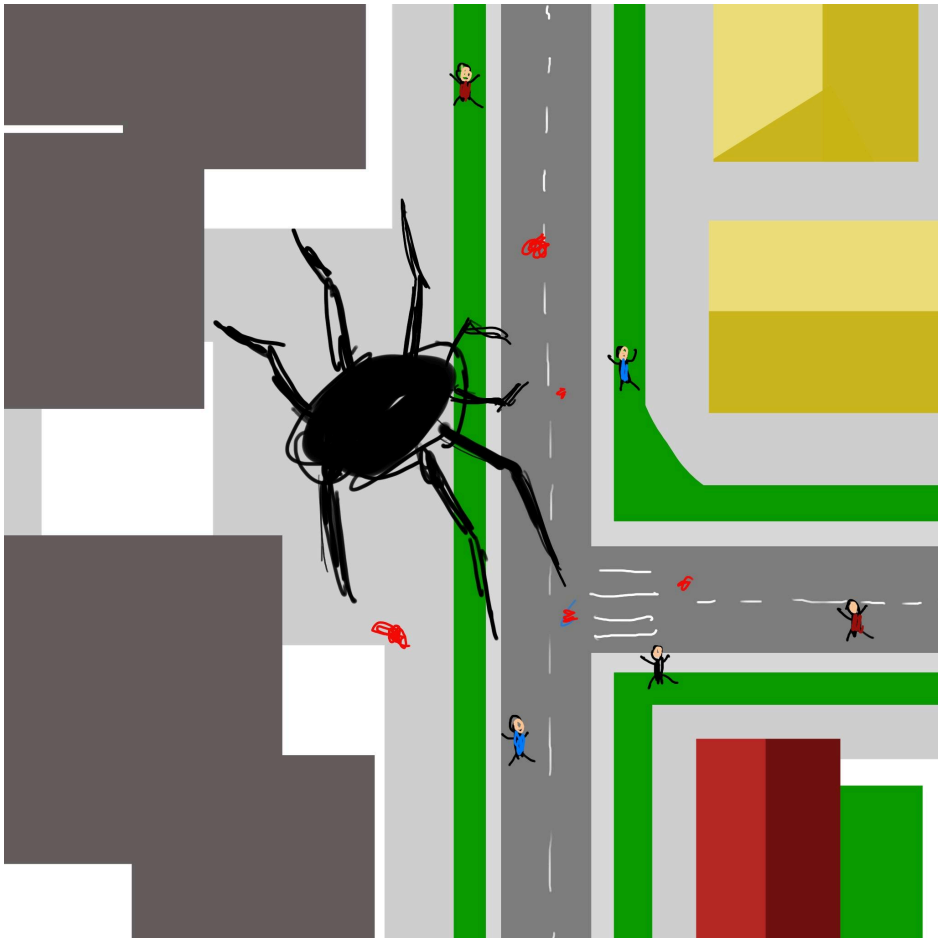
https://github.com/Howaisu/Assignment-4.git

Ideation:

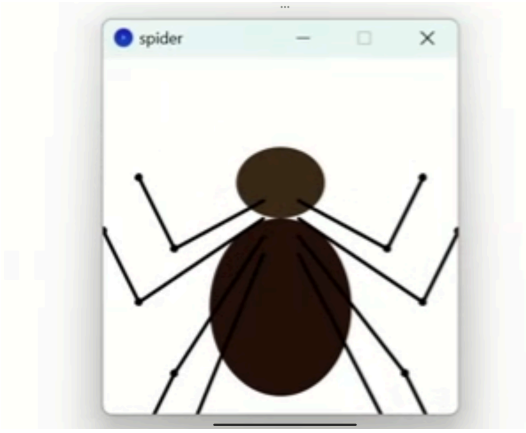


Initially I wanted to make a game where monsters capture humans. There are two main reasons. 1. I used the idea of procedural generation that I did last time to make a map. First generate a large block, then generate a road, and then generate blocks around the road, including trees, houses and paths. 2. I wanted to try to run joints like a curved rod to simulate the movement of creatures.

<u>The screen will look like this:</u>

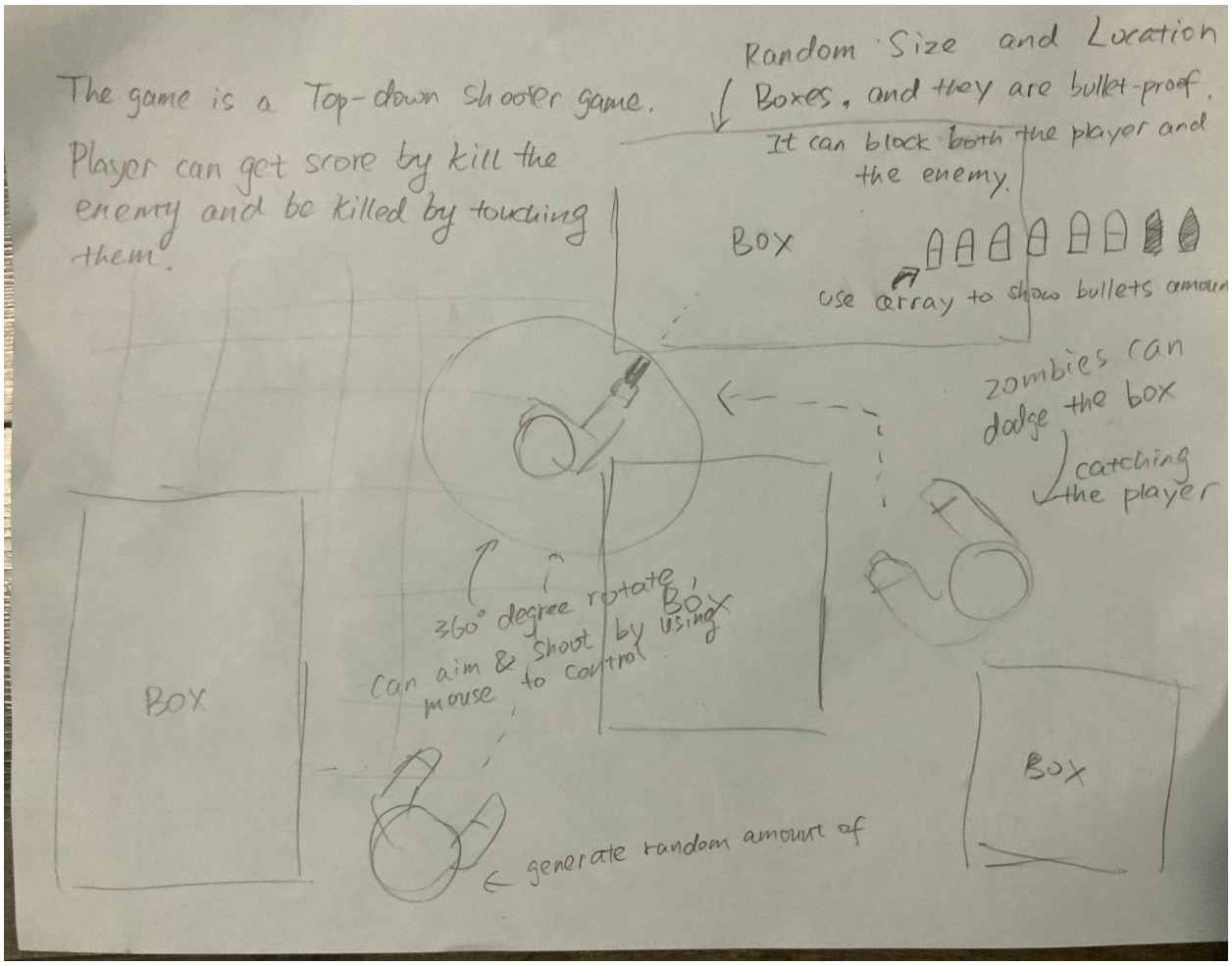


But after trying for a long time I had to give up because I could hardly perform any decent movements.
This is what I made:

