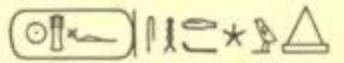


SPRING 2007
CSC 120.02 Introduction to Computer Science
Assignment 4
Due: March 8, 2007
Machine Language
(20 points)

King Radjedef, son of Khufu the Great, decided to build himself a magnificent pyramid 128 royal cubits high and call it “Radjedef’s Starry Sky”,



The ratio of the length of a base side to the pyramid’s height was not allowed to deviate from the magical Golden Ratio (≈ 1.618034) by more than 0.5%, so the ratio was chosen to be $13:8=1.625$. (Needless to say, this is a suitable ratio of two adjacent Fibonacci numbers.) Young Merenptah, son of Hemiunu, is told to compute the length of a base side. Solve Merenptah’s problem by writing a program in the machine language of the simulator available at

<http://www.itss.brockport.edu/~trao/csc120/Machine3.html>

Division by a power of 2 must be implemented using the shift operation, i.e., by rotating and masking, by analogy with the sample program from Lecture 9. Multiplication must be implemented by setting up a loop with addition inside it. Load your program in the simulator, run it and debug it as needed. Once it prints the correct result in the output area, capture a screenshot and include it in your printout following the cover page. Also include the complete text of your program.