The prompt questions for this module are:

1. Describe a scenario where you see recursion at play in your daily life. What are some of the key features of this process or activity that make it recursive; reflect on the defining characteristics in the lecture. For each example, how is this different from an iterative process.

When interacting with my 8-yr old niece… she constantly just says “why?” when I explain something to her. The general problem is that she’s curious and the simpler expression of this curiosity is her asking the question “why?” over and over again. The stopping case is when she’s finally satisfied or something clicks in her mind so that she doesn’t feel compelling to ask why again. But she does go deeper and deeper into the ‘why’ questions for every statement that I say until the base case of understanding for my statement is reached.

I think an iterative approach to this would involve not asking ‘why’ all the time but other types of questions. It’s recursive but she wants to know the ‘why’ and the process for finding the ‘why’ involves asking ‘why’ several times. But if she wanted to know the ‘why’ iteratively… she could ask questions that aren’t simply ‘why’.

2. Describe a second and different scenario where you see recursion at play in your daily life. What are some of the key features of this process or activity that make it recursive; reflect on the defining characteristics in the lecture. For each example, how is this different from an iterative process.

NYC can be divided into neighborhoods. Each neighborhood is divided into smaller and smaller neighborhoods. For example, Brooklyn has a neighborhood called Williamsburg which in turn has a neighborhood called East Williamsburg. The base case is a city block.

I think an iterative way to think of neighborhoods here would be to define neighborhoods as not being composed of other neighborhoods but coexisting side by side or on top of each other.

3. Are there any scenarios you can envision in which recursion would really be impossible, that the process is so iterative that you could not look at it recursively at all?

I think handling things in succession which are already the base case lends well to iterative ideas and is hard to think about recursively. For example, folding clothing. The clothes are already the base case and in order to fold all of the clothes, it seems like you'd have to fold them one by one until the condition is false (are there more clothes to fold? If false, stop).

Walking or traveling also seems iterative. The condition is (is the distance between you and the destination > 0. If false, stop). We would keep traveling until the condition is false which is iterative and not recursive to me.

4. What are some good, practical ways to organize your thoughts and ideas when working with recursion to manage the process a little more easily.

I always think about the base case: when would we stop calling the recursive function and what does the stopping case equal? Also, it helps to think about the function calls and what smaller subproblem exists that allows me to call the function itself with smaller and smaller subproblems. Can I actually define the general case as a simpler version of itself?