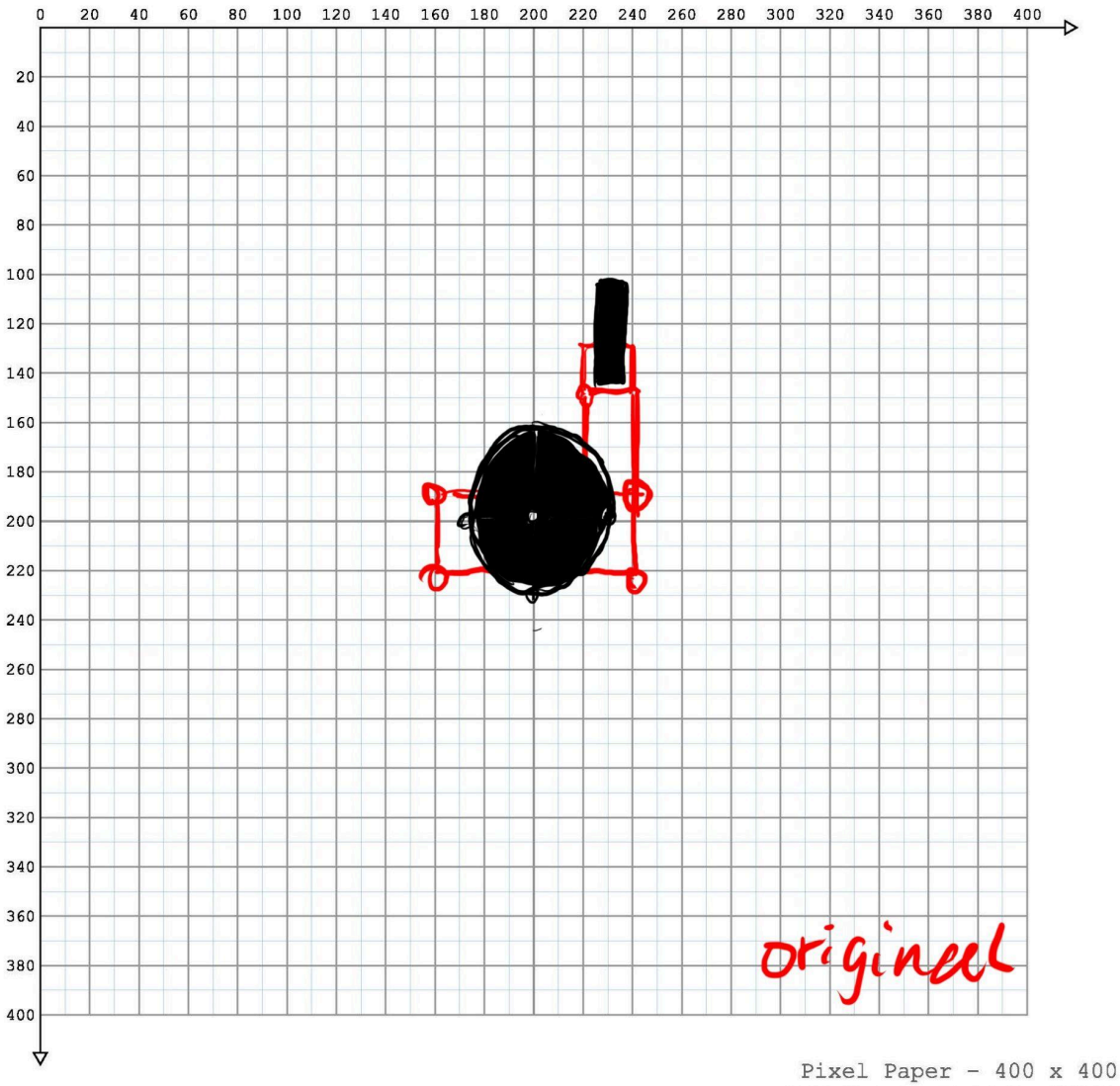


Then I started to do my current work.

