Microprocessor and Computer Architecture

UE20CS252

4th Semester, Academic Year 2021-22

Date:

Name:	SRN:	Section:
Vishwa Mehul Mehta	PES2UG20CS389	F

Week#____4_____ Program Number: ____1___

Title of the Program

Write a program in ARM7TDMI-ISA to find GCD of two numbers.

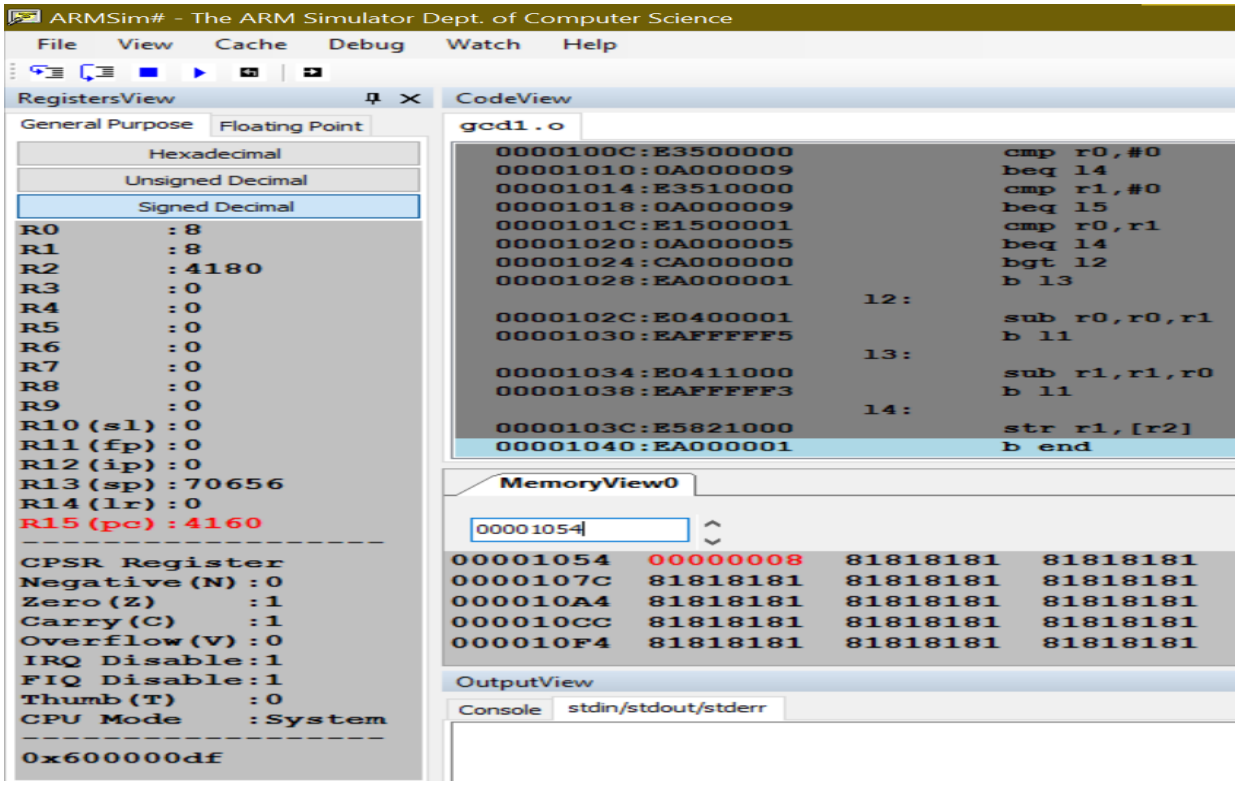
a. Assume operands to be in the CPU registers

