Microprocessor and Computer Architecture (MPCA) Laboratory UE20CS252 4th Semester, Academic Year 2021-22

Week 6

Vanshika Goel	PES1UG20CS484	H Section
---------------	---------------	-----------

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

.TEXT

LDR RO,=A

LDR R1,[R0]

MOV R2,#0

MOV R3,#0

L2: TST R1,#1

BNE L1

LOOP: MOV R1,R1,LSR #1

ADD R2,R2,#1 CMP R2,#32

BNE L2

TST R3,#1

B EXIT

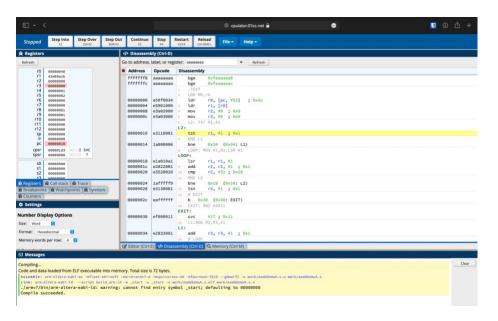
EXIT: SWI 0X011

L1:ADD R3,R3,#1

B LOOP

.DATA

A:.WORD 1121360411



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.

.DATA

STRING: .ASCIZ "MPCA Assignment PES1UG20CS477"

LETTER: .ASCIZ "s"

.TEXT

LDR RO,=STRING

LDR R1,=LETTER

MOV R3,#29

MOV R4,#1

MOV R10,#0

MOV R6,R0

LDRB R7, [R1]

LOOP1:

LDRB R4,[R6],#1

CMP R4,R7

ADDEQ R10,R10,#1

SUB R3,R3,#1

CMP R3, #0

BNE LOOP1

SWI 0X011

