

Miniproject 2 Reflection

Emma Mack

In miniproject 2, I successfully reached an understanding of recursion while not entirely succeeding to grasp lambda functions.

Starting out, it took me a few tries, but I was finally able to picture what the entire recursive stack would look like, writing the correct base cases and recursive calls for `build_random_function` and `evaluate_function`. I believe my code is pretty elegant as well: the only slightly clunky code is what handles `min_depth` and `max_depth` in `build_random_function`.

Random recursion is not conducive to unit tests, since it's impossible to predict what the output of a random function will be. I'm also frustrated with doctests in general, since they make it harder to debug. Whenever there's a bug, my strategy is to print out everything and its type to see what's going on. But if you're calling the function from a doctest, those printed values don't show up, all that's displayed is an error message. So due to those reasons, I didn't use doctests much. Instead, I called the function I was testing in the `"if name == '__main__':"` block and visually measured up the output.

My main disappointment for this project is that I started the first "going beyond" section but didn't quite complete it. I definitely gained a better understanding of lambda functions, and was able to successfully diagnose a bug where I was creating a new random lambda function for each pixel instead of having one and evaluating it with different values of `x` and `y`. So I was able to create a random recursive lambda function, as long as I evaluated it with actual values of `x` and `y` as I went. Unfortunately, I ran into a conceptual wall when trying to store a complex lambda function to be reused multiple times (getting error messages like "cannot use * operator on functions"). I hope I can someday figure out how to structure the solution. If whoever is reading this completed that "going beyond" section.....how the heck are you supposed to do it?

Overall, this project was helpful to my understanding of recursion, gave me some good debugging experience, and I'm glad I at least attempted to "go beyond".