APCS Notes

Yicheng Wang

2014-2015

Contents

1 2015-02-05

1.1 Do Now

Figure out what the following code does.

```
public void printme(int n) {
    if (N > 0) {
        printme(n - 1);
        System.out.println(n);
    }
}
```

It should print out an increasing sequence of numbers from 1-N.

1.2 Stack and ROP

The stack on top is the current function, and each layer beneath that is the function that called the current function.

1.3 Recursion

Simple recursive problem: FACTORIAL

Hallmarks of a recursive solutioin:

- Base Case: thing that stops the program, simple case you know the answer of. In the case of factorials, factorial(0) = 1
- Reduction Case: You need to alternate the variable in some sort of way, for example, we should do n * factorial(n - 1)
- Recursion: function A need to eventually call A

Final code:

```
public int factorial(n) {
    if (n == 0) {
        return 1;
    }
    else {
        return n * factorial(n - 1);
    }
}
```