1. ARM Assembly Code(1)

vishwa@Acer-Vishwa: /mnt/c/U

```
1  .data
2  RES: .word 0
3  .text
4  mov r0,#56
5  mov r1,#16
6  ldr r2,=RES
7  l1:
8      cmp r0,#0
9      beq l4
10     cmp r1,#0
11     beq l5
12     cmp r0,r1
13     beq l4
14     bgt l2
15     b l3
16 l2:
17     sub r0,r0,r1
18     b l1
19 l3:
20     sub r1,r1,r0
21     b l1
22 l4:
23     str r1,[r2]
24     b end
25 l5:
26     str r0,[r2]
27     b end
28 end:
29     swi 0x011
```

2. Output Screen Shot (1)



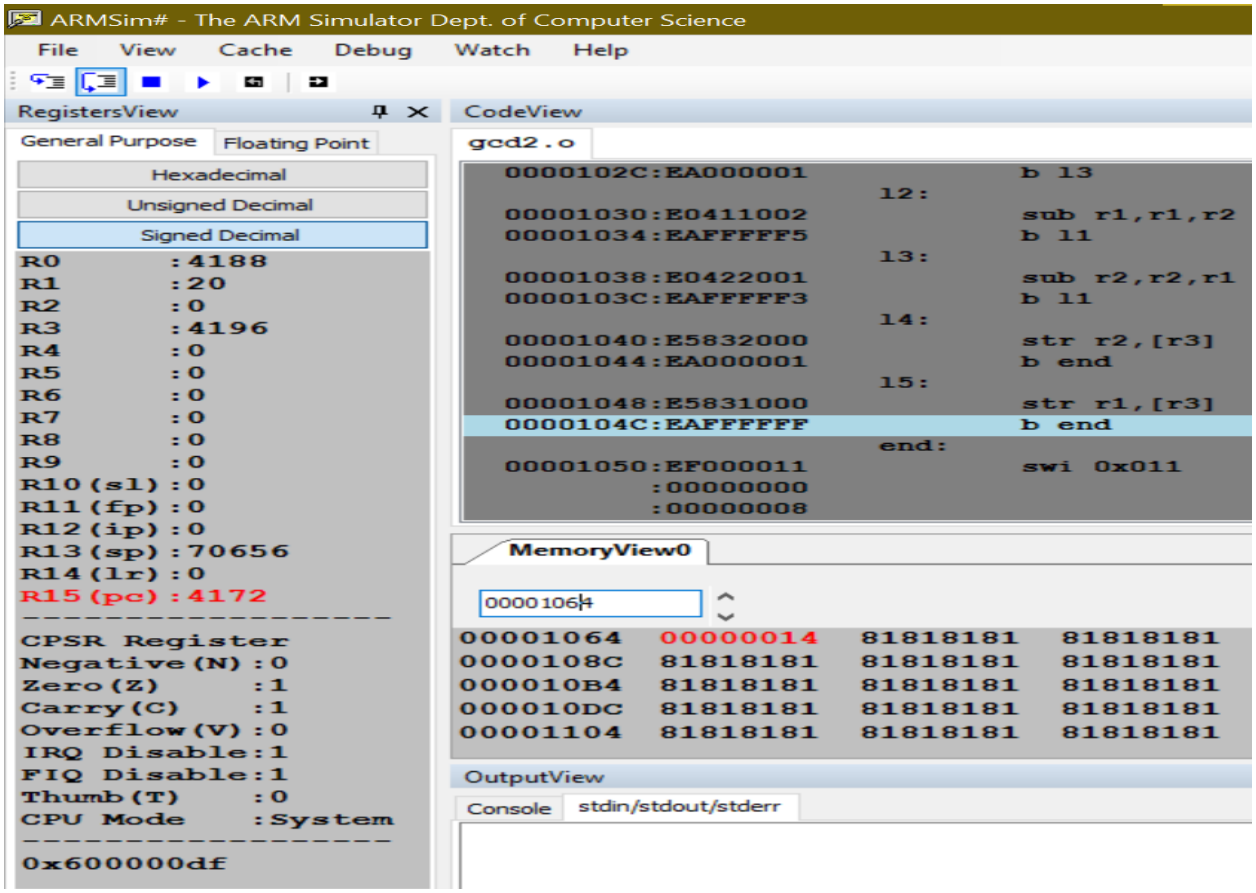
b. Assume operands in the memory locations.

