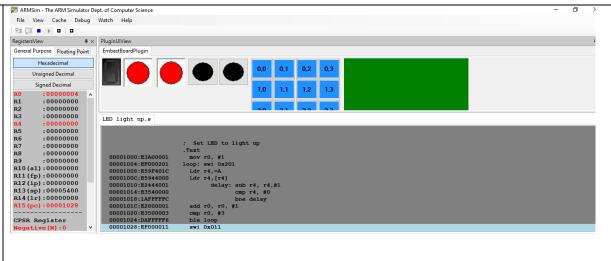
Name : Ghanashyam Bhat	
SRN: PES1UG20CS153	



## Department of Computer Science & Engineering Microprocessor & Computer Architecture - UE20CS252

SI. No	Programs	
Week No.7	Demonstration of programs using plug-ins using ARMSIM.	
	a. Set the LED to be light up.  ; Set LED to light up  .Text	
	mov r0, #1 loop:     swi 0x201     Ldr r4,=A	
	Ldr r4,[r4] delay:     sub r4, r4,#1     cmp r4, #0     bne delay     add r0, r0, #1     cmp r0, #3     ble loop	
	.Data A:.word 84000	



b. Display hexadecimal digits [0-9,A-F] on the 8 segment display.

```
.text
begin:
mov r0, #0
mov r2,#0
again:
```

swi 0x202; check whether black button pressed or not cmp r0, #1; right button-upcounter beq loop1 cmp r0, #2; left button-downcounter

beq loop2 b again

## loop1:

mov r5,#16

Idr r1,=zero

back1:Idrb r0, [r1]

swi 0x200 ; Set 8 segment display to light up

bl delay

add r1,r1,#1

sub r5, r5,#1

cmp r5, #0

bne back1

b again

## loop2:

mov r5,#16

Idr r1,=F

back2: Idrb r0, [r1]

swi 0x200 ; Set 8 segment display to light up

bl delay

sub r1, r1, #1

sub r5, r5,#1 cmp r5, #0 bne back2 b again

delay:

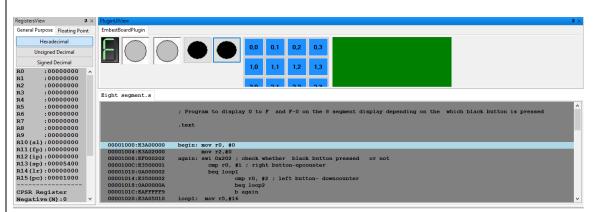
mov r4, #64000

loop3:

sub r4, r4, #1 cmp r4, #0 bge loop3 mov pc, Ir

.data

zero:.byte 0b11101101 one: .byte 0b01100000 two: .byte 0b01101110 three: .byte 0b11111010 four: .byte 0b00110011 five: .byte 0b10101011 six: .byte 0b10101111 seven: .byte 0b01110000 eight: .byte 0b11101111 nine: .byte 0b11100011 A: .byte 0b11100111 B: .byte 0b00101111 C: .byte 0b10001101 D: .byte 0b01101110 E: .byte 0b10001111 F: .byte 0b10000111



c. Move a string from LEFT to RIGHT on the LCD display panel.

