Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date:26/01/2021

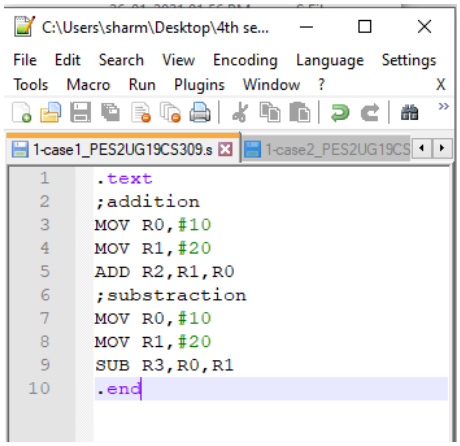
Name: R SHARMILA	SRN: PES2UG19CS309	Section E

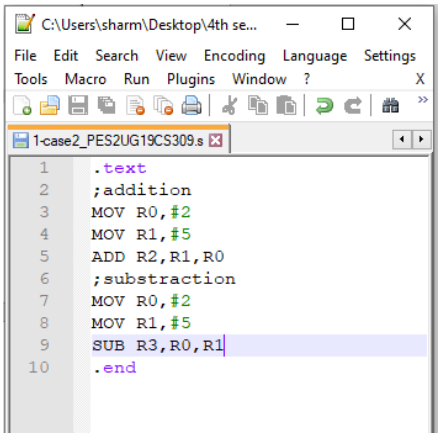
Week#____1_____ Program Number: ____1___

Title of the Program

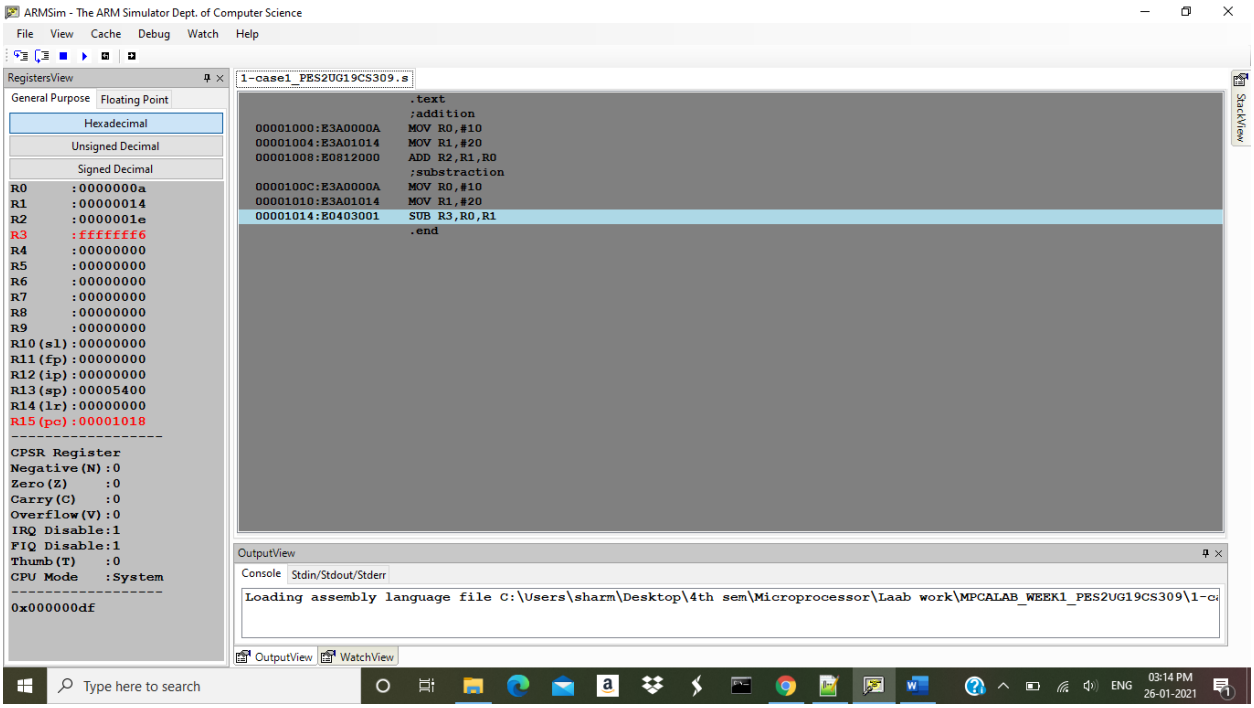
Write an ALP using ARM instruction set to add and subtract two 32 bit numbers .Both numbers are in registers.

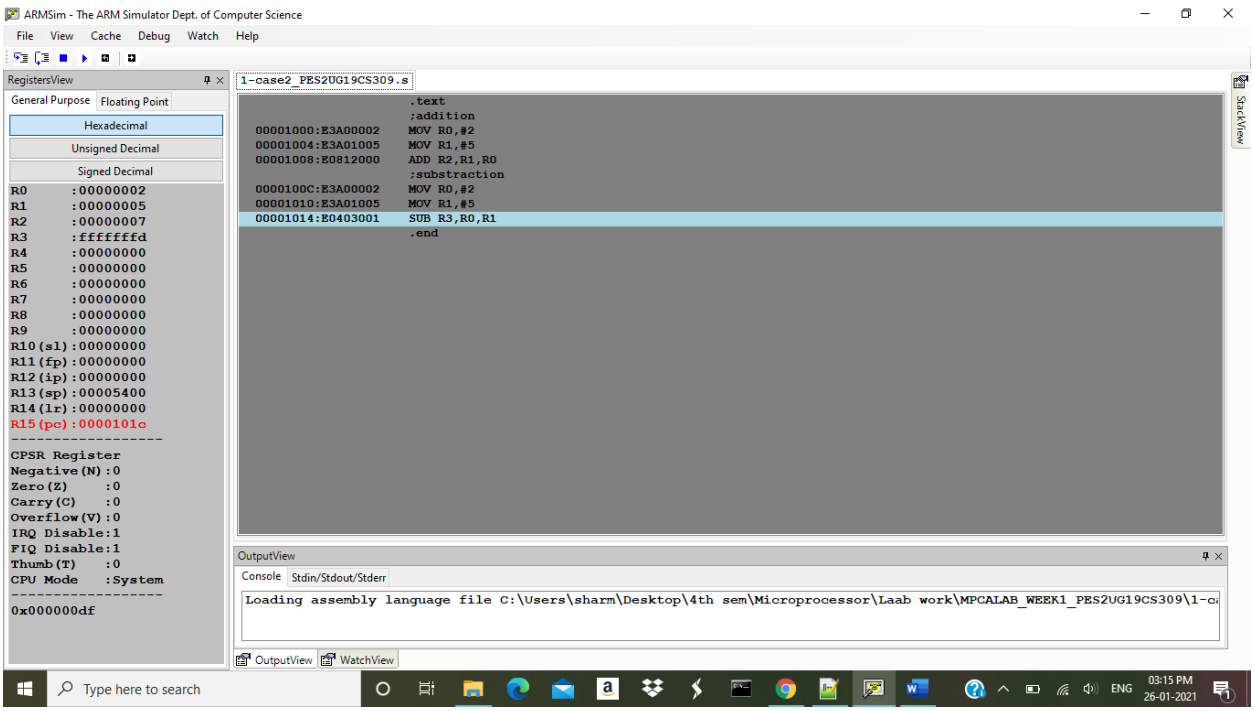
I. ARM Assembly Code for each program





II. Output Screen Shot (Register Window, Output window)





III. Output table for each program

Example **R0=10=Hex 0A** **R1=20=Hex 14** **After Addition R2=30=Hex 1E** **After Subtraction R3 = 10 = Hex 0A**			
R0	R1	Arithmetic Operation	Result
0x0A	0x14	ADD	R2=0x1E
0x0A	0x14	SUBTRACT	R3=0x0A
Example **R0=2=Hex 02** **R1=5=Hex 05** **After Addition R2=7=Hex 07** **After Subtraction R3= 3 = Hex 03**			
R0	R1	Arithmetic Operation	Result
0x02	0x05	ADD	R2=0x07
0x02	0x05	SUBTRACT	R3=0x03

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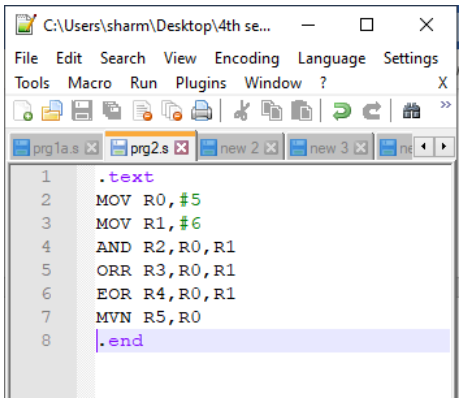
Name: R SHARMILA	SRN: PES2UG19CS309	Section E

