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

**Week 6**

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| **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 R0,=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

Graphical user interface, text, application, email

Description automatically generated

1. 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 R0,=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

Graphical user interface, text, application

Description automatically generated