

**CS 101**  
**HOMEWORK 7: FUNCTIONS**

- Create a new Python script file that you will name *CS101\_Homework7.py*. Save this file in a folder on your computer where you will keep all your homework assignments.
- When finished, upload your file in Google Classroom using the Homework 7 assignment link. Don't forget to add comments at the beginning of each task and throughout your code for clarity.

TASKS

1. Write a function named `collatz()` that has one parameter named `number`. If `number` is even, then `collatz()` should print `number // 2` and return this value. If `number` is odd, then `collatz()` should print and return `3 * number + 1`. Then write a program that lets the user type in an integer and that keeps calling `collatz()` on that number until the function returns the value 1. (Amazingly enough, this sequence actually works for any integer—sooner or later, using this sequence, you'll arrive at 1! Even mathematicians aren't sure why. Your program is exploring what's called the Collatz sequence, sometimes called “the simplest impossible math problem.”)
2. Create a Guess the Number program that asks the users to guess a specific number, giving back hints if their guess is too low or high.