Draft:

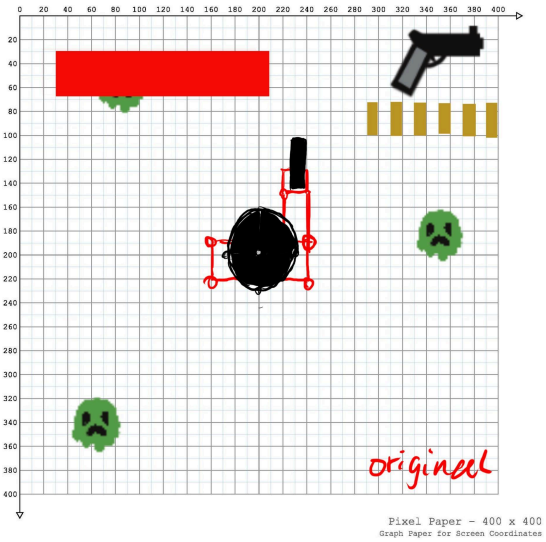

The game is a Top-down shooter game.
Player can get score by kill the enemy and be killed by touching them.
Random Size and Location
Boxes, and they are bullet-proof.
It can block both the player and the enemy.
BOX
use array to show bullets amoun
zombies can dodge the box
catching the player
360° degree rotate,
can aim & shoot by using mouse to control
BOX
BOX
BOX
generate random amount of