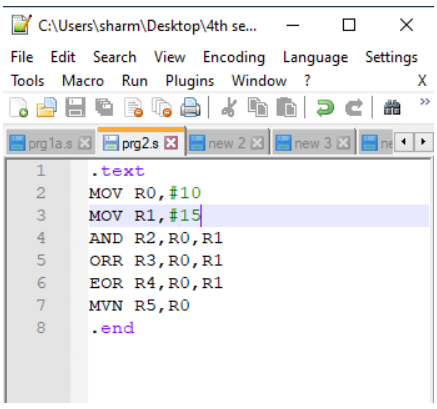
Week#____1_____ Program Number: ____2___

Title of the Program

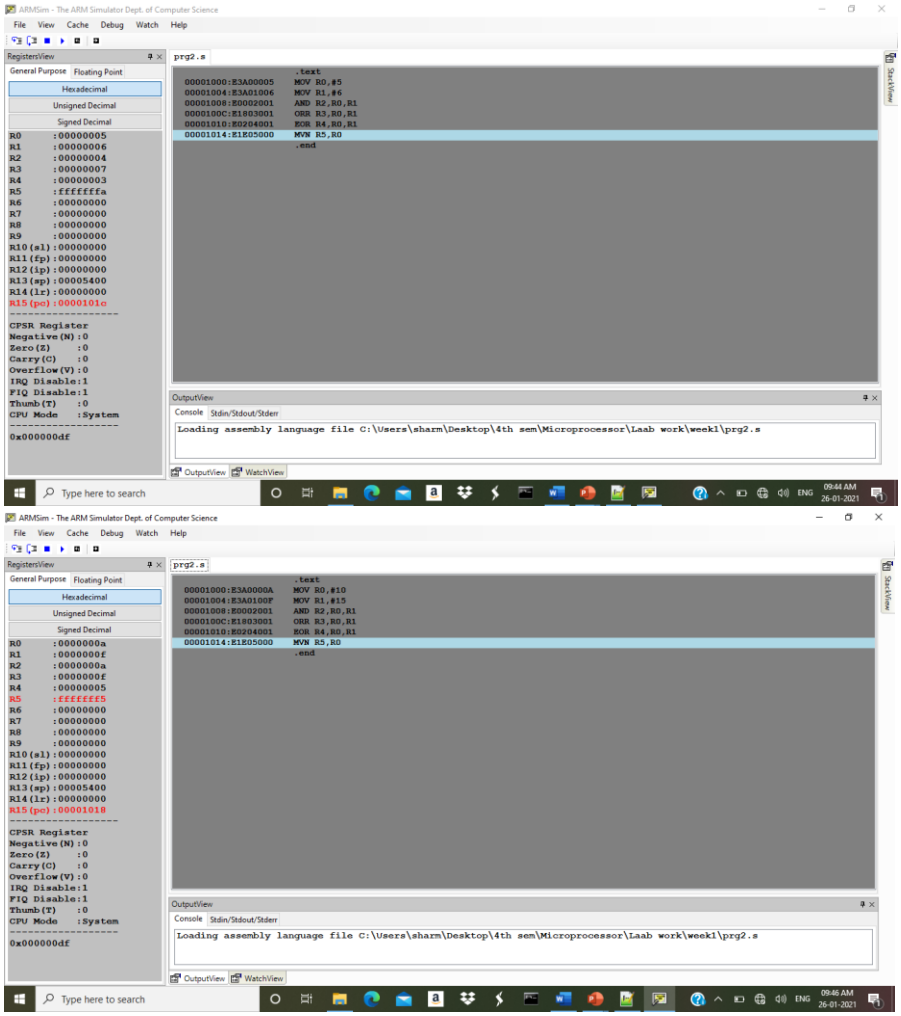
Write an ALP to demonstrate logical operations. All operands are in registers.