1. ARM Assembly Code(1)

vishwa@Acer-Vishwa: /mnt/c/U

```
1  .data
2  NUM:  .word 20,0
3  RES:  .word 0
4  .text
5  ldr r0,=NUM
6  ldr r1,[r0]
7  ldr r2,[r0,#4]
8  ldr r3,=RES
9  l1:
10      cmp r1,#0
11      beq l4
12      cmp r2,#0
13      beq l5
14      cmp r1,r2
15      beq l4
16      bgt l2
17      b l3
18 l2:
19      sub r1,r1,r2
20      b l1
21 l3:
22      sub r2,r2,r1
23      b l1
24 l4:
25      str r2,[r3]
26      b end
27 l5:
28      str r1,[r3]
29      b end
30 end:
31      swi 0x011
```

2. Output Screen Shot (1)



Microprocessor and Computer Architecture

UE20CS252

4th Semester, Academic Year 2021-22

Date:

Name:	SRN:	Section:
Vishwa Mehul Mehta	PES2UG20CS389	F

Week#____4_____ Program Number: ____2___

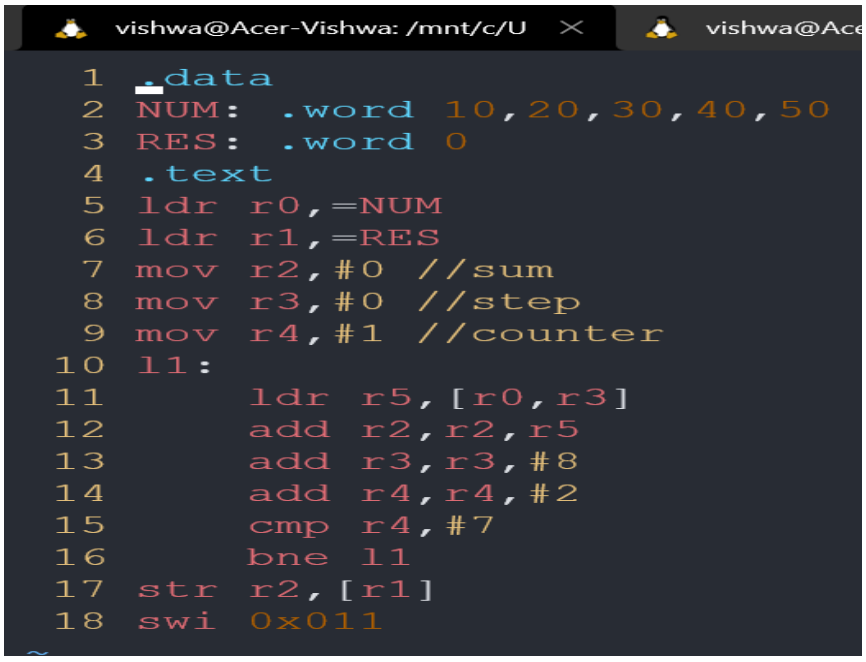
Title of the Program

Write a program in ARM7TDMI-ISA to find the sum of N data items at alternate [odd or even positions] locations in the memory. Store the result in the memory location.

