

ENGN 2910A Homework 02 (100 points) – Due Date: Thursday Sept 26 2013

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In this HW you will explore the x86 ISA in 32 bits. You can download the Jasmin x86 assembly interpreter (<http://www.lrr.in.tum.de/jasmin/>) and use it to do these exercises. There are many guides to x86 assembly language. There are many good x86 tutorials available online. One good one is at <http://www.cs.virginia.edu/evans/cs216/guides/x86.html>

1. [50 points] Write an assembly program that computes the first N Fibonacci numbers. The input number N should be at memory location 0, and the output computed Fibonacci numbers should be stored in subsequent memory locations starting at location 4. Include a screen shot from your code and memory for $N = 5$.
2. [50 points] Write an assembly program that **recursively** computes the factorial of N . The input number N should be at memory location 0, and the result should be stored at location 4. Include a screen shot from your code for $N = 5$. Note that the recursive requirement means you have to use subroutine instructions such as `call` and `ret`. Include a screen shot from your code and memory. 5 points out of the 50 are reserved for the HWs that use the fewest instructions to implement the functionality.