

Higher or Lower Micro:Bit Project

Higher or Lower is game where the player is presented with an initial number between 0 and 100. After seeing this number they must guess whether or not the next number will be higher or lower. If they guess correct then their score will increase and they must make another guess using the new random number that was generated from their previous guess. If they guess incorrectly then the game is over.

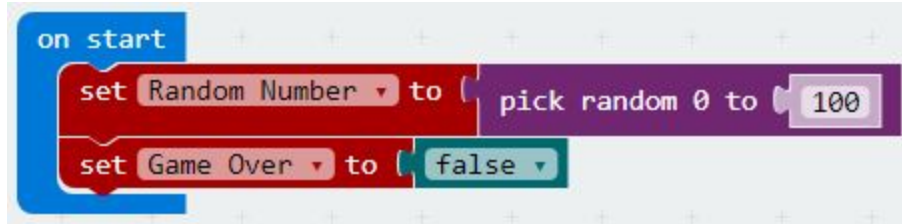


Variables Needed in Project

- **Game Over** - boolean (true/false) that is used to run the game when it is false. If it is true then the game will end.
- **Score** - stores the score that the player has obtained.
- **Random Number** - stores a random number between 0 and 100. Used to display the number that the user will see so that they can make the decision to go higher or lower.
- **New Number** - stores a random number between 0 and 100. Used to generate a new random number to be compared against the "Random Number" variable.

Generate Random Number

The first step will be to generate an initial random number that the player will use to make their first guess.



The code above will do the following when the Micro:Bit starts up.:

- Generate a random number and store it in the “Random Number” variable.
- Set the “Stop Game” boolean variable equal to false so the game will run.

Tasks

1. Make all of the relevant variables (see “Variables needed in Project” section).
2. Copy the code blocks that can be seen above.
3. Download the code.

Main Game Loop

This section of the game will simply show the current random number to the user, repeatedly, until our “Game Over” boolean becomes true (meaning we have lost the game).

Below you will find the **pseudocode** needed to produce the actual code blocks for this section. Pseudocode is a high level description of how the code should be structured, without using the proper syntax of the language that is being used.

Note: Ask the teacher if you are still unclear about what pseudocode is.

```
forever:
  while “Game Over” is equal to false:
    show “Random Number”
    pause for 500 ms
    clear screen
    pause for 2000 ms
```

Tasks

1. Convert the pseudocode into working code blocks.

Guess Lower Number

The next step is to be able to make a decision that the next number will be less than the current random number.

```
on button A pressed:
  set "New Number" to a random number between 0 and 100

  if "New Number" is less than or equal to "Random Number", then:
    set "Random Number" equal to "New Number"
    change "Score" by 1
    show "tick" icon
  else, then:
    set "Game Over" equal to true
    Show "Score"
    clear screen
    set game over
```

Tasks

1. Convert the pseudocode into working code blocks.

Guess Higher Number

The final step is to allow the player to make the decision that the next guess will be higher. I'm sure you will be able to work that one out yourself...

Tasks

1. Write the code blocks that will make the decision that the next guess will be higher if the B button is pressed.
2. Download the code.