I. ARM Assembly Code for each program





II. Output Screen Shot (Register Window, Output window)



III. Output table for each program

R0	R1	Logical Operation	Instruction	Result
0x05	0x06	AND	AND	R2 =0x04
0x05	0x06	OR	ORR	R3 =0x07
0x05	0x06	EX-OR	EOR	R4 =0x03
0x05		NOT	MVN	R5 =0xfffffffa

R0	R1	Logical Operation	Instruction	Result
0x0a	0x0f	AND	AND	R2 =0x0a
0x0a	0x0f	OR	ORR	R3 =0x0f
0x0a	0x0f	EX-OR	EOR	R4 =0x05
0x0a		NOT	MVN	R5 =0xfffffff5

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Date:26/01/2021

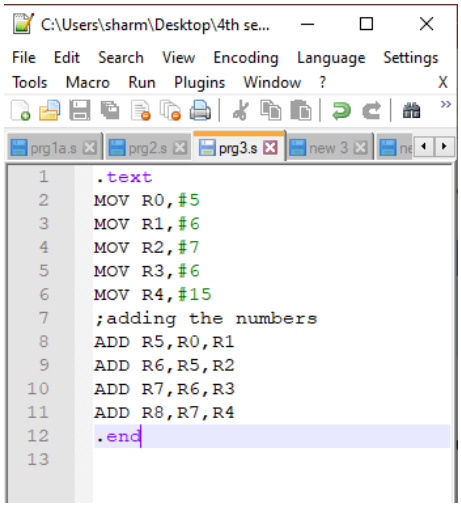
Name: R SHARMILA	SRN:PES2UG19CS309	Section E

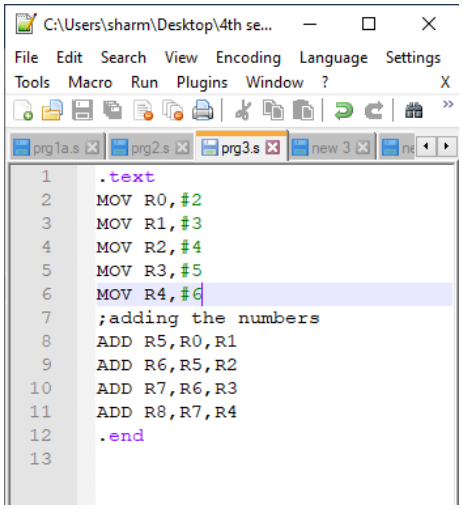
Week#____1_____ Program Number: ____3___

Title of the Program

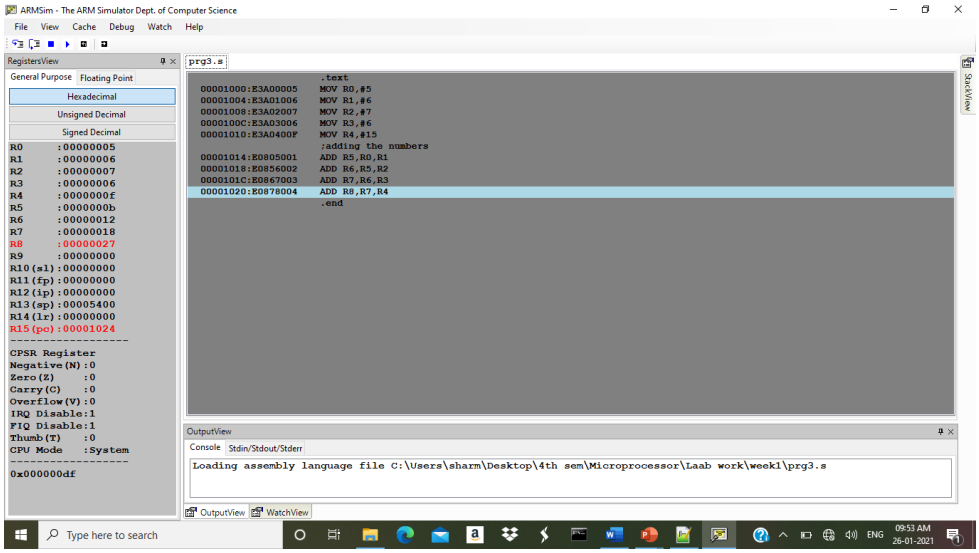
Write an ALP to add 5 numbers where values are present in registers.

