



Compiler Construction/Fall 2014/Homework 8

Eva Rose
evarose@cs.nyu.edu

Kristoffer Rose
krisrose@cs.nyu.edu

Assigned Thursday 10/30/2014, due Thursday 11/6/2014 at 8am

Reading Assignments

- Lecture on October 30: Dragon book 7.1-7.4 (36p), this homework!
- Lecture on October 6: Dragon Book 8.1-8.4 + 8.6 (34p).

Homework Assignments

The following assignments should be submitted for a maximum of 15 points.

1 Activation trees and activation records

Consider the following C program to compute the Fibonacci suite 1, 1, 2, 3, 5, 8, ..., where the n 'th element is computed by adding together the two immediately preceding numbers in the suite. For example, the 6th element 8 is found by adding the two immediate preceding numbers, the 4th and 5th elements, 3 and 5.

```
int fib (int n) {
    int t, s;
    if (n=0) return 0;
    if (n=1) return 1;
    s = fib(n-1);
    t = fib(n-2);
    return s+t;
}
```

Question 1.1 (5 points). Show the complete activation tree, as we assume a call `fib(5)` is made.

Question 1.2 (10 points). Show what the stack and its activation records look like the 5th time `fib(1)` is about to return. Your response should also show allocated memory of yet uninitialized variables.