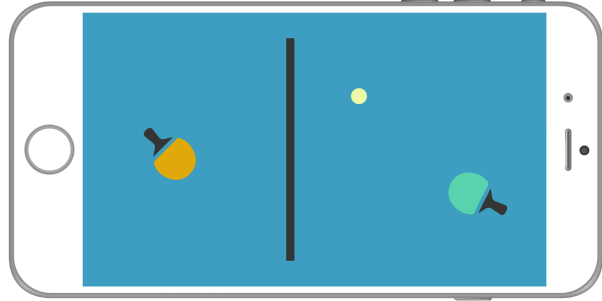**WhiteHat Jr**
Live Online Coding for Kids

**Designing
A Pong Game**

What we did:
- Create the 2 paddles and the ball as sprite objects in the game.
- Assign game behaviour to the paddles and the ball.
- Add AI to the computer controlled paddle

How we did it:
Most of the coding was done by the student in this class!!
Step 1:
Create the paddles and the ball using sprite and place them on the game.

```
1  var playerPaddle = createSprite(380,190,10,70);
2  var computerPaddle = createSprite(10,190,10,70);
3  var ball = createSprite(200,200,10,10);
4
5  function draw() {
6    drawSprites();
7  }
8
```

Step 2:
Give a background ("white") to the game.Assign the position properties to the player paddle object.

```
1   var playerPaddle = createSprite(380,190,10,70);
2   var computerPaddle = createSprite(10,190,10,70);
3   var ball = createSprite(200,200,10,10);
4
5▾  function draw() {
6       background("white");
7
8       playerPaddle.x = 380;
9       playerPaddle.y = World.mouseY;
10
11      drawSprites();
12  }
13
```

Step 3 :

Assign behaviour to our ball. (Give velocity to the ball IF the user presses SPACE button.)

```
1   var playerPaddle = createSprite(380,190,10,70);
2   var computerPaddle = createSprite(10,190,10,70);
3   var ball = createSprite(200,200,10,10);
4
5▾  function draw() {
6       background("white");
7
8       playerPaddle.x = 380;
9       playerPaddle.y = World.mouseY;
10
11▾     if (keyDown("space")){
12          ball.velocityX = 2;
13          ball.velocityY = 3;
14      }
15
16      drawSprites();
17  }
18
```

Step 4:

Make the ball bounce off the walls and the paddle.

```
1   var playerPaddle = createSprite(380,190,10,70);
2   var computerPaddle = createSprite(10,190,10,70);
3   var ball = createSprite(200,200,10,10);
4
5 - function draw() {
6      background("white");
7
8      playerPaddle.x = 380;
9      playerPaddle.y = World.mouseY;
10
11 -   if (keyDown("space")){
12         ball.velocityX = 3;
13         ball.velocityY = 4;
14     }
15
16     createEdgeSprites();
17
18     ball.bounceOff(topEdge);
19     ball.bounceOff(bottomEdge);
20
21     ball.bounceOff(playerPaddle);
22     ball.bounceOff(computerPaddle);
23
24     drawSprites();
25  }
26
```

Step 5 :
Finally, assign the x and y position to the computer paddle.

```
1   var playerPaddle = createSprite(380,190,10,70);
2   var computerPaddle = createSprite(10,190,10,70);
3   var ball = createSprite(200,200,10,10);
4
5 ▾ function draw() {
6      background("white");
7
8      playerPaddle.x = 380;
9      playerPaddle.y = World.mouseY;
10
11     computerPaddle.x = 10;
12     computerPaddle.y = ball.y;
13
14 ▾   if (keyDown("space")){
15        ball.velocityX = 3;
16        ball.velocityY = 4;
17     }
18
19     createEdgeSprites();
20
21     ball.bounceOff(topEdge);
22     ball.bounceOff(bottomEdge);
23
24     ball.bounceOff(playerPaddle);
25     ball.bounceOff(computerPaddle);
26
27     drawSprites();
28  }
29
```

Bonus:

Write IF statements so that the computer paddle moves back to the centre of the screen if the ball crosses the screen.

```
1   var playerPaddle = createSprite(380,190,10,70);
2   var computerPaddle = createSprite(10,190,10,70);
3   var ball = createSprite(200,200,10,10);
4
5 - function draw() {
6      background("white");
7
8      playerPaddle.x = 380;
9      playerPaddle.y = World.mouseY;
10
11     computerPaddle.x = 10;
12     computerPaddle.y = ball.y;
13
14 -   if (keyDown("space")){
15        ball.velocityX = 3;
16        ball.velocityY = 4;
17     }
18
19 -   if (ball.x > 400 || ball.x < 0){
20        computerPaddle.x = 10;
21        computerPaddle.y = 190;
22     }
23
24     createEdgeSprites();
25
26     ball.bounceOff(topEdge);
27     ball.bounceOff(bottomEdge);
28
29     ball.bounceOff(playerPaddle);
30     ball.bounceOff(computerPaddle);
```

What's next?:

We'll address all of these flaws in the game in the coming classes:
- Scoring system
- The line at the centre
- The text appearing on the screen
- No sounds/animations

We will also learn about something called Game State - it is something which programmers use to store game information while the game is on.