ECE 322 EMBEDDED SYSTEM

Lab :-6

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Roll N:-2021BEC0035 **DATE : 06/02/2024**

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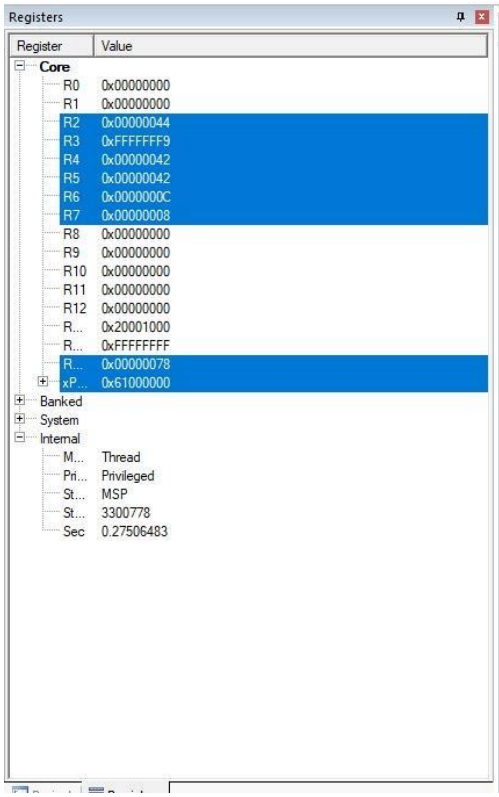
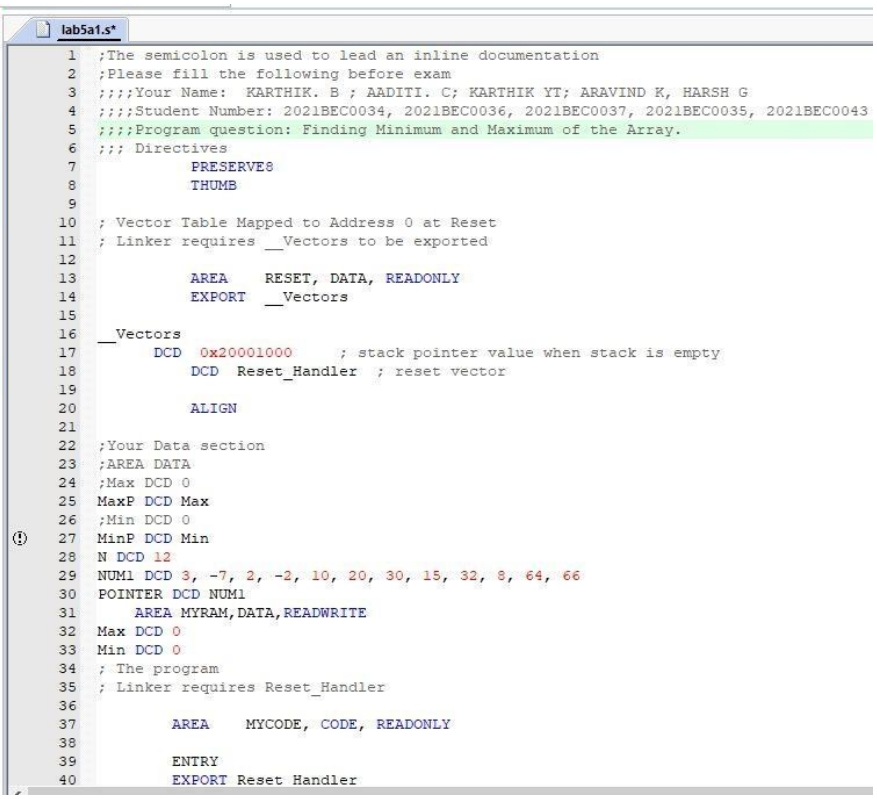
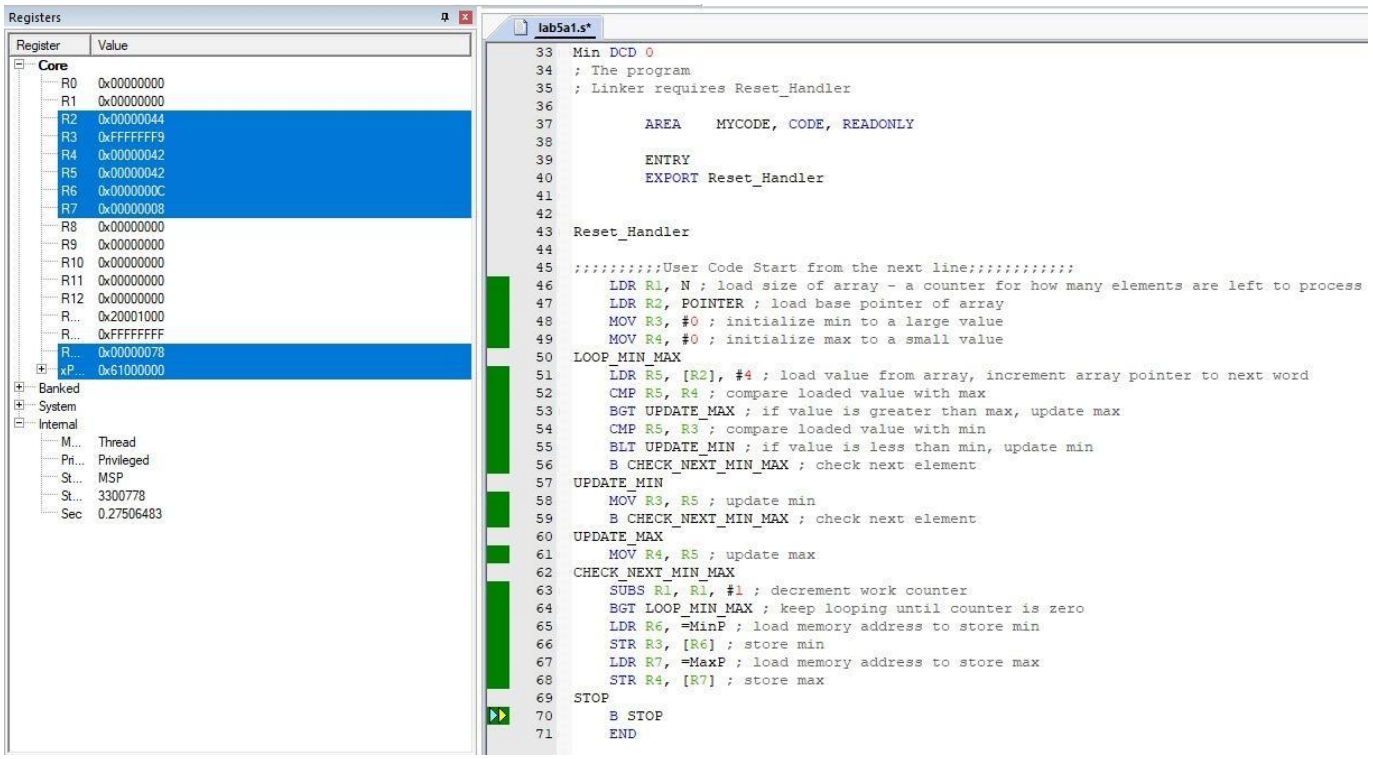
Aim:- 6(b) – Find minimum and maximum element of given array.