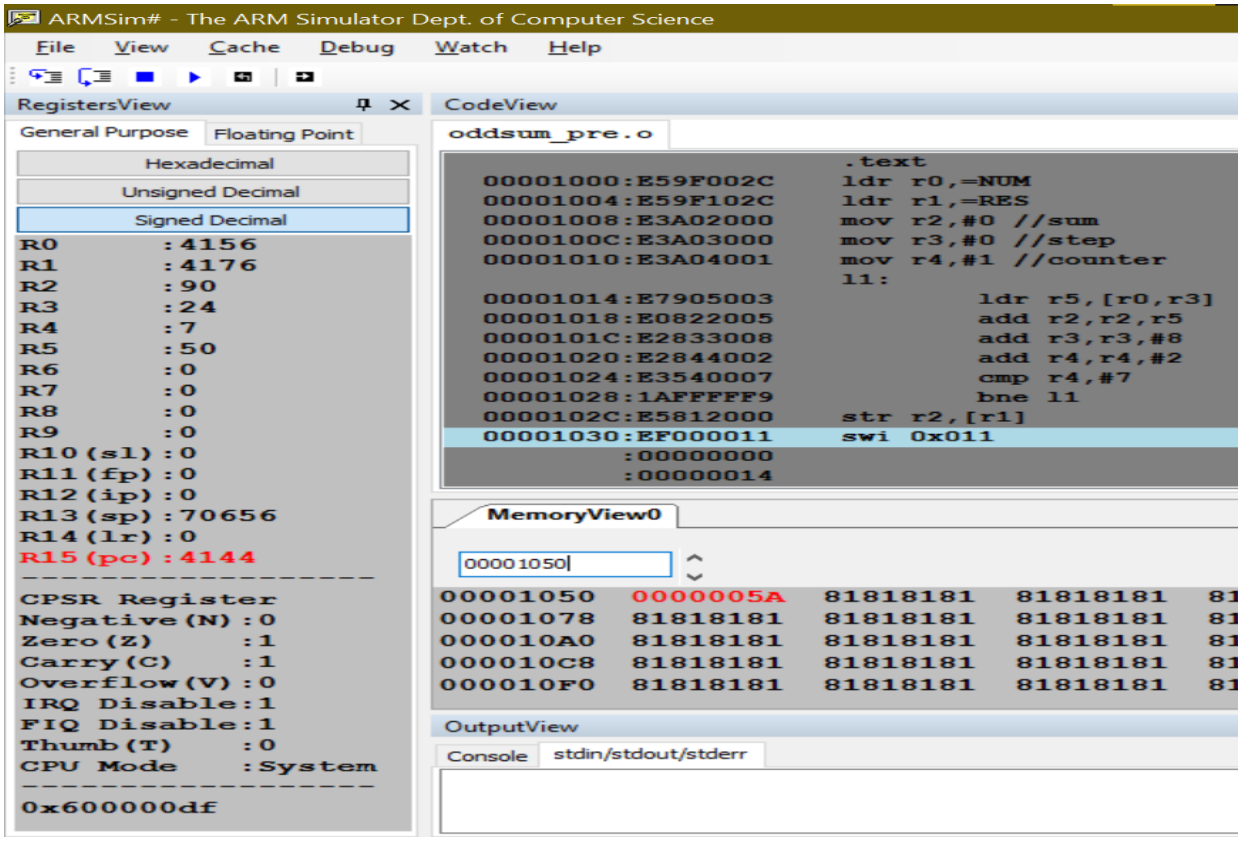
a. **Use Pre-indexing addressing mode**

Odd:

