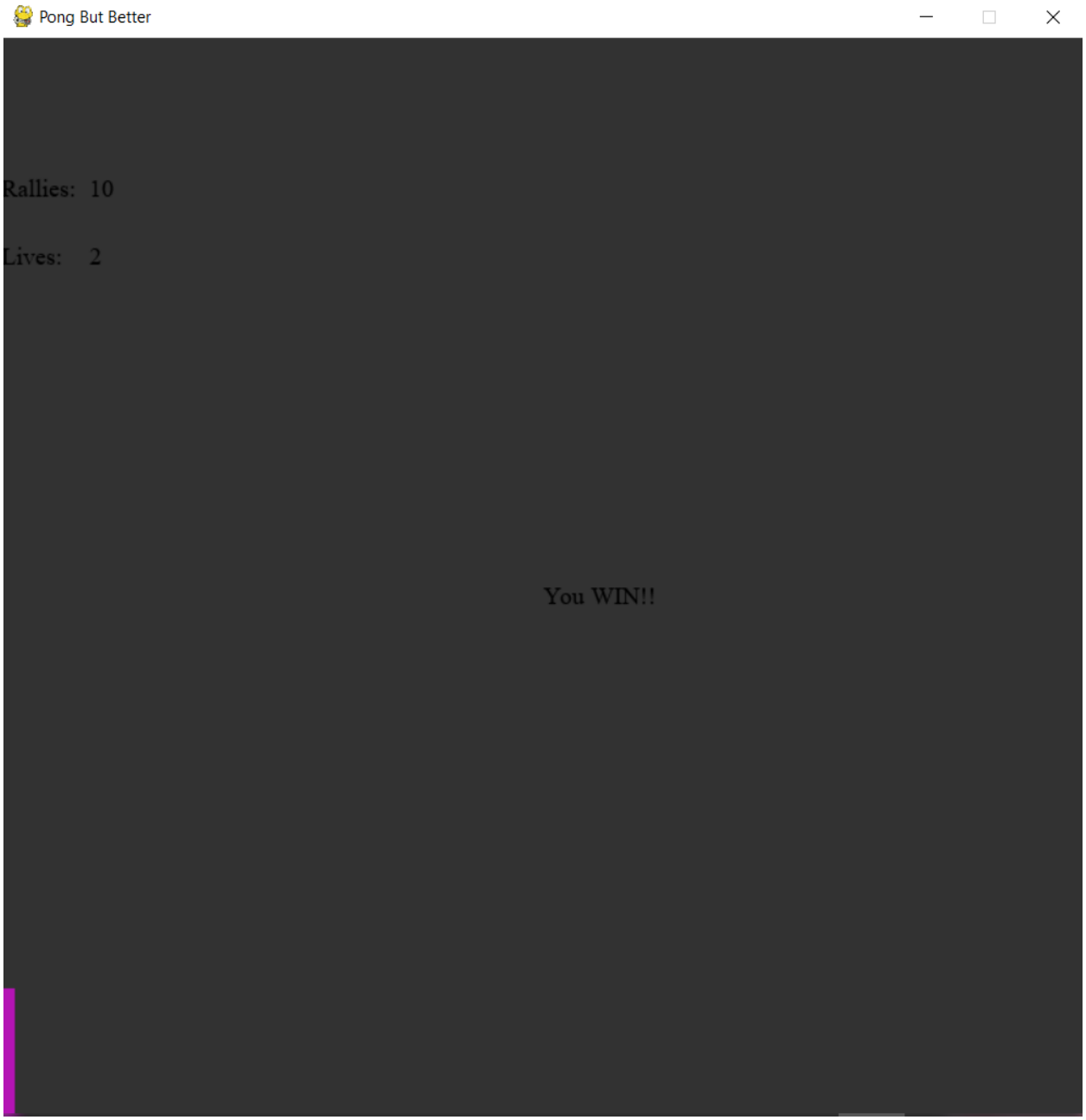
I figured formatting and the images were important, so I made this a pdf README instead of a .txt, which I couldn't figure out how to add images to, if that is even possible.

Instructions

Use the up and down arrow keys to move the paddle. The objective of the game is to keep the ball from hitting the left side of the screen by using your paddle to bounce it back to the right. Each time the ball hits the paddle is added to the "Rallies" score, and each time the ball gets past you, you lose a life. You get 3 lives, and the objective is to get to 10 rallies.



OS Version: Windows 10, 22H2
Python Version: Python 3.10.9
Pygame Version: Version: 2.1.2

Motivation

Well pong was a simple game to create as a first time thing, a really good practice run to try and figure out how to separate all of the parts of a game into different sections (MVC). I also incorporated a little bit of "Breakout" in that you change the angle at which the ball comes off the paddle by where the ball hits the paddle. This is because the game was kind of boring just sitting there and the ball bouncing around at really predictable angles and speeds. I also made a random speed increase whenever it hits the paddle as well.

Reasoning

I wanted to follow the MVC structure because it made the most sense for this simple of a game and the simple components of it could be separated out into those sections *relatively* easily.

