MPCA LAB 5

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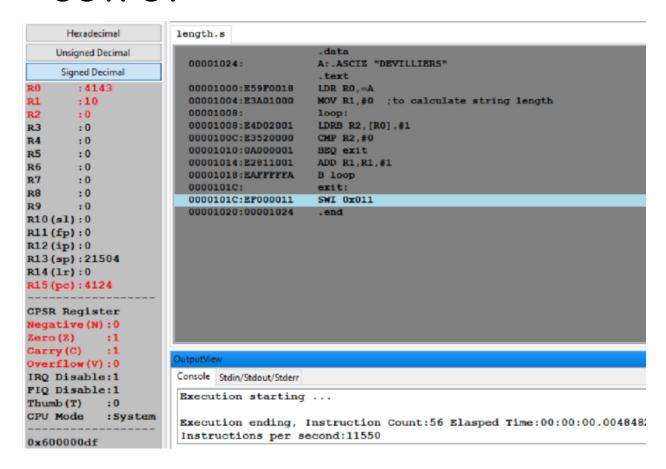
SECTION:F

PROGRAM 1

Write an ALP to find the length of a given string.

Code:

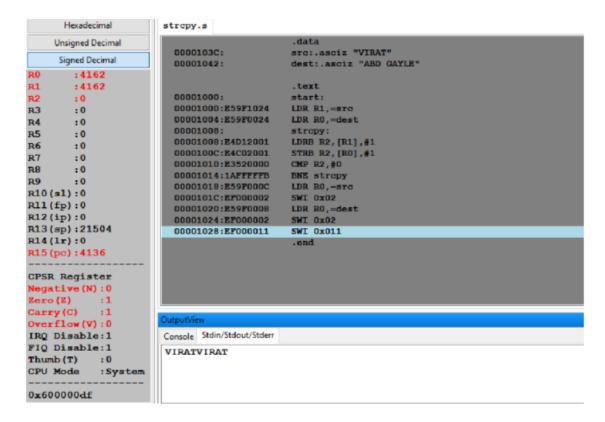
```
.data
A:.ASCIZ "DEVILLIERS"
.text
LDR R0,=A
MOV R1,#0 ;to calculate string length
loop:
LDRB R2,[R0],#1
CMP R2,#0
BEQ exit
ADD R1,R1,#1
B loop
exit:
SWI 0x011
.end
```



PROGRAM 2

Write an ALP to copy string from one location to another

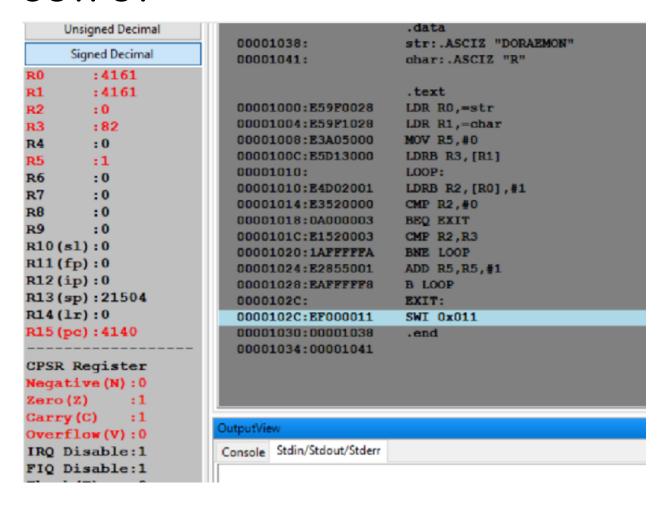
```
.data
src:.asciz "VIRAT"
dest:.asciz "ABD GAYLE"
.text
start:
LDR R1,=src
LDR R0,=dest
strcpy:
LDRB R2,[R1],#1
STRB R2,[R0],#1
CMP R2,#0
BNE strcpy
LDR R0,=src
SWI 0x02
LDR R0,=dest
SWI 0x02
SWI 0x011
.end
```



PROGRAM 3

Write an ALP to find if a character is present in another string

```
.data
str:.ASCIZ "DORAEMON"
char: .ASCIZ "R"
.text
LDR R0,=str
LDR R1,=char
MOV R5,#0
LDRB R3,[R1]
LOOP:
LDRB R2,[R0],#1
CMP R2,#0
BEQ EXIT
CMP R2,R3
BNE LOOP
ADD R5,R5,#1
B LOOP
EXIT:
SWI 0x011
.end
```



PROGRAM 4

Write an ALP to find the frequency of a character in a string

```
.data
str:.ASCIZ "SHINCHAN"
char:.ASCIZ "N"
.equ SWI_WriteC,0x02
.equ SWI_Exit,0x11
.text
LDR R0,=str
LDR R1,=char
MOV R5,#0
LDRB R3,[R1]
LOOP:
LDRB R2,[R0],#1
CMP R2,#0
BEO EXIT
CMP R2,R3
BNE LOOP
ADD R5, R5, #1
B LOOP
LDR R0,=str
swi SWI WriteC
EXIT: swi SWI_Exit
.end
```

```
Unsigned Decimal
                          00001044:
                                               str:.ASCIZ "SHINCHAN"
     Signed Decimal
                          0000104D:
                                               char: .ASCIZ "N"
                                               .equ SWI WriteC,0x02
RO
        :4173
                                               .equ SWI_Exit,0x11
R1
        :4173
R2
        : 0
       :78
R3
                                               .text
                          00001000:E59F0030
                                               LDR RO,-str
        : 0
                          00001004:E59F1030
                                               LDR R1,=char
R5
        :2
                          00001008:E3A05000
                                              MOV R5,#0
R6
        : 0
                          0000100C:E5D13000
                                              LDRB R3,[R1]
R7
       : 0
                          00001010:
                                               LOOP:
R8
       : 0
                                               LDRB R2, [R0], #1
                          00001010:E4D02001
R9
        :0
                          00001014:E3520000
                                              CMP R2,#0
R10(s1):0
                          00001018:0A000005
                                              BEQ EXIT
R11(fp):0
                          0000101C:E1520003
                                              CMP R2,R3
R12(ip):0
                          00001020:1AFFFFFA
                                               BNE LOOP
R13(sp):21504
                          00001024:E2855001
                                               ADD R5,R5,#1
R14(lr):0
                          00001028:EAFFFFF8
                                               B LOOP
R15 (pc):4148
                                               LDR RO,=str
                          0000102C:E59F0004
                                               swi SWI WriteC
                          00001030:EF000002
CPSR Register
                          00001034:EF000011
                                               EXIT: swi SWI Exit
Negative(N):0
Zero(Z)
Carry (C)
            :1
                       OutputView
Overflow(V):0
IRQ Disable:1
                        Console Stdin/Stdout/Stderr
FIQ Disable:1
                        Execution starting ...
Thumb(T) :0
CPU Mode
           :System
                         Execution ending, Instruction Count:52 Blasped Time:00:00:00.0106672
                         Instructions per second: 4874
0~60000046
```