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ENEE 350 Homework Set 7

Programming Assignment 2

(Due: Class 17, Thurs., Mar. 28, 2013)

Write, assemble and run successfully on the simulator a Mac-1 subroutine **minev(n,x)** that returns in the AC the address of the integer possessing the smallest even value (i.e., the farthest left value on the real line that is a multiple of 2, including zero) among the n integers in the array whose starting address is x. Your subroutine should be tested with the main program shown below, which defines how the parameters are passed. If there are no even numbers in the array being processed, return the value -1 (a bit pattern that does not represent a valid address on this machine.)

<pre> /main program EXTRN minev ans1 RES 1 ans2 RES 1 ans3 RES 1 n1 7 n2 10 n3 5 start loco 4020 swap /initialize sp loco n1 push /push address n1 loco data push /push array start address one call minev stod ans1 insp 2 loco n2 /push address n2 push loco data add (4) push /push array start address two call minev stod ans2 insp 2 loco n3 /push address n3 push loco data add (6) push /push array start address three call minev stod ans3 insp 2 halt /data array continues here but / is shown in the above right hand column </pre>	<pre> /continued from below halt data 40 8 129 3 -133 0 -2 -29 -3 344 15 -6 -435 13 END start </pre>
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Hand in a copy of the main program symbolic assembly listing, the subroutine symbolic assembly listing, the contents of (macro) memory after “load main sub” (i.e., of main.abs) before execution of the program, and the contents of memory after execution of the program. Highlight and comment upon the final answers. Specify what values are contained in the addresses specified by ans1, ans2, and ans3.