



Department of Computer Science & Engineering
Microprocessor & Computer Architecture
MPCA-Laboratory/Assignment/Hands-on/Project
UE20CS252

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SECTION: K

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

PROGRAM:

.DATA

A: .WORD 25715

SUM: .WORD

.TEXT

LDR R5,=A

LDR R0,[R5]

MOV R2,#0 ;SUM

MOV R3,#0 ; REMAINDER

MOV R4,#0 ; QUOTIENT

LOOP:

MOV R4,#0

DI:

CMP R0,#10

BMI FINISH

SUB R0,R0,#10

ADD R4,R4,#1

B DI

FINISH:

MOV R3,R0

ADD R2,R2,R3

MOV R0,R4

CMP R0,#0

BNE LOOP

B EXIT

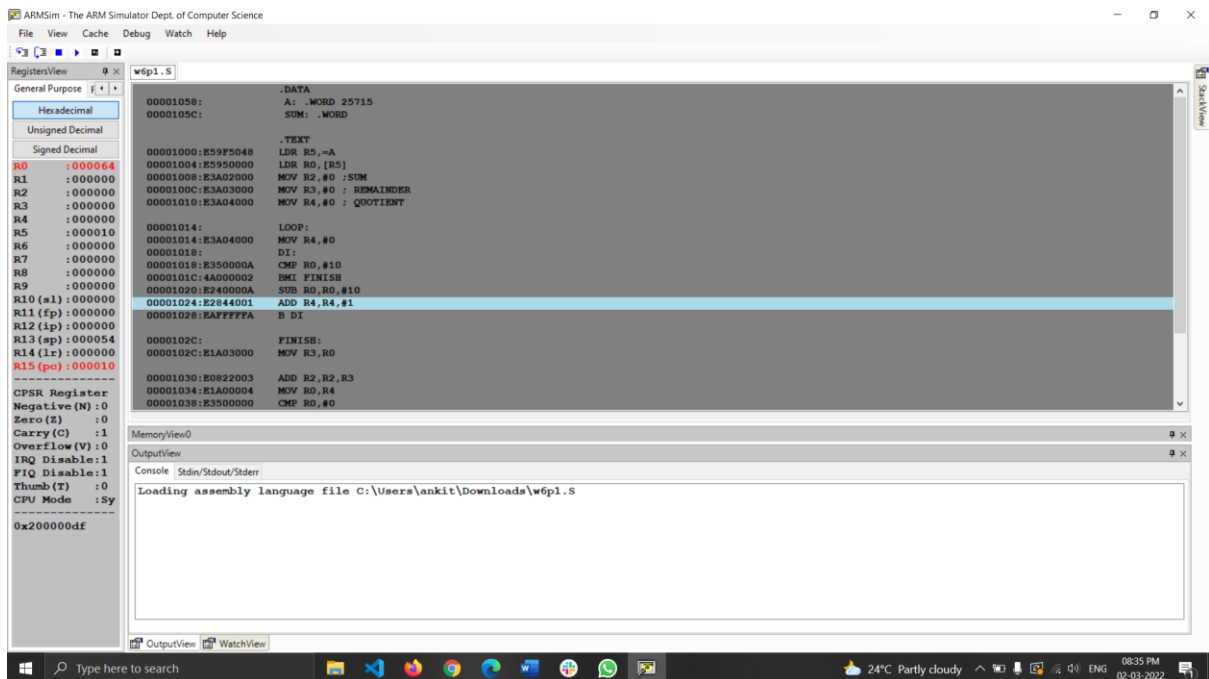
EXIT:

LDR R9,=SUM

STR R2,[R9]

SWI 0X011

OUTPUT:



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.

PROGRAM:

.DATA

STR: .ASCIZ "Hello World"

LETTER: .ASCIZ "I"

.TEXT

LDR R0, =STR

LDR R1, =LETTER

LDRB R1, [R1]

MOV R2, #0

LOOP:

LDRB R3, [R0]

CMP R3, #0

BEQ END

CMP R3, R1

BEQ SUCCESS

ADD R0, R0, #1

B LOOP

SUCCESS:

ADD R2, R2, #1

ADD R0, R0, #1

B LOOP

END:

SWI 0x011

OUTPUT:

