

MPCA LAB WEEK-6

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ROLL NO.: 55

SECTION : K

DATE : 03-03-2022

PROGRAM 1 : Write a program in ARM7TDMI-ISA to find the sum of all the digits in an 32 bit number.

CODE:

```
SUM_OF_DEC - Notepad
File Edit Format View Help
.data
A:.word 1234
B:.word 0                ;SUM OF DIGITS

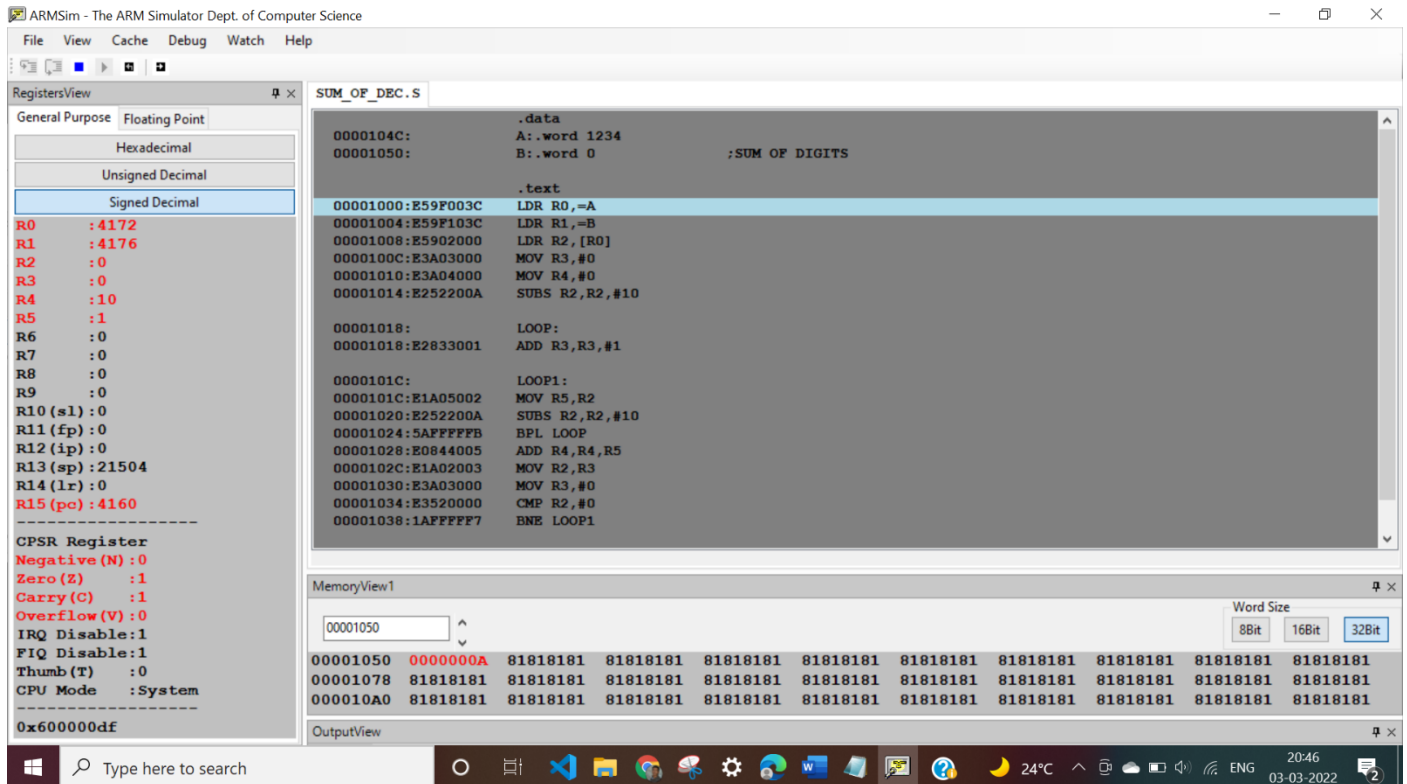
.text
LDR R0,=A
LDR R1,=B
LDR R2,[R0]
MOV R3,#0
MOV R4,#0
SUBS R2,R2,#10

LOOP:
ADD R3,R3,#1

LOOP1:
MOV R5,R2
SUBS R2,R2,#10
BPL LOOP
ADD R4,R4,R5
MOV R2,R3
MOV R3,#0
CMP R2,#0
BNE LOOP1

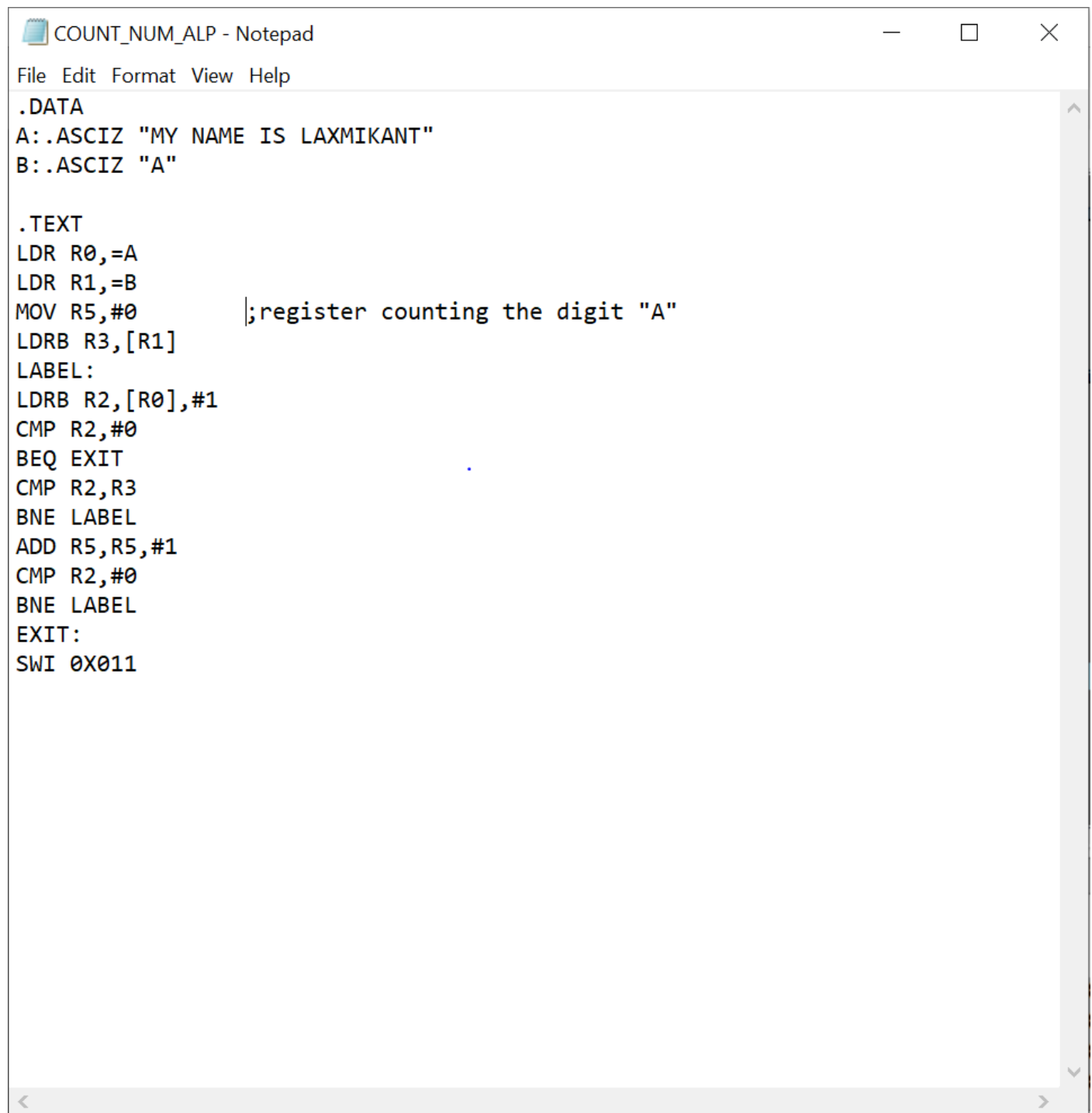
STR R4,[R1]
SWI 0X11
```

OUTPUT:



PROGRAM 2 : Write a program in ARM7TDMI-ISA to find the number of occurrences of a given character in a string.

CODE:



```
COUNT_NUM_ALP - Notepad
File Edit Format View Help
.DATA
A:.ASCIZ "MY NAME IS LAXMIKANT"
B:.ASCIZ "A"

.TEXT
LDR R0,=A
LDR R1,=B
MOV R5,#0      ;register counting the digit "A"
LDRB R3,[R1]
LABEL:
LDRB R2,[R0],#1
CMP R2,#0
BEQ EXIT
CMP R2,R3
BNE LABEL
ADD R5,R5,#1
CMP R2,#0
BNE LABEL
EXIT:
SWI 0X011
```

OUTPUT:

ARMSim - The ARM Simulator Dept. of Computer Science

File View Cache Debug Watch Help

RegistersView

General Purpose Floating Point

Hexadecimal

Unsigned Decimal

Signed Decimal

R0 : 4177
R1 : 4177
R2 : 0
R3 : 65
R4 : 0
R5 : 3
R6 : 0
R7 : 0
R8 : 0
R9 : 0
R10 (s1) : 0
R11 (fp) : 0
R12 (ip) : 0
R13 (sp) : 21504
R14 (lr) : 0
R15 (pc) : 4144

CPSR Register

Negative (N) : 0
Zero (Z) : 1
Carry (C) : 1
Overflow (V) : 0
IRQ Disable : 1
FIQ Disable : 1
Thumb (T) : 0
CPU Mode : System

0x600000df

COUNT_NUM_ALP.S

```
.DATA
A: .ASCIZ "MY NAME IS LAXMIKANT"
B: .ASCIZ "A"

.TEXT
00001000:E59F002C LDR R0,=A
00001004:E59F102C LDR R1,=B
00001008:E3A05000 MOV R5,#0 ;register counting the digit "A"
0000100C:E5D13000 LDRB R3,[R1]
00001010: LABEL:
00001010:E4D02001 LDRB R2,[R0],#1
00001014:E3520000 CMP R2,#0
00001018:0A000004 BEQ EXIT
0000101C:E1520003 CMP R2,R3
00001020:1AFFFFFFFA BNE LABEL
00001024:E2855001 ADD R5,R5,#1
00001028:E3520000 CMP R2,#0
0000102C:1AFFFFFFF7 BNE LABEL
00001030: EXIT:
SWI 0X011
```

MemoryView1

Word Size

8Bit 16Bit 32Bit

0000108C

0000108C	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181
000010B4	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181
000010DC	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181
00001104	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181	81818181

OutputView

Type here to search

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