Microprocessor and Computer Architecture

UE20CS252

4th Semester, Academic Year 2021-22

Date: 22/02/2022

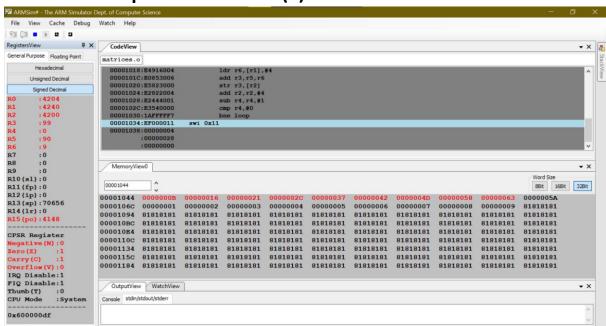| Name:	SRN:	Section:
Vishwa Mehul Mehta	PES2UG20CS389	F

Week#_____5_____   Program Number: _____1___

Title of the Program

**1. Write a program in ARM7TDMI-ISA to add 2 matrices of order3.
i.e., Implement c[i][j] = a[i][j] + b[i][j].**

1.   **ARM Assembly Code(1)**


```
 1  .data
 2  c:  .word 0
 3  a:  .word 10,20,30,40,50,60,70,80,90
 4  b:  .word 1,2,3,4,5,6,7,8,9
 5  .text
 6  ldr r0,=a
 7  ldr r1,=b
 8  ldr r2,=c
 9  mov r3,#0  //sum
10  mov r4,#9  //counter
11  loop:
12      ldr r5,[r0],#4
13      ldr r6,[r1],#4
14      add r3,r5,r6
15      str r3,[r2]
16      add r2,r2,#4
17      sub r4,r4,#1
18      cmp r4,#0
19      bne loop
20  swi 0x11
21
```

2. Output Screen Shot (1)

Name:	SRN:	Section:
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Week#_____4_____   Program Number: _____2____

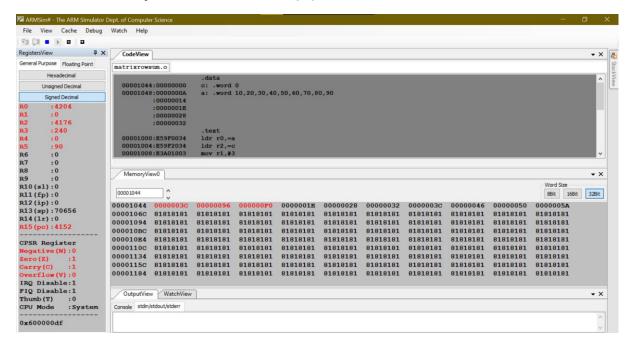Title of the Program

2. Write a program in ARM7TDMI-ISA to find the ROWSUM of a matrix.

1.   ARM Assembly Code(1)

```
1  .data
2  c:  .word 0
3  a:  .word 10,20,30,40,50,60,70,80,90
4  .text
5  ldr r0,=a
6  ldr r2,=c
7  mov r1,#3
8  loop:
9      mov r3,#0  //sum
10     mov r4,#3  //counter
11     inner:
12         ldr r5,[r0],#4
13         add r3,r3,r5
14         sub r4,r4,#1
15         cmp r4,#0
16         bne inner
17     str r3,[r2],#4
18     sub r1,r1,#1
19     cmp r1,#0
20     bne loop
21 swi 0x11
22
~
~
```

2.   Output Screen Shot (1)

Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

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Section: F
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