Code:






Registers
Register
Value
Core
R0 0x00000000
R1 0x00000000
R2 0x00000044
R3 0xFFFFFFF9
R4 0x00000042
R5 0x00000042
R6 0x0000000C
R7 0x00000008
R8 0x00000000
R9 0x00000000
R10 0x00000000
R11 0x00000000
R12 0x00000000
R... 0x20001000
R... 0xFFFFFFFF
R... 0x00000078
xP... 0x61000000
Banked
System
Internal
M... Thread
Pri... Privileged
St... MSP
St... 3300778
Sec 0.27506483
lab5a1.s*
33 Min DCD 0
34 ; The program
35 ; Linker requires Reset_Handler
36
37 AREA MYCODE, CODE, READONLY
38
39 ENTRY
40 EXPORT Reset_Handler
41
42
43 Reset_Handler
44
45 ;;;;;;;;;;User Code Start from the next line;;;;;;;;;;;;
46 LDR R1, N ; load size of array - a counter for how many elements are left to process
47 LDR R2, POINTER ; load base pointer of array
48 MOV R3, #0 ; initialize min to a large value
49 MOV R4, #0 ; initialize max to a small value
50 LOOP_MIN_MAX
51 LDR R5, [R2], #4 ; load value from array, increment array pointer to next word
52 CMP R5, R4 ; compare loaded value with max
53 BGT UPDATE_MAX ; if value is greater than max, update max
54 CMP R5, R3 ; compare loaded value with min
55 BLT UPDATE_MIN ; if value is less than min, update min
56 B CHECK_NEXT_MIN_MAX ; check next element
57 UPDATE_MIN
58 MOV R3, R5 ; update min
59 B CHECK_NEXT_MIN_MAX ; check next element
60 UPDATE_MAX
61 MOV R4, R5 ; update max
62 CHECK_NEXT_MIN_MAX
63 SUBS R1, R1, #1 ; decrement work counter
64 BGT LOOP_MIN_MAX ; keep looping until counter is zero
65 LDR R6, =MinP ; load memory address to store min
66 STR R3, [R6] ; store min
67 LDR R7, =MaxP ; load memory address to store max
68 STR R4, [R7] ; store max
69 STOP
70 B STOP
71 END