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

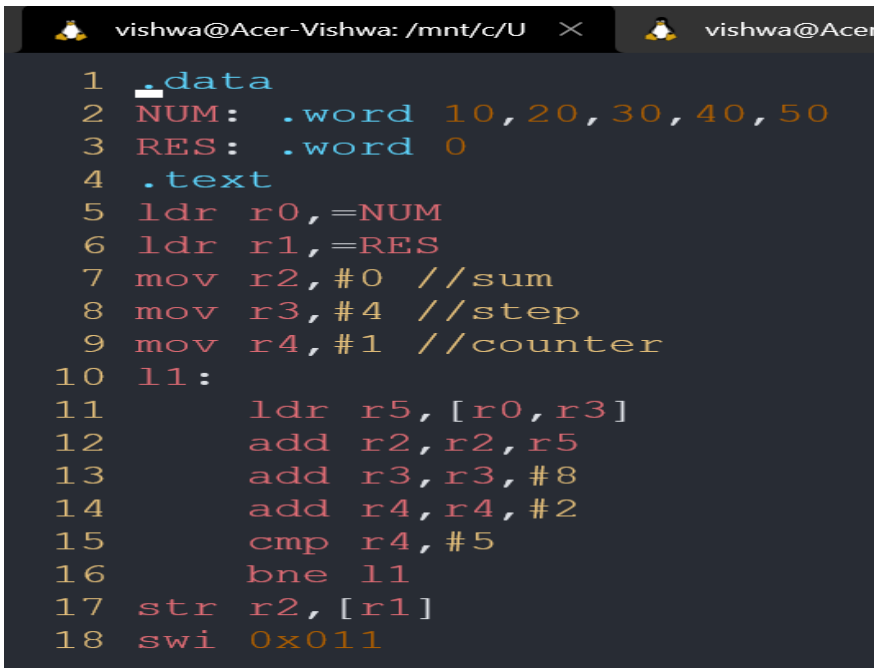


2. Output Screen Shot (1)

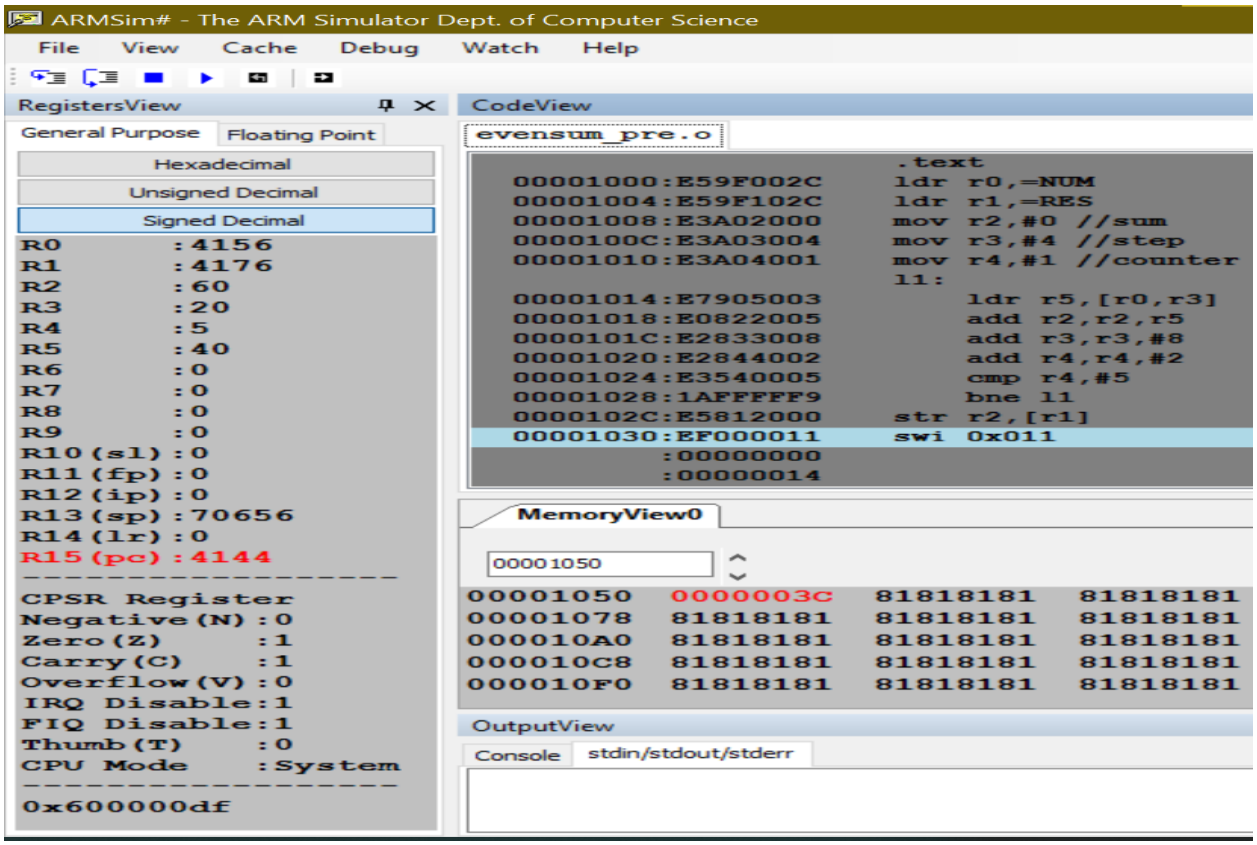


Even:

1. ARM Assembly Code(1)



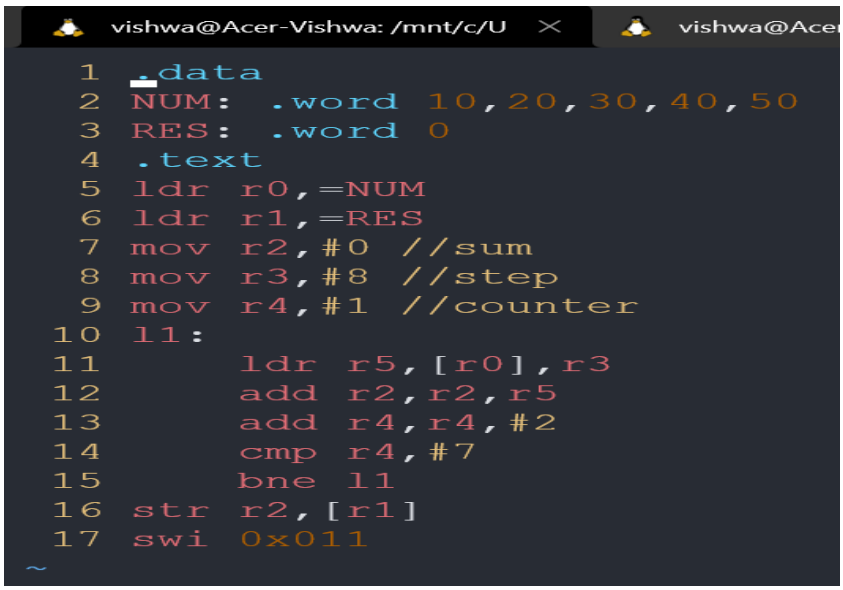
2. Output Screen Shot (1)



