Subject: 15-112 Term Project Proposal
From: Richelle Guice

Project: Tomb of the Mask

Description

In this game, the user will have to navigate through a randomized maze. However, while traversing there will be obstacles the player must be aware of and be able to pass. Obstacles include spikes, missiles, and explosions. As the player is traversing, there will be coins and stars to collect to up their score. The objective of the game is to reach an exit door.

Competitive Analysis

This game is similar to some other projects I have seen online. For example, Adhvik's Primerunner game. He also had what seemed like a randomized maze where a player navigates through and picks up things and also avoids obstacles. Furthermore, his project also implemented side-scrolling which will be a big component in my project.

Another example that I have seen which I feel is a little similar to mine, is Anesha's 'Survival of the Fittest' game. Every time the player plays, there is also a randomized maze that the user must traverse through. Here, the user has to pick up survival items to keep their health up or else they die. While a completely different function, it seems to be a very similar implication to mine where I have to put obstacles the user must avoid.

Structural Plan

One function will be the appStarted that sets all the base values. One main function for generating the randomized maze. Another main function for sidescrolling with the player. For allowing the player to actually move, there will be multiple functions for: moving the playerPiece, seeing if the move is valid, and then drawing where the player currently is. There is obviously a keyPressed function for allowing the player to move as they wish. There will be another function for generating obstacles and another function for obstacle collision.

Algorithmic Plan

The first trickiest part of my game is implementing a randomized maze that will account for obstacles and allow for my character to move through in a timely manner. This is not just a game where the object is to be able to simply navigate through a randomized maze and find an exit. Instead, it must be playable and fun and also have an "action" feel. The user moves in a "hard" direction. For example, if pressed down, it moves immediately to the nearest wall that is eligible. To tackle this problem I first set up the board as rows and cols. For now, I set a baseline number of columns (20) just for easier debugging purposes.

1. Board is set up as rows and cols
2. Randomize by how many rows there will be a row of wall
    a. Randomized a number between (2, 3)
    b. For every row, there has to be at least one cell space to allow the character to move thus randomize an exitSpace(1, 3)
    c. Randomize by how many cols the row of wall will reach while accounting for space for the character to move
3. Right side of wall is just from start to randomized length of col
4. Left side of wall is ^ + randomized exitSpace
5. Issue of allowing player to be able to bounce off of walls: Using an imaginary player, set its column (iCol) always at the middle of board to play through the randomized maze of rows then to draw additional vertical walls
6. Figure out where there is gap: wallCol → start of gap, gapSpace → app.exitSpace
7. Three cases:
    a. If iCol on gap → nothing, imaginary player can fall through
    b. If gap is on the left of imaginary player→ add block above (row-1) the left wall
    c. if gap is on right of imaginary player→ add block above right wall ONLY if in bounds
8. At end row+=1 to keep iterating through entirety of board

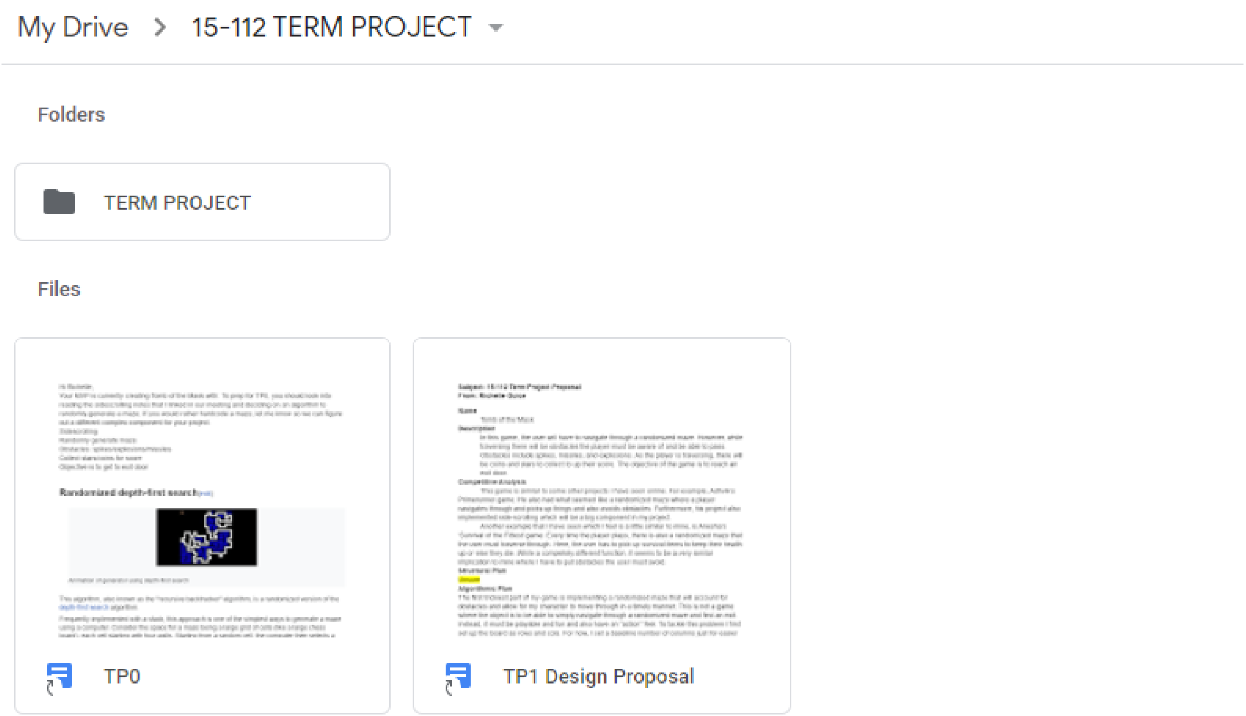
Second trickiest part of my game is implementing sidescrolling. Have not gotten there yet tho. !!