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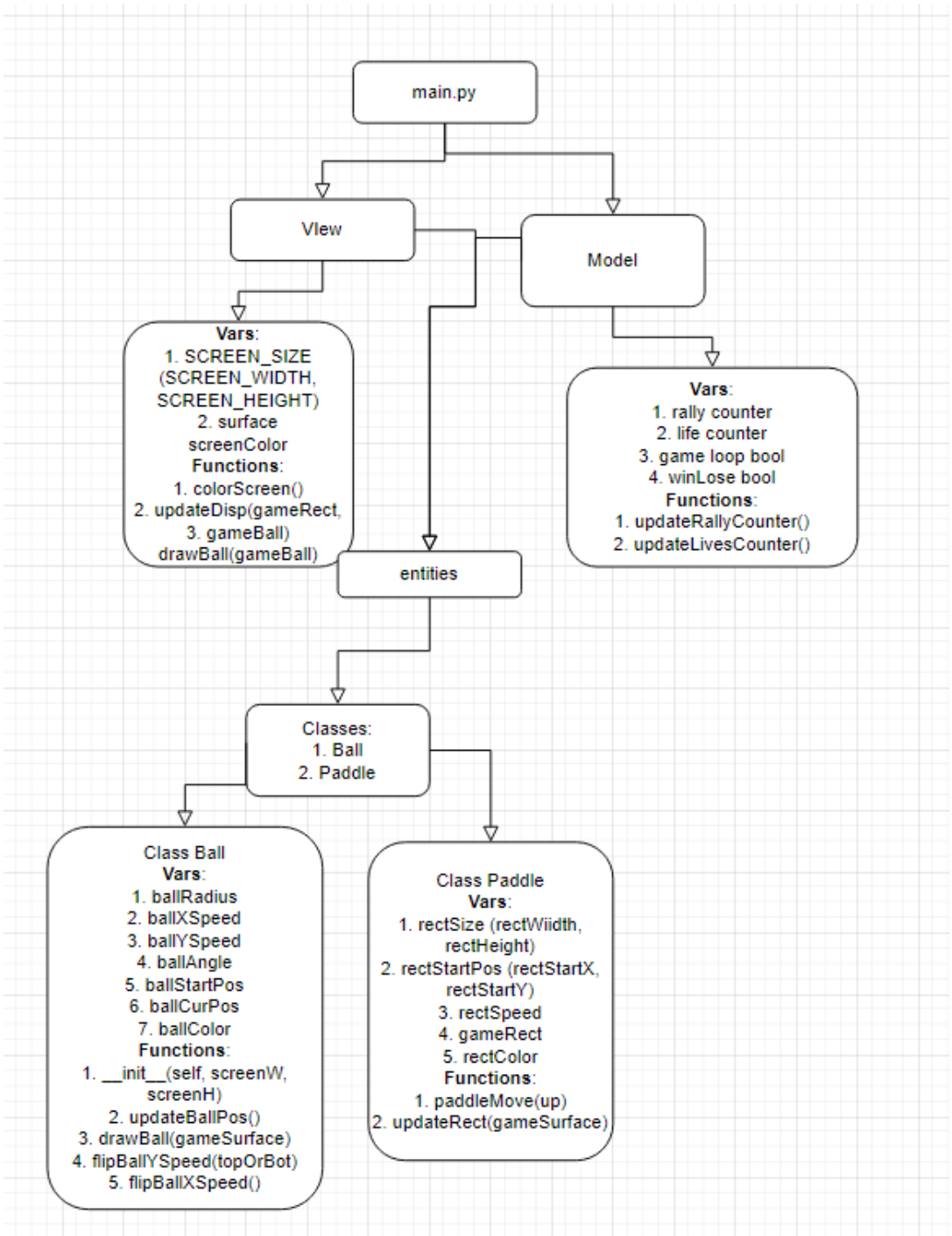
Image



Future Work

Enhancements

To make the game better (I'll go further into detail in the Bugs/Problems section), but can iron out some problems with structure and a few bugs. One major thing I wanted to add but thought of too late was a play again button so that you don't have to close out the entire window and run it again in order to play the game. Another thing is maybe adding sprite images instead of pygame's default shapes to make the game look… not so 1990-ish. Also another problem is trying to figure out how to make the speed of the ball a float value instead of just 1 being its lowest. Because, it can be a little fast at times with the random speed thing I mentioned earlier. Another feature that I could add that is related to the speed is having a difficulty option before starting the game and depending on easy, medium, hard the ball speed will increase a little with each respective difficulty.

Generalization

Well, obviously, it could be used to make a multiplayer version of the game by adding another player paddle. But for generalization purposes, the structure pretty closely (future section explains the "pretty closely" part) follows the MVC structure and that could be used for future projects and make the backbone work not as much work.

Bugs/Problems

Old Bugs

There was a problem with the ball getting stuck between the left edge of the screen and the paddle causing a really quick game to say the least. That was fixed by checking where the ball was going to hit before it actually got there.

Current Bugs

There is a problem where the ball can be hit at an angle and just bounce back and forth on the bottom of the screen. This could be fixed by making the top and bottom "barriers" being a few more pixels being checked to where the bounce would happen before being at the very top/bottom.

Sometimes when the game starts, the random angle that the ball flies at is perfectly at the corner of the paddle and the top of the screen making the ball bounce at the same angle all of the time. This could be removed by just not allowing that angle to be possible when the game is starting.

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Problems

The Controller part of the MVC was my biggest enemy in that the font function I used in pygame was not allowing itself to be in a different folder or file, even though I was importing “sys” to get access to the particular font I was using. I also tried using it for logic and inputs, but while I had checks for inputs in a different file (it was still being called, just nothing was happening when it was in a different file), the paddle wouldn’t move an inch. The game registered that I was pressing the arrow keys to move the paddle, but the paddle was not moving. So with these problems making the game unplayable whether it be runtime errors or bugs after the game starts, I decided to stay away from the controller part entirely. Which is why in the “Image” section, there is no “Controller” part of the diagram.