Extension: First to complete an action - Player Side

Goal: Instead of generating the actions to do ourselves, let's receive them from the game master!

Task 1.1: Configure the Radio

We need to configure the radio to start off with

1. Start with the base game created in the base workbook.
2. At the top of your program, `import radio`.
3. After the target image is displayed, turn the radio on with `radio.on()`
4. Then configure the radio's group with `radio.config(group=100)`. Your room coordinator will tell you what number to use.

Task 1.2: Ready, Set, Go!

Now, we're going to receive the action from the game master!

1. Find where you first set the `action` randomly. It should be above your `while` loop. `Comment` out this line!
2. Inside the game loop, change the `action` variable so it has the value of the incoming radio message.

Hint - Receiving messages

You can receive messages via radio using:

```
incoming = radio.receive()
```

Task 1.3: Run only once!

We're only competing for each individual point. So when we have a score of 1, the game should end.

1. Update the `while` loop so it only runs while `score` is equal to `0`.

Task 1.4: Send the winner!

Now, tell the game master you've won!

1. Outside the while loop, at the end of the program, send a message to the game master saying your name!

Hint - Sending messages

You can send messages via radio using:

```
radio.send("My message")
```

☑ CHECKPOINT ☑

If you can tick all of these off you have finished this Extension:

☐ You have the radio configured

☐ You receive the action from the game master

☐ You send your name to the game master when you have won a point

Extension: First to complete an action - Game Master Side

Goal: Let's send the same action to multiple players to see who completes it faster!

Task 2.1: Configure the Radio

We'll need to start a new file for our game master!

1. Create a new file, and save it as **`gamemaster.py`**.
2. At the top of your file, `import` the **`micro:bit`** and **`radio`** modules.
3. Turn the radio on.
4. Configure the radio to use the group channel that the room coordinator gave you.

Task 2.2: Ready, Set, Go!

Let's set up the variables we need!

1. Create a variable called **`winner`**, and set it to `None`.
2. Constantly scroll a message that says `"CHOOSE ACTION TO START"`.
3. Make sure your message has a wait of `False`.

Task 2.3: Game loop!

Now, let's set up the game loop!

1. Create a `while` loop that continually loops until **`winner`** is not equal to `None`.
2. Inside the `while` loop, set **`winner`** to be the incoming radio message.
3. Outside the `while` loop, at the end of your code, **`scroll`** who won the game continuously!

Task 2.4: Choose your move!

Now, we need to choose our move and send it to the players!

1. Inside the `while` loop, check to see `if` **`button_a`** was pressed.
2. If it was, show a left arrow, and send a radio message saying `"button a"`.
3. Create another if statement that checks `if` **`button_b`** was pressed.
4. If it was, show a right arrow and send a radio message saying `"button b"`.

Task 2.5: Testing time!

Try playing a game with your game master!

1. Test your Game Master! Which player won?

☑ CHECKPOINT ☑

If you can tick all of these off you have finished this Extension:

☐ You have configured your radio using the group number the room coordinator gave you.

☐ Your radio sends a message of “button a” when button_a was pressed.

☐ Your radio sends a message of “button b” when button_b was pressed.

☐ When there is a winner, their name is displayed!