**Project Goals:**

The goal I was given was to design, program, and debug a game completely from scratch using the techniques we learned throughout the semester in this class. I was able to use my knowledge to program a maze game that randomizes itself after the player beats it.

**Instructions the player may need:**

Use your cursor to navigate the maze with the blue circle, avoid the white squares as you will not be able to move through them. Once you reach the red square you win the game.

* Make sure you have a working mouse or touchpad to be able to control the ball

If the ball gets stuck, or the computer generates a maze that cannot be beaten (I.E. the red square is unreachable) press R to allow the computer to re-randomize the entire maze.

KNOWN BUG: Sometimes the ball will spawn at a weird angle partially inside of a white wall, please press R to allow the computer to re-randomize the entire maze.

**Citations for external resources I used:**

I used this website to figure out how to program the maze and continuously randomize the maze once its reset.

“Generate QR Code Using Qrcode in Python.” *GeeksforGeeks*, GeeksforGeeks, 4 Apr. 2022, www.geeksforgeeks.org/generate-qr-code-using-qrcode-in-python/.

Another website I used to figure out how to program the maze

Zekai, Orestis. “Fun with Python #1: Maze Generator.” *Medium*, The Startup, 22 Feb. 2021, medium.com/swlh/fun-with-python-1-maze-generator-931639b4fb7e.

**Description of my process**

**What did I learn?**

I learned a lot of things from this project, I can honestly say I didn’t really fully understand how the simpleGE program worked until I had to completely be on my own for a project. I think the coolest thing I learned was how to randomize the maze and have just a button press be able to reset the entire maze.

**Where did I get stuck?**

Even though the maze generation in my opinion was the coolest part of my program, it was also the hardest to fully understand. It took me a while to get that part right. The other part that I really got stuck on was the movement and processing of the ball. In the early stages of my program, my ball would teleport through the walls. So, figuring out how to force the computer into not letting the ball go through the walls was difficult.

**What would I like to improve?**

As I mentioned earlier, there are still definitely some bugs in the code, my game is not perfect but I’m pretty proud of it overall. The two main things I would improve upon if I could would be:

1. Add scoring/levels to the game
2. Make it so there is always a path from the spawn point of the ball to the red square
3. Make it so the ball doesn’t shake so violently when moving

**How would I do things differently next time?**

Next time I wouldn’t focus so much on the small details of the project so much. I spent so long trying to fix the shaking of the circle instead of focusing on the main game.

**How far did I stray from the game design document?**

Overall, not that much. Originally, I assumed I would be able to figure out a way to make the maze actually look more maze-like if that makes sense, but ultimately went with the QR code approach which worked.

**How did you stay on track?**

Consistency. Just getting little pieces done here and there, a lot of testing and debugging went into the process too. I honestly found it really fun to problem solve and come up with solutions for problems that arose.