CONDITIONAL PROGRAMMING

What is our GOAL for this MODULE?

We used conditional programming to add control to the movements of the paddle. We also built a little game using the ball's movements and added some challenges to it.

What did we ACHIEVE in the class TODAY?

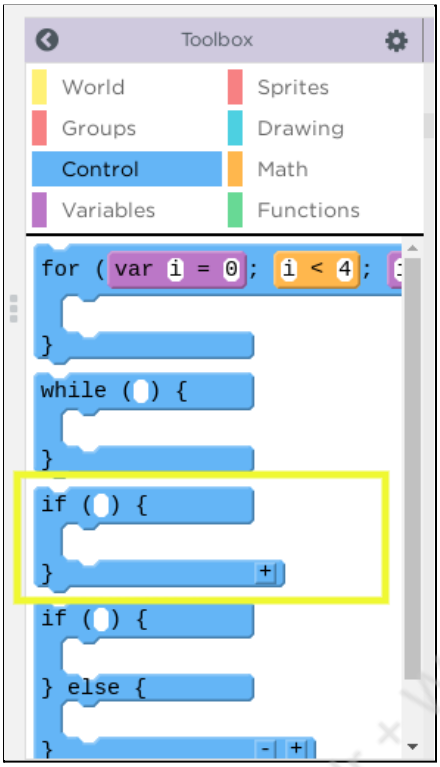
- Used conditional programming to add control to the ball's and paddle's movements if a certain condition holds true.
- Learned how to know if a key is pressed on the keyboard.
- Continued building the Pong game to give movement to the paddle and the ball.
- Provided artificial intelligence to the **computerPaddle** to hit the ball.

Which CONCEPTS/ CODING BLOCKS did we cover today?

- The **If** block
- Keyboard events

How did we DO the activities?

1. Use the **if conditional** block.
    - Use this instruction to tell the computer - If a certain condition is true, perform the task.



2. Add movement to **playerPaddle** when the arrow keys are pressed.
    - Apply conditional programming to move **playerPaddle** up when the up arrow key is pressed.

```
1
2  var playerPaddle= createSprite(390,200,10,100);
3      playerPaddle.shapeColor="blue";
4      var computerPaddle= createSprite(10,200,10,10
5      computerPaddle.shapeColor="red";
6      var ball= createSprite(200,200,10,10);
7      ball.shapeColor="yellow";
8      ball.velocityX=2;
9          ball.velocityY=3;
10
11 function draw() {
12   background(220);
13
14   if (keyDown("up")) {
15     playerPaddle.y=playerPaddle.y-1;
16   }
17
18   createEdgeSprites();
```

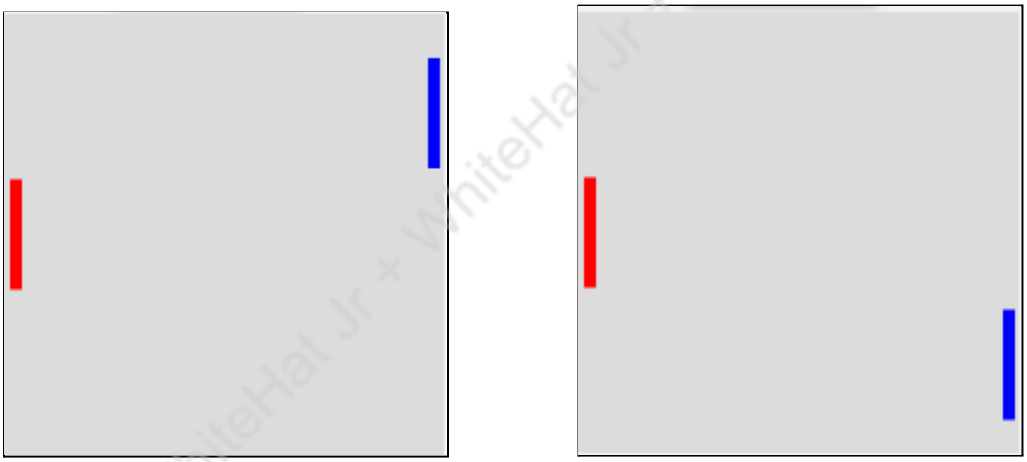
- Change the y-axis by **-10** so that paddle movement is quicker.

```
1
2  var playerPaddle= createSprite(390,200,10,100);
3      playerPaddle.shapeColor="blue";
4      var computerPaddle= createSprite(10,200,10,100)
5      computerPaddle.shapeColor="red";
6      var ball= createSprite(200,200,10,10);
7      ball.shapeColor="yellow";
8      ball.velocityX=2;
9          ball.velocityY=3;
10
11 function draw() {
12   background(220);
13
14   if (keyDown("up")) {
15     playerPaddle.y=playerPaddle.y-10;
16   }
17
18   createEdgeSprites();
```

