Zara Bhuiyan
AP Computer Science
6/9/23
Ms. Novillo

Period: 1
Members: Zara Bhuiyan
Title: Flappy Bird

This is a recreation of the popular game Flappy Bird, where you play as a bird and fly in between pipes. In this version, there are 2 versions: Normal and Hard. Normal mode is the same as normal Flappy Bird, whereas Hard mode is where the pipes move up and down. As you progress, in both modes the speed will gradually increase, and the space between the pipes will get smaller. The game is able to save your high score and update it.

Functions:
startScreen(): Called when the game has not started yet. It will draw the start screen and the necessary buttons. If START is pressed, then normal mode will start, and if HARD is pressed, hard mode will start.

update(): Updates the position of the player and the pipes, updates the score and high score(if the current score is greater than the high score), and checks if the player is offscreen or has collided with a pipe.

hardupdate(): Almost identical to update, however it also will change the y position of the pipe so that it continuously moves up and down

restart(): Restarts the position, boolean, and score variables and sends the user back to the start screen.
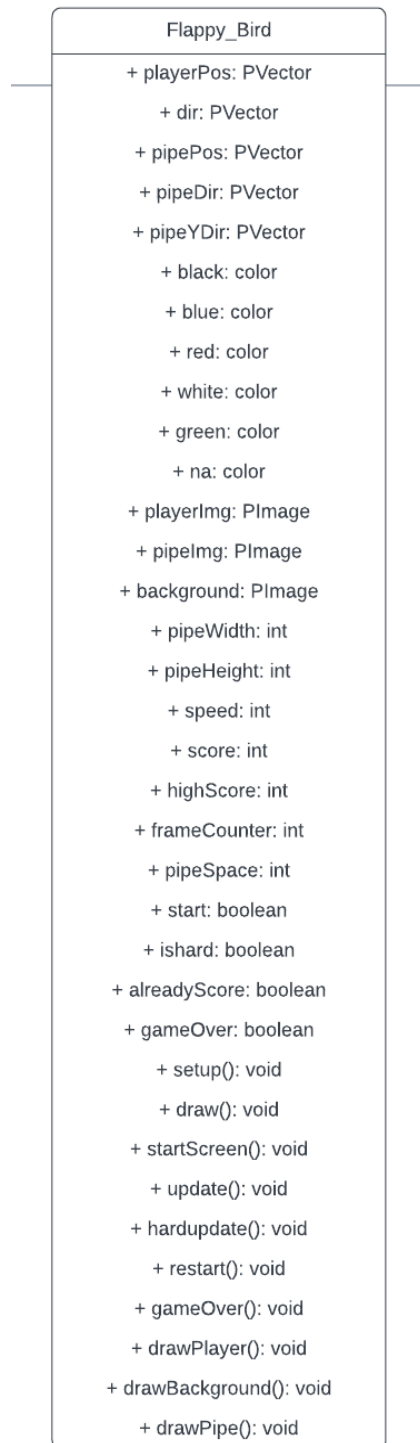
gameOver(): Called if the player is offscreen or has collided with a pipe. It will draw a game over screen and display your score and a restart button. If the restart button is pressed, then the restart function is called.

drawPlayer(): Draws the player at the current position

drawBackground(): Draws the background image

drawPipe(): Draws a pipe and an upside down pipe right above it.

UML:

```
                    Flappy_Bird
              + playerPos: PVector
                  + dir: PVector
               + pipePos: PVector
               + pipeDir: PVector
              + pipeYDir: PVector
                 + black: color
                 + blue: color
                  + red: color
                 + white: color
                 + green: color
                  + na: color
              + playerImg: PImage
               + pipeImg: PImage
             + background: PImage
                + pipeWidth: int
                + pipeHeight: int
                  + speed: int
                  + score: int
                + highScore: int
              + frameCounter: int
                + pipeSpace: int
                + start: boolean
                + ishard: boolean
            + alreadyScore: boolean
              + gameOver: boolean
                 + setup(): void
                 + draw(): void
              + startScreen(): void
                + update(): void
              + hardupdate(): void
                + restart(): void
               + gameOver(): void
              + drawPlayer(): void
            + drawBackground(): void
               + drawPipe(): void
```

How to Start:
Either click on START or HARD to start up the game, and then use the spacebar to make the
player jump.