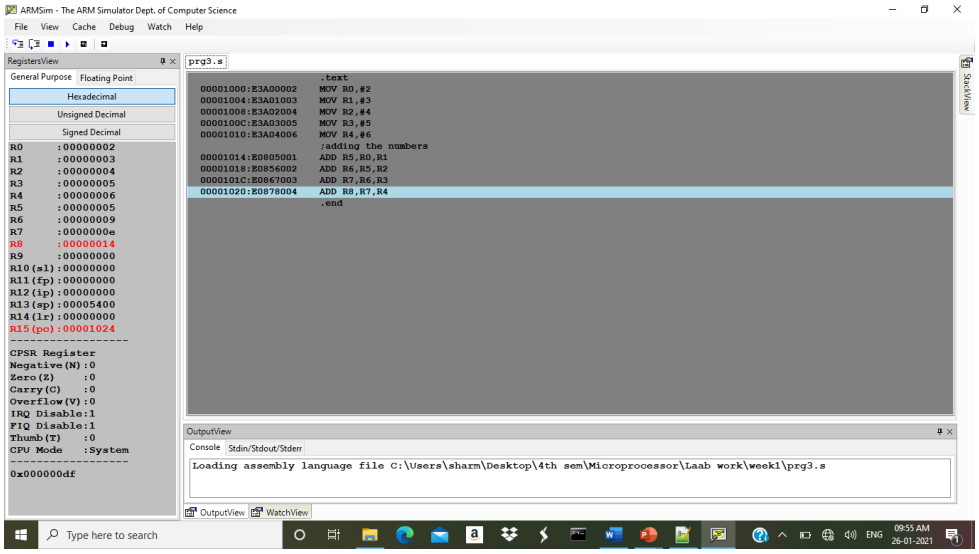
I. ARM Assembly Code for each program





II. Output Screen Shot (Register Window, Output window)





The output should be verified with 2 test cases (one example shown in class, one example of own choice)

III. Output table for each program

Case 1:

R0		0x05
R1		0x06
R2		0x07
R3		0x06
R4		0x0f
R5	R0+R1	0x0b
R6	R5+R2	0x12
R7	R6+R3	0x18
R8	R7+R4	0x27

Case2:

R0		0x02
R1		0x03
R2		0x04
R3		0x05
R4		0x06
R5	R0+R1	0x05
R6	R5+R2	0x09
R7	R6+R3	0x0e
R8	R7+R4	0x14

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4th Semester, Academic Year 2020-21

Date:26/01/2021

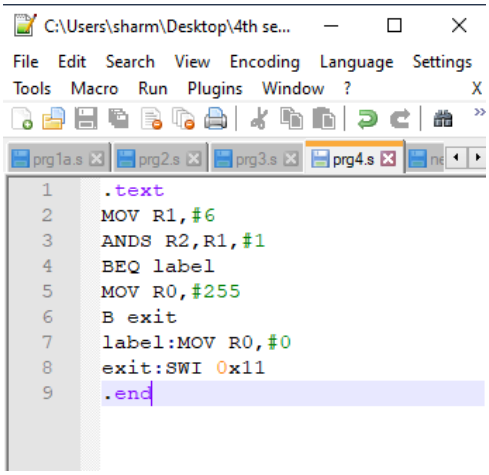
Name: R SHARMILA	SRN: PES2UG19CS309	Section E

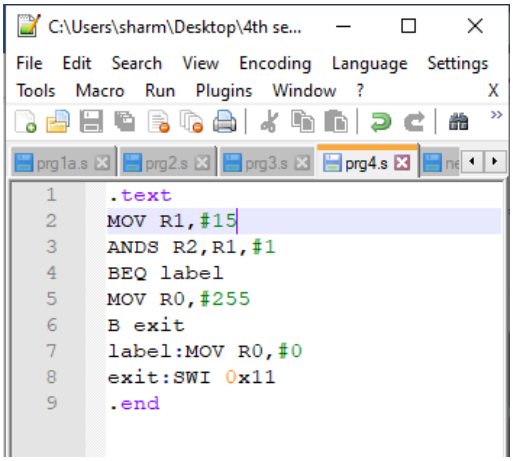
Week#____1_____ Program Number: ____4___