Timeline Plan

Feature:	**Date:**
Randomized maze	4-26-2021
Character on-screen and movable	4-26-2021
Obstacles and obstacle collision	5-01-2021
Coins and stars and show score	5-01-2021
On-screen design improvement	5-01-2021
Sidescrolling	5-01-2021

Version Control Plan

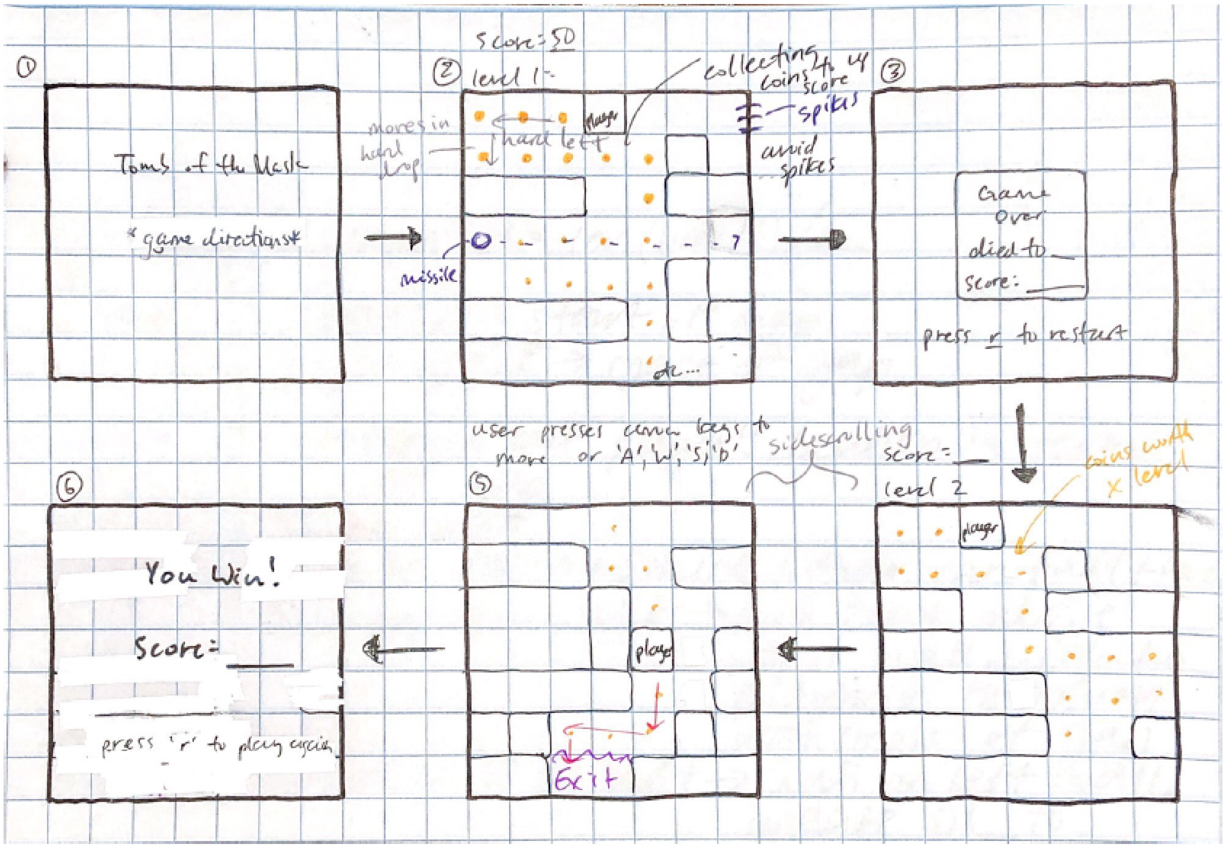
I copy all my files to google drive after every change.



Module List

- I do not think I need external modules/hardware/technologies as of now

Storyboard


①
Tomb of the Mask
game directions
Score=50
②
level 1
player
moves in hard left
hard drop
collecting coins to 4 score
spikes
avoid spikes
missile
etc…
③
Game Over
died to __
Score: __
press r to restart
user presses arrow keys to move or 'A','W','S','D'
sidescrolling
Score=__
level 2
player
coins worth x level
⑤
player
Exit
⑥
You Win!
Score=__
press 'r' to play again