- Add down movement to **playerPaddle** when the down arrow key is pressed.

```
4       var computerPaddle= createSprite(10,200,10,10
5       computerPaddle.shapeColor="red";
6       var ball= createSprite(200,200,10,10);
7       ball.shapeColor="yellow";
8
9
10  function draw() {
11    background(220);
12
13    if (keyDown("up")) {
14      playerPaddle.y=playerPaddle.y-10;
15    }
16
17    if (keyDown("down")) {
18      playerPaddle.y=playerPaddle.y+10;
19    }
20
```

Output: (The **playerPaddle** now moves both in up and down directions).



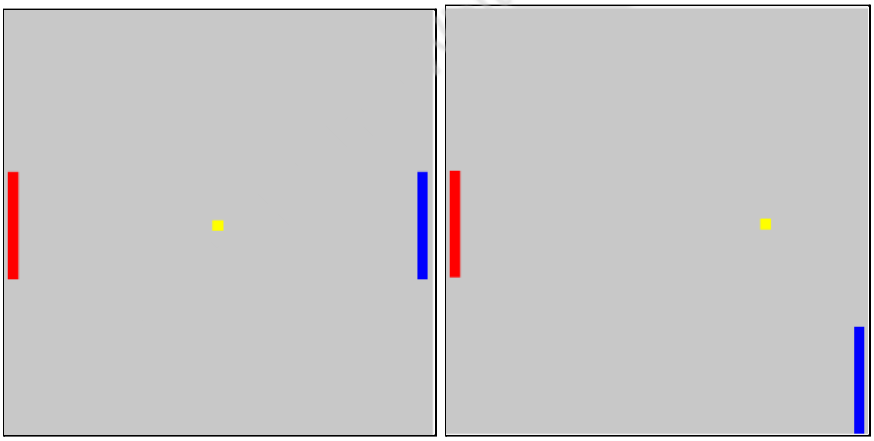
3. Add intelligence to the **computerPaddle** to update its position with the ball by assigning the ball's y-axis value to the **computerPaddle's** y-axis value.

```
    ball.velocityX=2;
      ball.velocityY=3;

function draw() {
  background(200);
  if(keyDown("up"))
  {
    playerPaddle.y=playerPaddle.y-10;
  }

  if (keyDown("down")){
    playerPaddle.y=playerPaddle.y+10;

  }

  computerPaddle.y=ball.y;

  createEdgeSprites();
  ball.bounceOff(topEdge);
  ball.bounceOff(bottomEdge);
  ball.bounceOff(computerPaddle);
```

4. Now, add the **if()** condition so that the **ball** only starts moving when the **space** key is pressed.

```
function draw() {
  background(200);
  if(keyDown("up"))
  {
    playerPaddle.y=playerPaddle.y-10;
  }

  if (keyDown("down")){
    playerPaddle.y=playerPaddle.y+10;

  }
  if(keyDown("space"))
  {
    ball.velocityX=2;
    ball.velocityY=3;
  }

  computerPaddle.y=ball.y;

```

Output: (Press the space key).



What's next?:

We will learn about the DRY (Don't Repeat Yourself) principle and ways to follow it.

EXTEND YOUR KNOWLEDGE

1. To know more on **If()** statements, refer to: https://studio.code.org/docs/applab/ifBlock/