



Minor Challenge Set #1

STEM Field: Software Engineering (Programming)

Level: Intermediate

Challenge Name: Learn Python with Compute It

Project Cost: 0 USD

Materials Required:

- Laptop with access to internet

Duration:

- The challenge takes approximately 1-2 hours to finish, however, the time guideline is an estimation only, and students and mentors can complete the tasks around their schedules.

Introduction:

In real life, we will write some codes for the computer to interpret and run. However, in this challenge, we will be switching roles: you will be the computer! Your goal is to read and interpret the code to find the correct trajectory and win the game.

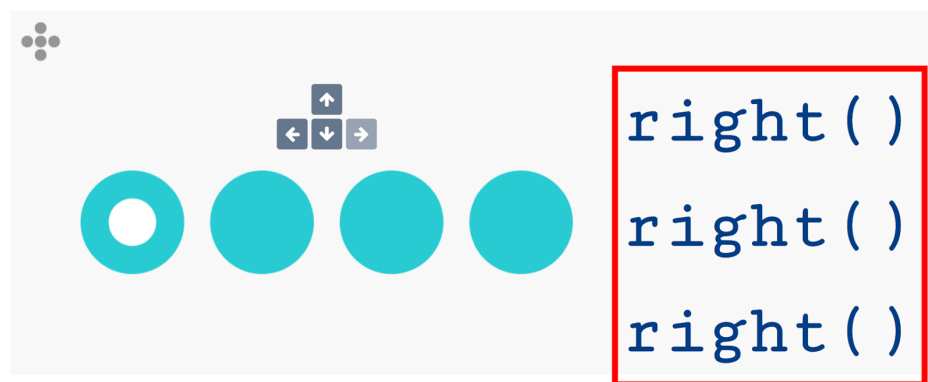
When working with programming languages, understanding the written code is as important as writing your own code. To play this game, you do not need to have previous experience with reading or writing Python. You will be introduced to a few new programming concepts, such as logic (if - else), and repeat loop.

Instructions:

1. On your laptop, click on the link: <https://compute-it.toxicode.fr/> to navigate to the Compute It website.

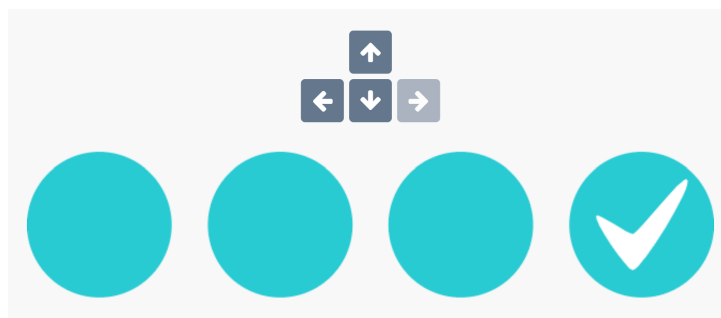
Note: No registration is required.


2. Start from stage 0. In each stage, there is a block of Python code that you need to read, interpret and follow.



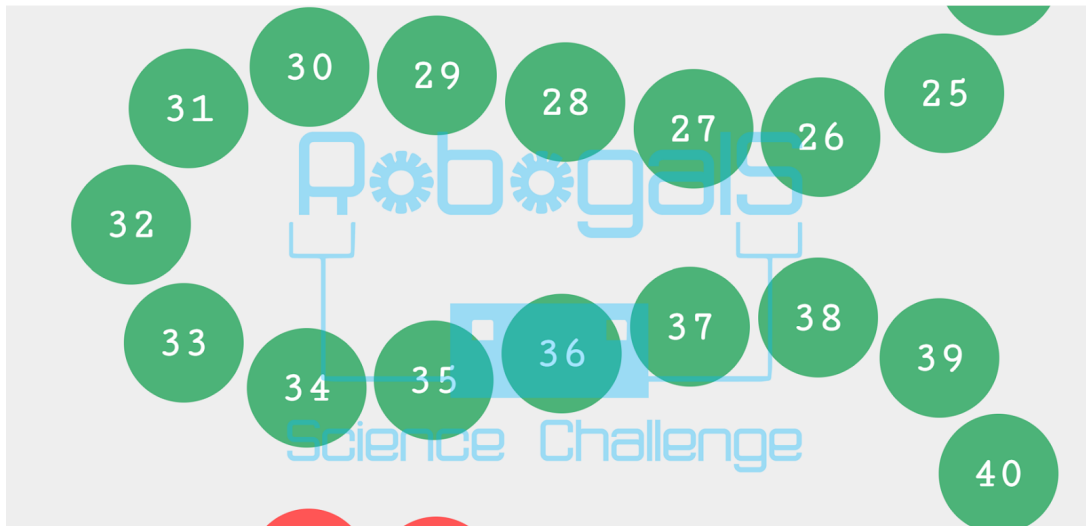
For example, in stage 0, the block of Python code you need to follow is highlighted in the red square.

3. Read the Python code, and use your arrow keys to carry out the instructions in the code. For example, in stage 0, you will press your right arrow key three times as instructed.
4. If you have successfully followed the instructions in the Python code, you will see a tick as shown in the figure below.



5. Read and follow the Python instructions to complete the first 40 stages of this game. You can see your progress by clicking on the symbol  in each stage.

All completed stages are coloured in green. Once completed, take a screenshot similar to the figure below.



Extension

Challenge yourself by finishing the other stages in this game.

There are many different projects you can build with Python. Learn how to write code in Python, and build an interactive project with user inputs to print texts and emoji with this lesson:

<https://hourofcode.com/codeclubhworld>

Reflection Questions:

- Are there any improvements you would make to this challenge?
- Was this challenge easier / harder than you expected?
- What problem(s) did you encounter while playing this game? How did you overcome it?
- Can you list 3-5 examples of when Python would be used as the preferred programming language in real life?
- In stage 3, you were given the block of code as below. In your opinion, why was the code `repeat{...}` used?

```
up ( )  
  
repeat ( 3 ) {  
    right ( )  
}  
  
up ( )
```

- In stage 28, you encountered the block of code as below. Can you explain what the `while{...}` statement means?

```
while ● {  
    right ( )  
}  
  
up ( )
```

Submission Guidelines:

- Submit the photo of the stages you completed. Include a short summary that addresses the reflection questions.

Note: Remember, if you want to upload pictures of your Minor Challenge that also include you, please check if it is OK with your parent or guardian first.

- The submission form is on the Minor Challenges page:
<https://sciencechallenge.org.au/index.php/minor-challenges/>
Fill out the details and make sure you upload your submission.

Learn More! Resources:

- Learn how to write code in Python and build an interactive project
- <https://hourofcode.com/codeclubworld>

Bibliography:

- Toxicode (no date) *Compute It*. Toxicode. Available at:
<https://compute-it.toxicode.fr/> (Accessed: March 13, 2023).