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ENEE 350 Homework Set 7

Programming Assignment 2

(Due: Class 17, Tues., June 28, 2011)

Write, assemble and run successfully on the simulator a Mac-1 subroutine **min(n,x)** that returns in the AC the address of the integer possessing the algebraically smallest value 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 is more than one such minimum value, then return the highest address among the set of them.

/main program				/continued from below halt	
	EXTRN	min		data	57
ans1	RES	1			0
ans2	RES	1			129
ans3	RES	1			-34
n1		9			8
n2		10			3
n3		5			-29
start	loco	4020			-2
	swap		/initialize sp		-3
	loco	n1			347
	push		/push address n1		-15
	loco	data			6
	push		/push array start address		35
one	call	min			-413
	stod	ans1		END	start
	insp	2			
	loco	n2	/push address n2		
	push				
	loco	data			
	addd	(4)			
	push		/push array start address		
two	call	min			
	stod	ans2			
	insp	2			
	loco	n3	/push address n3		
	push				
	loco	data			
	addd	(7)			
	push		/push array start address		
three	call	min			
	stod	ans3			
	insp	2			
	halt				
	/data array continues here but				
	/ is shown in the above right hand column				

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.