

```
// Allison Smith  
// September 25, 2019
```

```
class Paddle{  
  constructor(x,y){  
    this.loc = createVector(x,y);  
    this.w = 250;  
    this.h = 50;  
  }  
  
  run(){  
    this.update();  
    this.render();  
  }  
  
  update(){  
    var mouseLoc = createVector(mouseX, 725);  
    this.loc = p5.Vector.lerp(this.loc, mouseLoc, .09);  
  }  
  
  render(){  
    fill(255, 0,0);  
    rect(this.loc.x, this.loc.y, this.w, this.h);  
  }  
}
```

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```
class Ball{  
  constructor(x,y,dx,dy,id){  
    this.loc = createVector(x,y);  
    this.vel = createVector(dx,dy);  
    this.acc = createVector(0, .2);  
    this.clr = color(random(255), random(255), random(255))  
  }  
  
  run(){  
    this.checkEdges();  
    this.update();  
    this.render();  
  }  
}
```

```

    checkEdges(){
//left edge
    if(this.loc.x<0){
        this.vel.x = -this.vel.x
    }
//right edge
    if(this.loc.x>width){
        this.vel.x = -this.vel.x
    }
//top edge
    if(this.loc.y<0){
        this.vel.y = -this.vel.y
    }
//score
    for(var i = ball.length - 1; i >= 0; i--){
        if(ball[i].isColliding()){
            ball.splice(i, 1)
            health= health - 1
        }
    }
//paddle
    if(this.loc.x > paddle.loc.x && this.loc.x < paddle.loc.x + paddle.w && this.loc.y > paddle.loc.y
    && this.loc.y < paddle.loc.y + paddle.h){
        this.vel.y = -this.vel.y
        score= score + 1
    }
}

    update(){
        this.vel.add(this.acc);
        this.loc.add(this.vel);
//Health text
        fill(250, 0, 0);
        textSize(32);
        text("Health: " + health, 10, 30);
//Score text
        fill(0, 250, 0);
        textSize(32);
        text("Score: " + score, 650, 30);
    }

    render(){
        fill(this.clr);

```

```

        ellipse(this.loc.x, this.loc.y, 50, 50);
    }
    isColliding(){
        if(this.loc.y > 850){
            return true
        }
    }
}

```

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```

var ball = []
var paddle = []
var score = 0
var health = 3
var gameState = 1
var numOfBalls = 0
function setup() {
    var cnv = createCanvas(800, 800);
    cnv.position((windowWidth-width)/2, 30);
}

```

```

// The draw function is called @ 30 fps
function draw() {
    if(gameState === 1){
        startGame()
    }
    else if(gameState === 2){
        playGame()
    }
    else if(gameState === 3){
        loseGame()
    }
    else if(gameState === 4){
        winGame()
    }
}

```

```

//creates balls and paddle
function loadThings(n){
    for(var i=0; i < n; i++){
        ball[i] = new Ball(random(width), 0, random(-8,8), random(-8,8), i);
    }
}

```

```
}
paddle = new Paddle(random(width/2),725);
}
```

//runs the ball and paddle classes

```
function runObjects(){
  for(var i = 0; i < ball.length; i++){
    ball[i].run();
  }
  paddle.run();
}
```

```
function startGame(){
  background(20,20,20);
  //title
  fill(250, 250, 250);
  textSize(100);
  text("Paddle Game", 100, 300);
  //easy
  fill(0, 250, 0);
  textSize(20);
  text("Press E for Easy", 100, 500);
  if (keyCode === 69) {
    loadThings(3);
    score = 0
    gameState = gameState + 1
  }
  //medium
  fill(255,165,0);
  textSize(20);
  text("Press M for Medium", 325, 500);
  if (keyCode === 77) {
    loadThings(5);
    health = 4
    score = 0
    gameState = gameState + 1
  }
  //hard
  fill(255,0 ,0 );
  textSize(20);
  text("Press H for Hard", 600, 500);
  if (keyCode === 72) {
    loadThings(10);
```

```

        health = 8
        score = 0
        gameState = gameState + 1
    }
    //how to play
    fill(255, 100, 0);
    textSize(20);
    text("The goal of the game is to keep as many balls in the air as you can.", 100, 625);
    text( "Once you lose all your balls, the game ends", 100, 650);
    text( "Score 30 points to win the game", 100, 675);
}

```

```

function playGame(){
    background(20,20,20);
    runObjects();
    if (health === 0) {
        gameState = gameState + 1
    }
    if (score === 30) {
        gameState = gameState + 2
    }
}

```

```

function loseGame(){
    background(20,20,20);
    fill(0, 250, 0);
    textSize(32);
    text("Score: " + score, 650, 30);
    fill(250, 250, 250);
    textSize(100);
    text("You Lost :", 150, 300);
    fill(250, 250, 250);
    textSize(50);
    text("To restart, press R", 200, 600);
    if (keyCode === 82) {
        gameState = 1
    }
}

```

```

function winGame(){
    background(20,20,20);
    fill(0, 250, 0);
    textSize(32);
    text("Score: " + score, 650, 30);
}

```

```
fill(250, 250, 250);
textSize(100);
text("You Won :)", 150, 300);
fill(250, 250, 250);
textSize(50);
text("To restart, press R", 200, 600);
if (keyCode === 82) {
  gameState = 1
}
}
```