



PES University, Bangalore
(Established under Karnataka Act No. 16 of 2013)

B.Tech., 4th Semester, March 2022

UE20CS252: Microprocessor and Computer Architecture

Assignment – Week 6

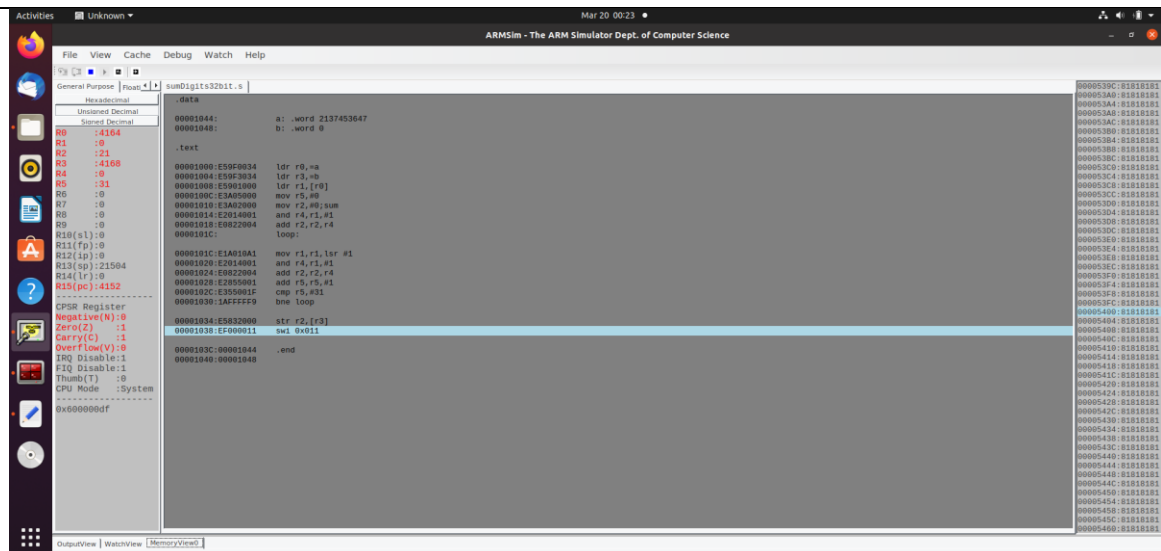
Last Date of Submission : 20th March 2022.

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Section : 'H'

Sl #	Question
1	<p>Write a program in ARM7TDMI-ISA to find the sum of all the digits in an 32bit number.</p> <p>Code :</p> <pre>.data a: .word 2137453647 b: .word 0 .text ldr r0,=a ldr r3,=b ldr r1,[r0] mov r5,#0 mov r2,#0;sum and r4,r1,#1 add r2,r2,r4 loop: mov r1,r1,lsr #1 and r4,r1,#1 add r2,r2,r4 add r5,r5,#1 cmp r5,#31 bne loop str r2,[r3] swi 0x011 .end</pre> <p>Screenshot :</p>



- 2 Write a program in ARM7TDMI-ISA to find the number of occurrences of a given character in a string.
Example: Given string : My name is Bond.
Character : 'n'.
Expected Output : Display 2 in a register.

Code :

.data

```
str: .asciz "my name is bond"
letter: .asciz "n"
```

.text

```
ldr r0, =str
ldr r1, =letter
ldr r5, [r1]
mov r4, #0
```

loop:

```
ldrb r2, [r0]
cmp r2, #0
beq empty
cmp r2, r5
beq found
add r0, r0, #1
b loop
```

found:

```
add r4, r4, #1
add r0, r0, #1
b loop
```

Screenshot :