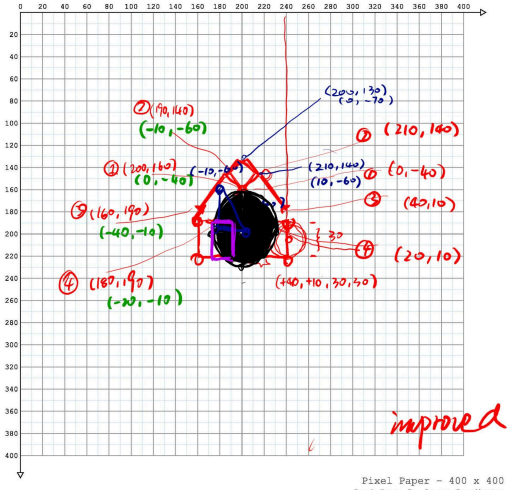
Pixel Paper Drawing



Pixel Paper - 400 x 400

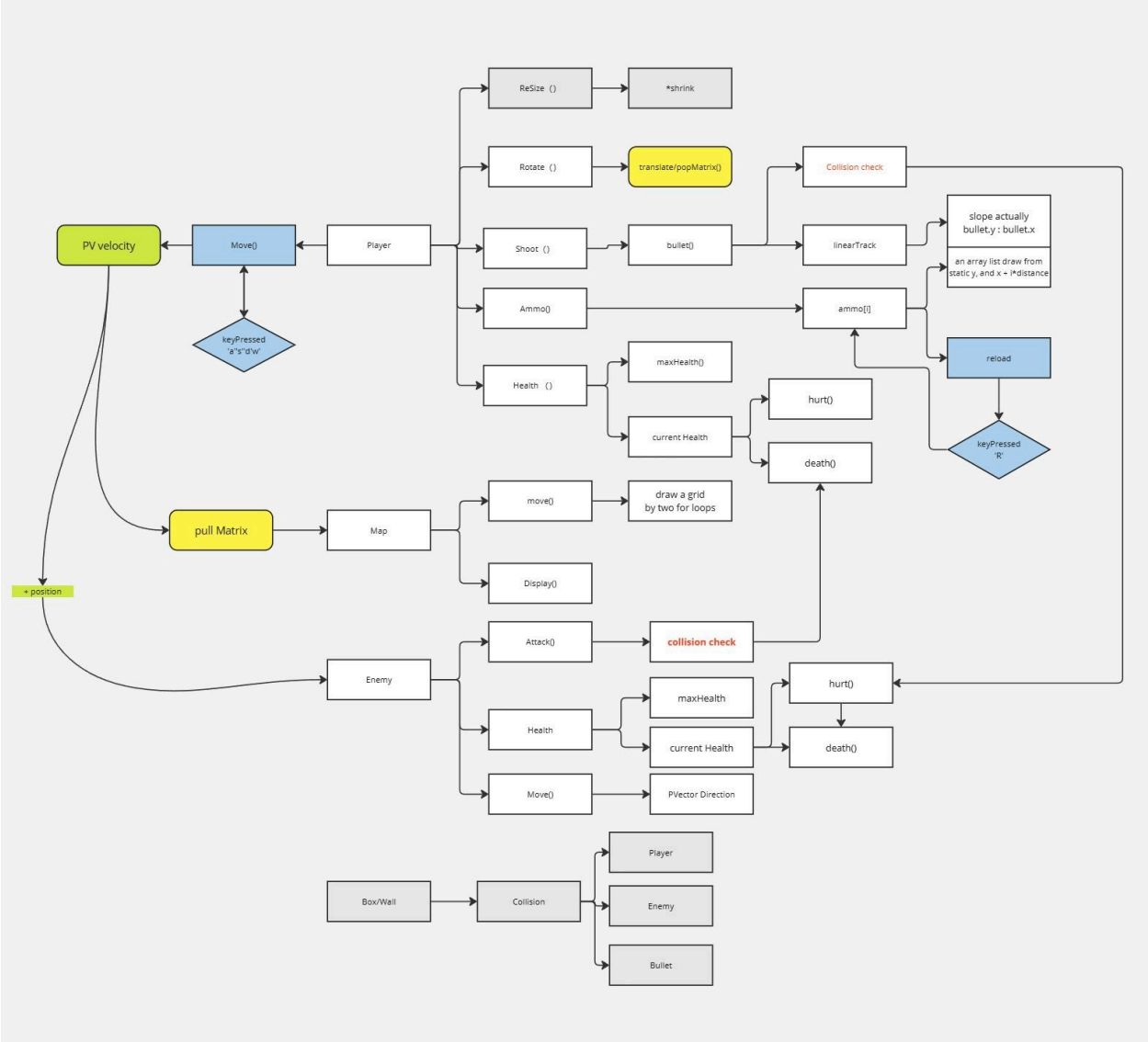
Graph Paper for Screen Coordinates


originel
Pixel Paper – 400 x 400
Graph Paper for Screen Coordinates

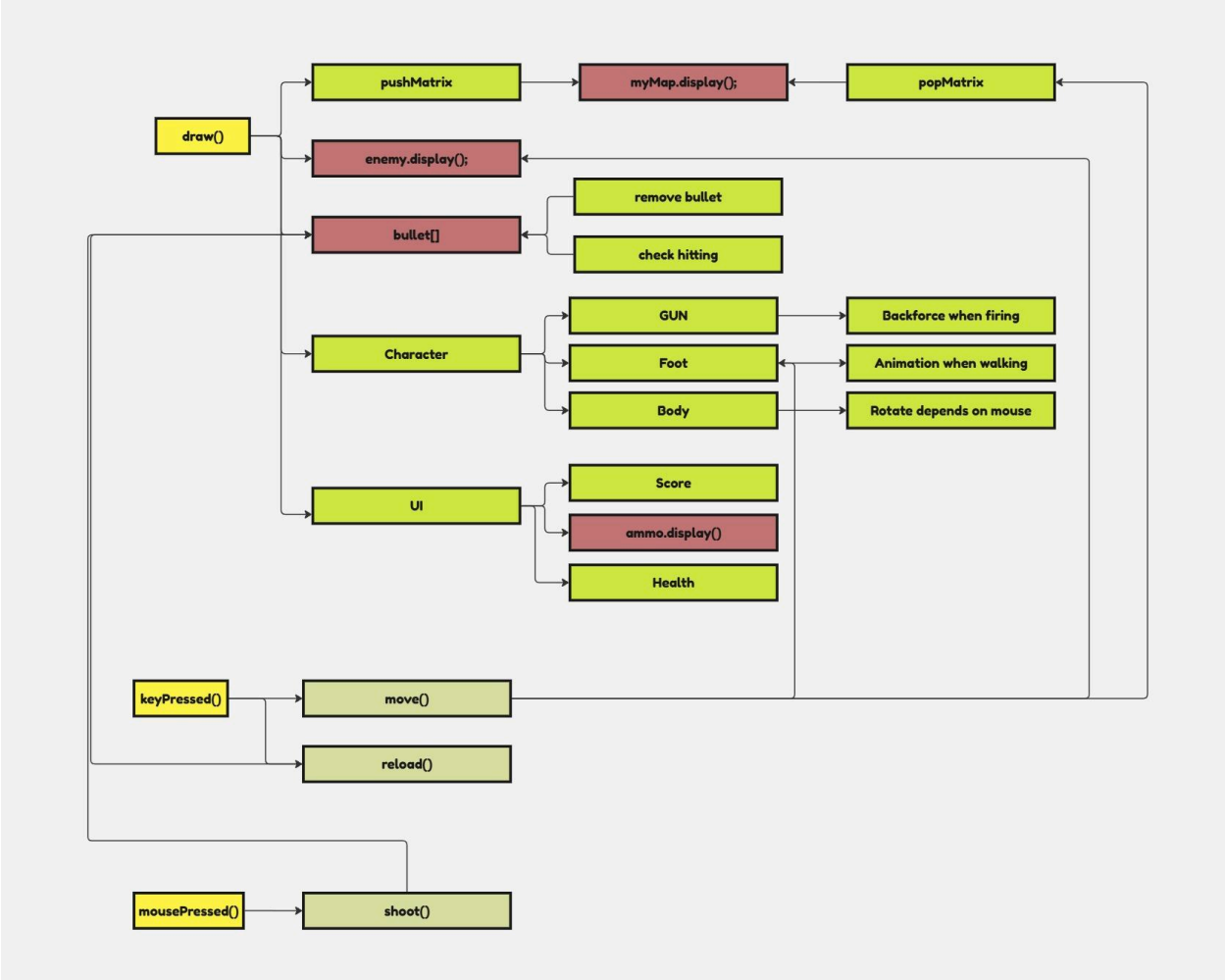

improved
Pixel Paper – 400 x 400
Graph Paper for Screen Coordinates

Pseudocode

Part I


ReSize ()
*shrink
Rotate ()
translate/popMatrix()
Collision check
PV velocity
Move()
Player
Shoot ()
bullet()
linearTrack
slope actually bullet.y : bullet.x
an array list draw from static y, and x + i*distance
keyPressed 'a''s''d''w'
Ammo()
ammo[i]
reload
Health ()
maxHealth()
hurt()
current Health
death()
keyPressed 'R'
pull Matrix
Map
move()
draw a grid by two for loops
Display()
+ position
Attack()
collision check
Enemy
hurt()
maxHealth
Health
current Health
death()
Move()
PVector Direction
Box/Wall
Collision
Player
Enemy
Bullet

Part II



Challenges:

1. PullMatrix: I didn't know that PullMatrixPopMatrix can't actually change the x and y values. This made it impossible for me to calculate the position. It was very painful for me. I spent a long time on solving this problem. Especially my gun was originally in the right hand. But due to the circular motion, I couldn't calculate the starting point of the bullet. I could only calculate from the center of the window. So in the end I adjusted the character's drawing. And let the bullet hide in the first 0.2 seconds to avoid weirdness.

2.The enemy can't move for some reason. I tried many methods, but I think there may be additional restrictions in my main code, and I don't have time. And the enemy has too many functions, collision, damage, death. After death, additional processing is required. I originally planned to destroy it directly and replace it with another one as a corpse, but I didn't have time.

3.One of the most serious problems is that I didn't make the game loopable easily. I found some ways, but I didn't have time to change it. I will upload a loopable one on GitHub later. But it's probably too put it in zip.