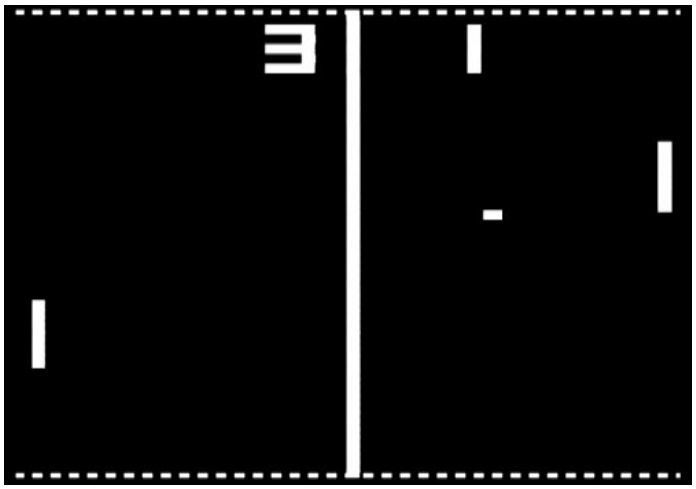
Pong Micro:Bit Project

Pong was a game that was originally designed in 1972 where there was a ball bouncing around the screen, with two paddles on either side that were used to block the ball from hitting the edge of the screen. One of the paddles was controlled by the player and the other was a simple AI (Artificial Intelligence).



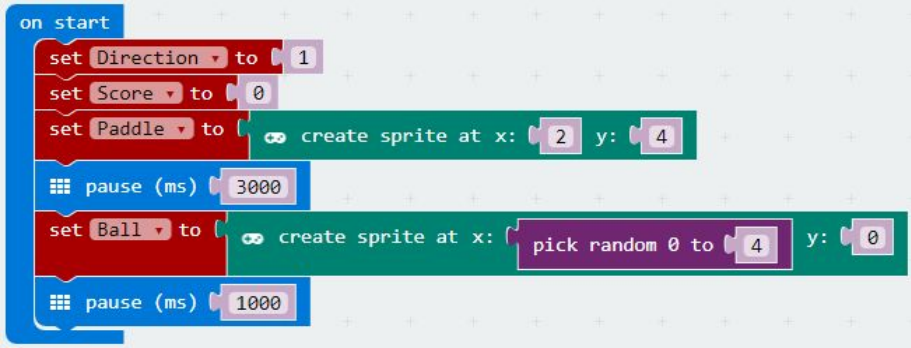
We are going to make a simplified version of that game, where the ball will go up and down the LED screen (bouncing off the top of the LED screen) and where there will be a paddle at the bottom to stop it from hitting the bottom edge.

Variables Needed in Project

- **Paddle** - sprite variable that will act as the paddle in the game.
- **Ball** - sprite variable that will act as the ball in the game.
- **Direction** - stores a value of either 1 and -1. Dictates the direction that the ball is travelling.
- **Score** - stores the score that the player has obtained.

Create Ball & Paddle

We first need to initialize our variables and also create our “Ball” and “Paddle” sprites in a particular location when the game starts. The code to do this can be seen below.



Tasks

1. Copy the code blocks above.

Main Game Rules

This section of the project deals with the main rules of the game (collision detection between the ball and paddle, ball movement, etc.). You have been given the pseudocode to complete this section.

```
forever:
    change “y” of “Ball” by “Direction”

    if “Ball” is touching “Paddle”, then:
        set “Direction” to -1
        change “Score” by 1

    if “y” of “Ball” is equal to 0, then:
        set “x” of “Ball” to random number between 0 and 4
        set “Direction” to 1

    else if “y” of “Ball” is equal to 4, then:
        if “Ball” is not touching “Paddle”, then:
            show “Score”
            pause for 2000 ms
            set game over

    pause for 500 ms
```

Tasks

1. Convert the pseudocode into working code blocks.

Move Paddle

The final step is to be able to move the paddle using the A and B buttons on the Micro:Bit to stop the ball from hitting the bottom.

Tasks

1. Write code to make the “Paddle” go **left** when the **A button** is pressed.
2. Write code to make the “Paddle” go **right** when the **B button** is pressed.
3. Download the code.