

Activity 10

Comp 11 - Summer Session — More FUNctions

With a partner(or two), discuss the following code sample and answer the questions below. The instructor and teaching assistants will let you discuss and then be around to answer questions. ¹

10.1 Description

Recursion is an elegant way to write very concise programs. Understanding the chain of recursive calls however, requires some thinking about the problem you are trying to solve.

In general, remember every recursive function needs a base case where it will eventually return (and thus not make a function call to itself or any other recursive function).

```
1 int functionName(parameters){
2   if(some_base_case_is_true){
3     return some_value
4   }
5   // Otherwise perform some more computations
6
7   return functionName(parameters)
8 }
```

Listing 10.1: Recursion Template

10.2 Questions

1. What do we call a function that acts on an object? (i.e. Functions I can only call on string objects).

¹Activities do not need to be returned to instructors, they are for your benefit.

2. What is a constructor and a destructor?
3. Can a recursive function execute forever?
4. If a recursive function executes forever, how will you know?
5. What do you think the term stack overflow means?
6. If I were to teach this class without loops, and only recursive functions, do you think we could still iterate through code?
7. From the lecture. implement `countDown` on your machine or by hand. Draw on a piece of paper (or outline in a text editor) what is going on in each step.
8. What do we call a nameless function?