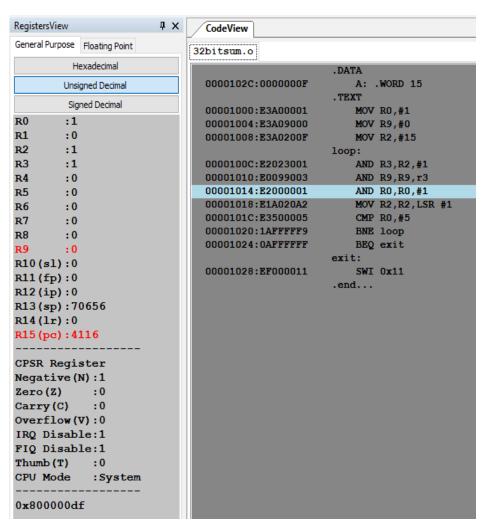
## H M Mythreya PES2UG20CS130 MPCA-Lab Week-6

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

## Code:

```
.DATA
    A: .WORD 15
.TEXT
    MOV R0,#1
    MOV R9,#0
    MOV R2,#15
loop:
    AND R3, R2, #1
    AND R9, R9, r3
    AND R0, R0, #1
    MOV R2, R2, LSR #1
    CMP R0, #5
    BNE loop
    BEQ exit
exit:
    SWI 0x11
.end
```



Task 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.

```
Code:
.DATA
    a: .asciz "My name is Mythreya"
    b: .asciz "i"
.TEXT
    LDR r0,=a
    LDR r1,=b
    MOV r2,#0
    MOV r3,#0
    LDRB r4,[r1]
loop:
    ADD r2, r2, #1
    LDRB r1,[r0],#1
    CMP r4,r1
    BEQ count
    CMP r2,#11
    BEQ final
    B loop
count:
    ADD r3, r3, #1
    B loop
```

## final:

## SWI 0X011

```
T X CodeView
RegistersView
General Purpose Floating Point
                              stringoccruence.o
          Hexadecimal
                                                      .DATA
                                00001044:6E20794D
                                                          a: .asciz "My name is Mythreya"
        Unsigned Decimal
                                        :20656D61
         Signed Decimal
                                         :4D207369
R0
        :4173
                                         :72687479
R1
        :105
                                         :00617965
                                00001058:0069
R2
        :9
                                                         b: .asciz "i"
R3
        :1
                                00001000:E59F0034
                                                         LDR r0,=a
R4
        :105
                                00001004:E59F1034
                                                         LDR r1,=b
R5
        :0
                                00001008:E3A02000
                                                          MOV r2,#0
R6
        : 0
                                                          MOV r3,#0
                                0000100C:E3A03000
R7
        : 0
                                00001010:E5D14000
                                                          LDRB r4,[r1]
R8
        :0
        : 0
R9
                                                      loop:
R10(s1):0
                                00001014:E2822001
                                                          ADD r2,r2,#1
R11(fp):0
                                00001018:E4D01001
                                                          LDRB r1,[r0],#1
R12(ip):0
                                0000101C:E1540001
                                                          CMP r4,r1
R13(sp):70656
                                00001020:0A0000002
                                                         BEQ count
R14(lr):0
                                                         CMP r2,#11
                                00001024:E352000B
R15 (pc):4116
                                00001028:0A000002
                                                          BEQ final
                                0000102C:EAFFFFF8
                                                          B loop
CPSR Register
Negative(N):0
                                                      count:
                                00001030:E2833001
                                                         ADD r3,r3,#1
Zero(Z)
            :1
Carry (C)
             :1
                                00001034:EAFFFFF6
                                                          B loop
Overflow(V):0
                                                     final:
IRQ Disable:1
                                00001038:EF000001
                                                          SWI 0x01...
FIQ Disable:1
                                         :00000000
Thumb (T)
           : 0
                                         :00000014
CPU Mode
           :System
0x600000df
```