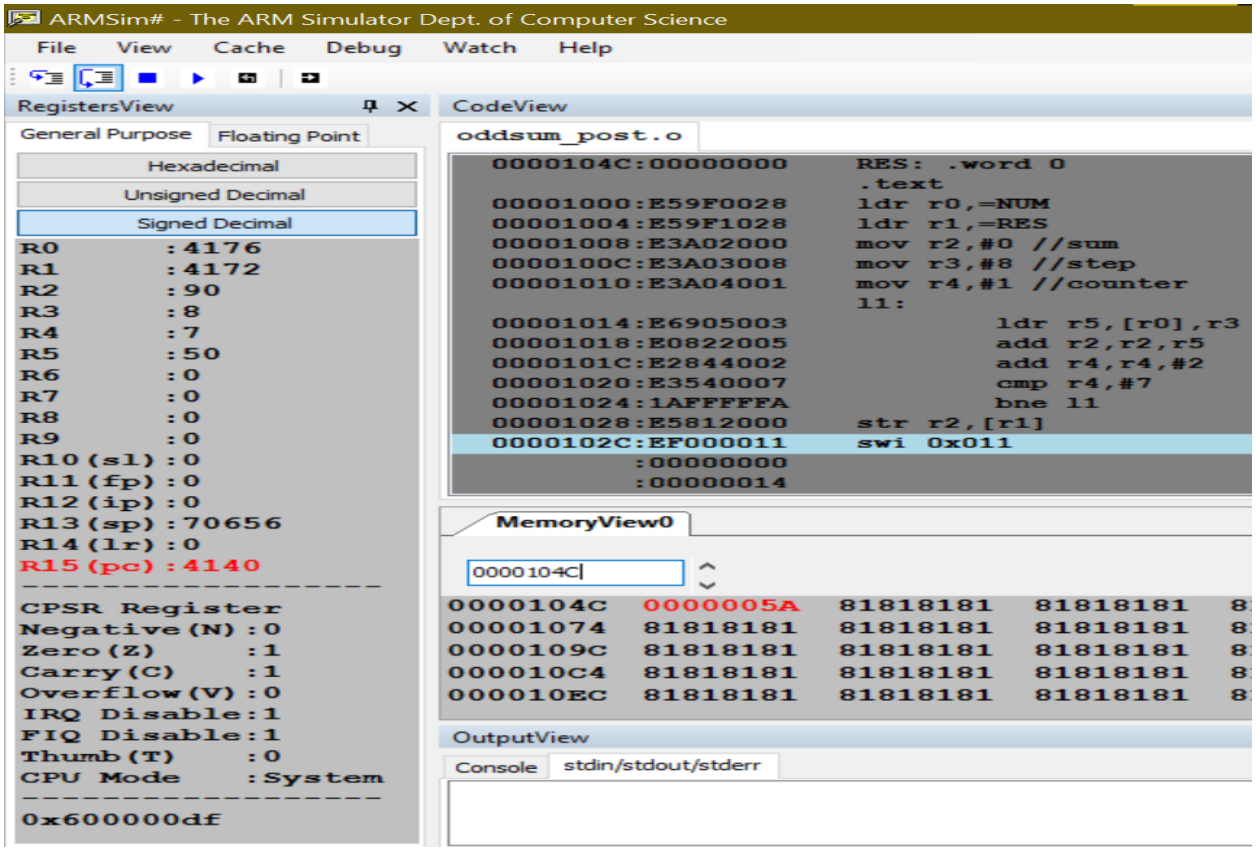
b. Use Post- Indexing addressing mode

Odd:

1. ARM Assembly Code(1)

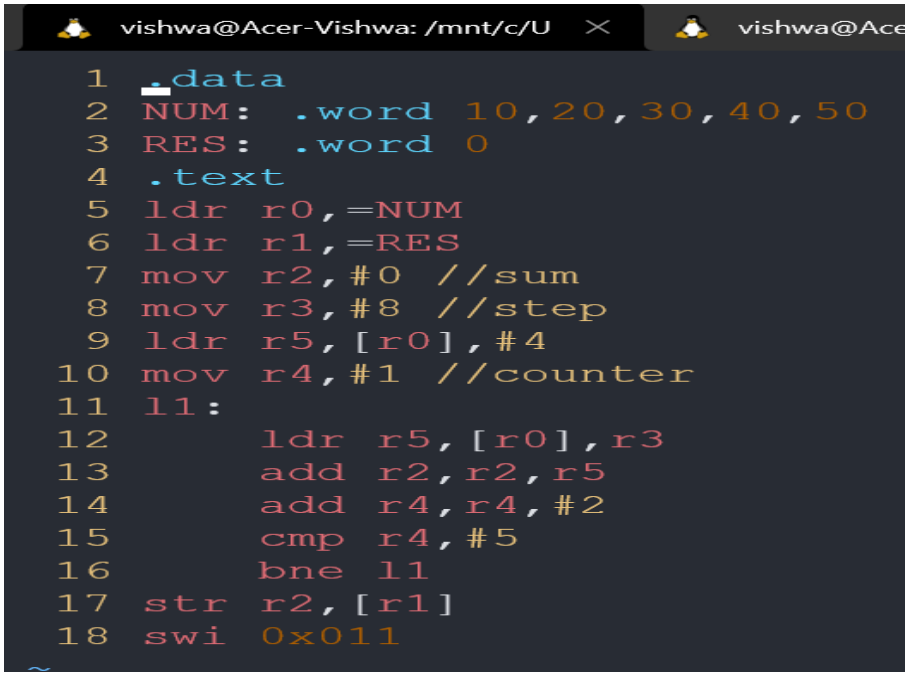


2. Output Screen Shot (1)

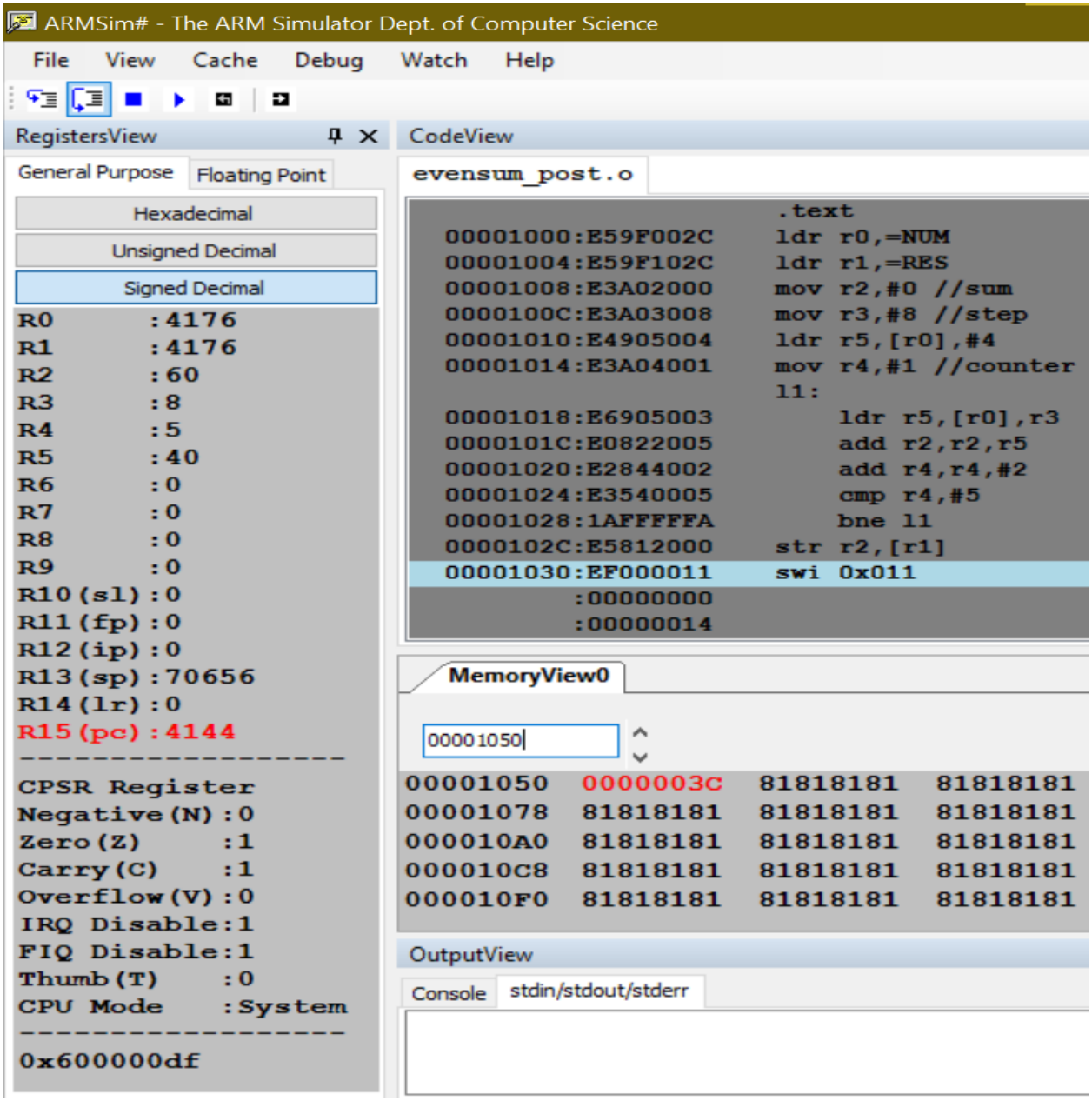


Even:

1. ARM Assembly Code(1)



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.

Signature: Vishwa Mehul Mehta
Name: Vishwa Mehul Mehta
SRN: PES2UG20CS389
Section: F
Date: 07/02/2022