Title of the Program

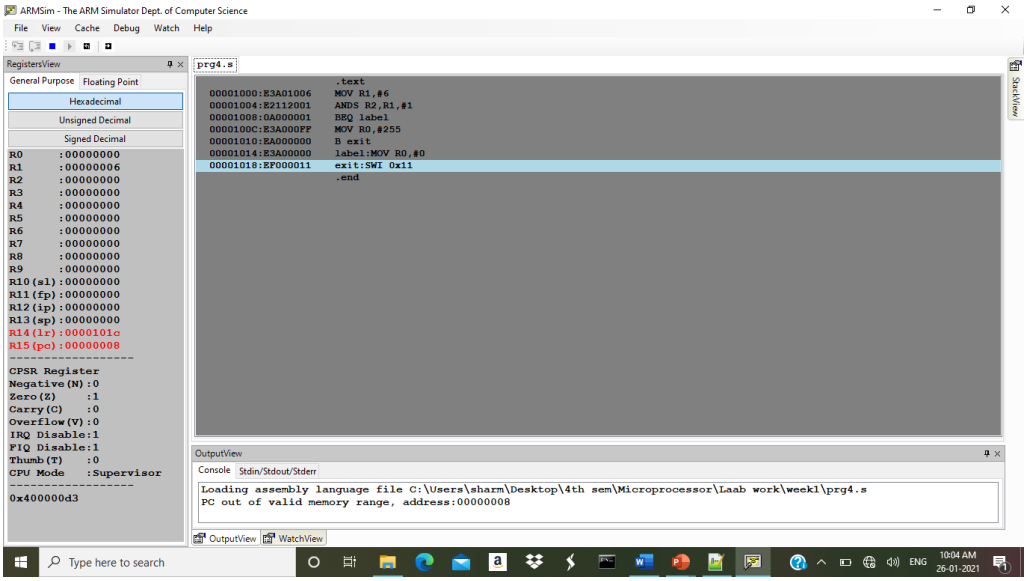
Write an ALP using ARM instruction set to check if a number stored in a register is even or odd. If even, store 00 in R0, else store FF in R0

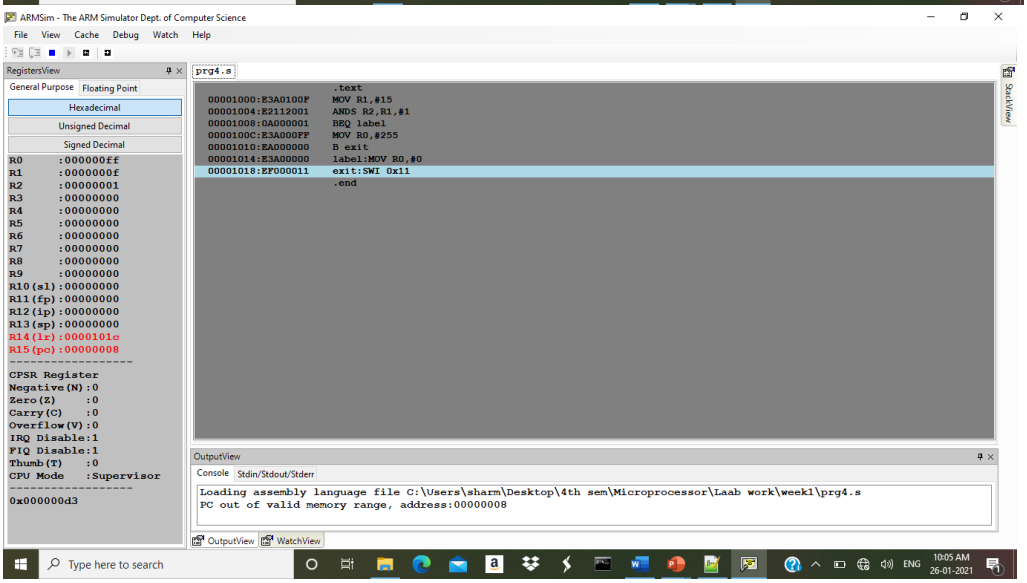
I. ARM Assembly Code for each program





II. Output Screen Shot (Register Window, Output window)





The output should be verified with 2 test cases (one example shown in class, one example of own choice)

III. Output table for each program

CASE 1	R1		0x06
	R2	After AND operation	0x00
	R0	(EVEN)	0x00
CASE 2	R1		0x0f
	R2	After AND operation	0x01
	R0	(ODD)	0xFF

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: SHARMILA
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SRN: PES2UG19CS309
Section: E
Date:26/01/2021