; Streaming left to right

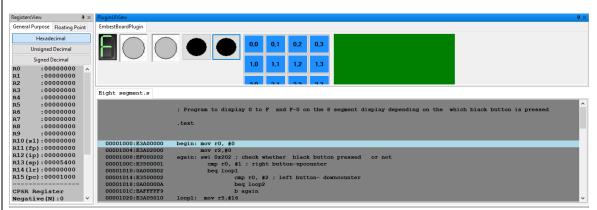
```
.Text
mov r0, #5 ; r0 = x
mov r1, #7 ; r1 = y
mov r7,#0
Idr r8, =num
Idr r8 , [r8]
Idr r2 , =str
loop:
    swi 0x204; display a string on the screen (R2: address)
    bl sum
    cmp r0, #60
    addne r0, r0, #1
    swieq 0x11
    b loop
sum: cmp r7, r8
    addne r7, r7, #1
    bne sum
    swi 0x206
    mov r7, #0
    mov pc, Ir
.Data
str: .asciz "PESU"
num: .word 15000
ARMSim - The ARM Simulator Dept. of Computer Science
File View Cache Debug Watch Help
 FI (I • b 0 | 0
                 EmbestBoardPlugin
 General Purpose Floating Point
                                               0.0 0.1 0.2 0.3
1.0
                                                   1,1 1,2 1,3
                                               2.0
                                                   2.1 2.2 2.3
                                                   3,1 3,2
                 Moving a string from left to right.s
                           ; Streaming left to right .Text
                  CPSR Register
Negative(N):0
Zero(Z):0
Carry(C):0
 Console Stdin/Stdout/Stder
 Loading assembly language file C:\Users\ADMIN\OneDrive\Desktop\WEEK 7 -MPCA\Moving a string from left to right.s Execution starting ...
                                                                                               ^ 935:58 PM
28/03/2022
Student Exercises:
```

```
1. Execute the following programs on ARMSIM – PLUG-INS.
      a. Display hexadecimal digits [0-9,A-F] on the 8 segment display.
.text
begin:
            mov r0, #0
            mov r2,#0
again:
            swi 0x202; check whether black button pressed or not
            cmp r0, #1; right button-upcounter
            beq loop1
            cmp r0, #2; left button- downcounter
            beq loop2
            b again
loop1:
            mov r5,#16
    Idr r1,=zero
    back1:ldrb r0, [r1]
        swi 0x200 ; Set 8 segment display to light up
        bl delay
            add r1,r1,#1
            sub r5, r5,#1
            cmp r5, #0
            bne back1
            b again
loop2:
            mov r5,#16
            Idr r1,=F
            back2: ldrb r0, [r1]
            swi 0x200 ; Set 8 segment display to light up
            bl delay
            sub r1, r1, #1
            sub r5, r5,#1
            cmp r5, #0
            bne back2
            b again
delay:
            mov r4, #64000
loop3:
```

sub r4, r4, #1 cmp r4, #0 bge loop3 mov pc, Ir

## .data

zero: .byte 0b11101101 one: .byte 0b01100000 two: .byte 0b01101110 three: .byte 0b11111010 four: .byte 0b00110011 five: .byte 0b10101011 six: .byte 0b10101111 seven: .byte 0b01110000 eight: .byte 0b11101111 nine: .byte 0b11100011 A: .byte 0b11100111 B: .byte 0b00101111 C: .byte 0b10001101 D: .byte 0b01101110 E: .byte 0b10001111 F: .byte 0b10000111



b. Move a string from RIGHT to LEFT on the LCD display panel.

```
; Streaming right to left
.Text
mov r0, #30; r0 = x
mov r1, #7; r1 = y
mov r7, #0
ldr r8, =num
ldr r8, [r8]
ldr r2, =str
loop:
```

```
bl sum
     cmp r0, #0
     subne r0, r0, #1
     swieg 0x11
     b loop
sum: cmp r7, r8
     addne r7, r7, #1
     bne sum
     swi 0x206
     mov r7, #0
     mov pc, Ir
.Data
str: .asciz "PESU"
num: .word 15000
ARMSim - The ARM Simulator Dept. of Computer Science
File View Cache Debug Watch Help
RegistersView A × PluginUIView
General Purpose Floating Point
    Hexadecimal
    Unsigned Decimal
     Signed Decimal
                                                          1,2
                                                     2,1
                                                          2,2
                                                              2,3
                                                 2.0
                                                     3,1
                                                          3,2
                  Moving a string from right to left.s
                  CPSR Register
Negative(N):0
Zero(Z):0
Carry(C):0
 Console Stdin/Stdout/Stderr
 Loading assembly language file C:\Users\ADMIN\OneDrive\Desktop\WEEK 7 -MPCA\Moving a string from right to left.s Execution starting ...
                                                                                                   へ 智 女× ENG 05:51 PM 28/03/2022
 MPCA-Laboratory/Assignment/Hands-on/Project
```

swi 0x204 ; display a string on the screen (R2: address)