Microprocessor and Computer Architecture UE23CS251B

4th Semester, Academic Year 2024-25

Date:01/02/2025

Name:	SRN:	Section:		
Keerthan P.V	PES2UG23CS272	4E		
Week#3 Ass	signment Program :	_1		
Title of the Program				
5a) Write an ALP using Convolution using MUL multiplication of respective r	instruction (Addi	tion of		
5b) Write an ALP using ARM7TDMI to perform Convolution using MLA instruction (Addition of multiplication of respective numbers of loc A and loc B).				
I. ARM Assembly Code Typed Code to be not permitted a)Using MUL instruct .data	Included. Screenshot	of Code		

A:.word 1,3,5,7,9

B:.word 2,4,6,8,10

.text

LDR RO,=A

LDR R1,=B

MOV R2,#5

MOV R4,#0

LOOP:LDR R5,[R0],#4

LDR R6,[R1],#4

MUL R7, R5, R6

ADD R4,R4,R7

SUB R2,R2,#1

CMP R2,#0

BNE LOOP

B EXIT

EXIT:SWI 0x11

.end

b)Using MLA instruction

data

A:.word 1,3,5,7,9

B:.word 2,4,6,8,10

.text LDR R0,=A LDR R1,=B MOV R2,#5 MOV R3,#0

LOOP:LDR R4,[R0],#4

LDR R5,[R1],#4

MLA R3,R4,R5,R3

SUB R2,R2,#1

CMP R2,#0

BNE LOOP

B EXIT

EXIT:SWI 0x11

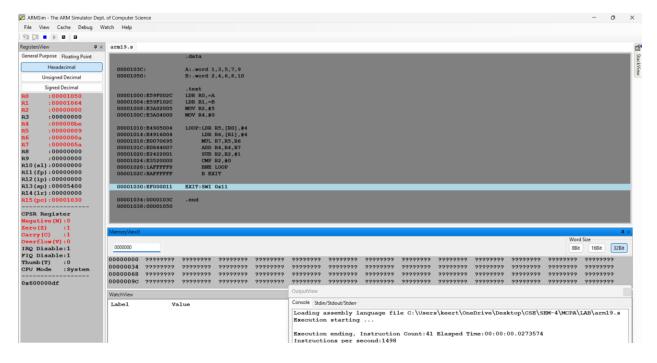
.end

II. Output Screen Shot (2)

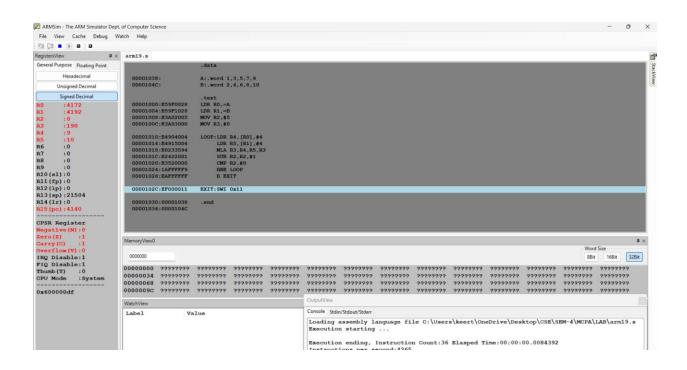
The output should be shown for both the case a and b

The results should be clearly visible in the screenshots. The screenshot should include the code window, register window, memory window and console window

A)Using MUL instruction



B)Using MLA instruction



Week#	3	Assignment Prog	gram: 2
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6)Write an ALP using ARM7TDMI to find the sum of all the BCD digits of a given 32-bit number.

(hint:788 = 7+8+8)

I. ARM Assembly Code(1)

Typed Code to be Included. Screenshot of Code not permitted

.data

A:.word 0x12345678

.text

LDR RO,=A

MOV R1,#8

MOV R2,#0

LDR R3,[R0]

LOOP:AND R4,R3,#0xF

ADD R2,R2,R4

MOV R3,R3,LSR #4

SUB R1,R1,#1

CMP R1,#0

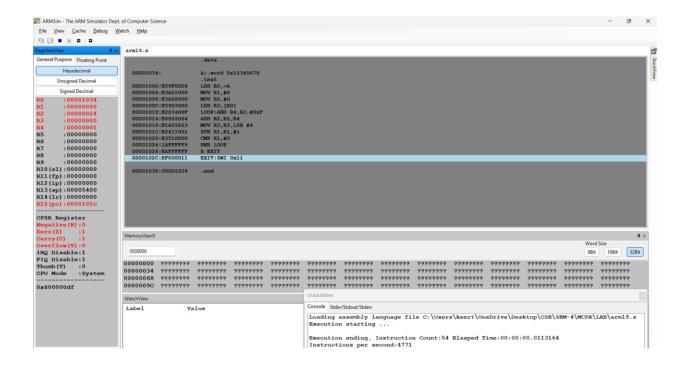
BNE LOOP

B EXIT

EXIT:SWI 0x11

.end

II. Output Screen Shots (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: Keerthan P.V

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