Turtle Triangle

Using variables to create a triangle with the python turtle package.

Overview

I am so excited to share with you a visual way of learning to program with python's turtle. In this exercise, we are going to use a turtle to draw a triangle on the screen and learn to use a variable to easily change the size of our shape.

Video Introduction

Day 2: Variables & Turtle https://youtu.be/7Ybs0ok9pNo

Instructions

1. If you don't have your previous program open, **navigate to trinket.io/turtle** & remove any code that you didn't write.

*We don't want to lose the code we wrote in the previous exercise, but we don't want it executing anymore either. **Comments** allow us to save code & write notes to ourselves that the python interpreter ignores when running our programs.*

2. In the editor pane `main.py`, **type a #** (hashtag) before the line of code:

```
# print("Hello, World!")
```
The line of code should turn green. If you run the code, nothing should display.

If you are beginning from a blank program, you can write your name instead.

*To use python's turtle, we need to import it. **Import** allows us to take advantage of functionality that other expert programmers have already written & tested!*

3. Next, **write** the following three lines of **code & run** your program:

```
main.py
1  # print("Hello, World!")
2
3  import turtle
4
5  turtle.color("blue")
6
7  turtle.forward(50)
```

You should see a blue arrow pointing right as above.

Turtle Triangle

Using variables to create a triangle with the python turtle package.

4. **Change your turtle's color.** In the example above, I made mine blue. Python has a huge list of named colors you can see here: i1.wp.com/www.wikipython.com/wp-content/uploads/ColorChart.jpg

5. To draw a triangle, we will need to turn our turtle before drawing the next line:

```
7    turtle.forward(50)
8    turtle.right(120)
```

6. **Copy & paste** these two lines two more times to draw a triangle:

*Copying & pasting is typically frowned upon in coding. In fact, the single most important design concept in programming is **D**on't **R**epeat **Y**ourself (**DRY**). We'll see how to avoid this tomorrow when we learn about loops!*

7. What if we wanted to change the size of our triangle? How many places in the code would we need to change?[*]

*When code is designed correctly, all code changes should ideally have one well-defined location. We can achieve this with our triangle by using a **variable** for the size.*

8. **Make one variable** to store the size of a side in your triangle. Update the three calls to `turtle.forward()` to use the variable you created instead of **50**.

*Now changing the size of our triangle only requires modifying **one line** of code!*

9. **Run** your modified program to draw a smaller triangle (smaller than **50**). Modify it again to draw an even bigger triangle than before (larger than **50**).

10. **Challenge:** Can you modify your triangle code to point up instead of down?

Share a screenshot! *I can't wait to see what you've created!*

Video Solution

Day 2: Triangle Walk Thru https://youtu.be/qYEFTuSrnKk

---

[*] Answer: 3

*Awesome job! You're ready for the next challenge! Join us tomorrow as we learn how to automate repetitive tasks with **loops**.*