Microprocessor and Computer Architecture Laboratory

UE19CS256

4th Semester, Academic Year 2020-21

Date:

Name: OP JOY JEFFERSON	SRN:PES2UG19CS270	Section:E

Week#____6_____ Program Number: ____1__

1. **Write an ALP to blink LEDs. First, the right LED is switched on and the left LED is switched off. After 1 second, the right LED is switched off and the left LED is switched on and the program continue to blink both the LEDs.**

I. ARM Assembly Code (1).

p11.s (~/Desktop/armsim) - gedit

Open Save

```
.text
        mov r0,#0
        loop:
                swi 0x201
                add r0,r0,#1
                mov r1,#64000
                delay:
                        sub r1,r1,#1
                        cmp r1,#0
                        bne delay
                cmp r0,#3
                moveq r0,#0
                ble loop
```

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II. Output Screen Shot

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Week#____6_____ Program Number: ____2__

Write an ALP to display 0-9, A-F (up and down count) on an 8 segment display

I. ARM Assembly Code (1).

p12.s (~/Desktop/armsim) - gedit

Open Save

```
.data
z0: .byte 0b11101101
z1: .byte 0b01100000
    z2: .byte 0b11001110
z3: .byte 0b11101010
z4: .byte 0b01100011
z5: .byte 0b10101011
z6: .byte 0b10101111
z7: .byte 0b11100000
z8:.byte 0b11101111
z9: .byte 0b11101011
        a: .byte 0b11100111
        b: .byte 0b11101111
        c: .byte 0b10001101
        d: .byte 0b11101101
        e: .byte 0b10001111
        f: .byte 0b10000111
.text
        mov r0,#0
        mov r2,#0
        l1:
        swi 0x202
        cmp r0,#1
        beq l2
        cmp r0,#2
        beq l3
        b l1
        l2:
                mov r3,#16
                mov r2,#1
                ldr r1,=z0
                loop1:
                        ldrb r0,[r1]
                        swi 0x200
                        bl d1
                        add r1,r1,r2
                        sub r3,r3,#1
```

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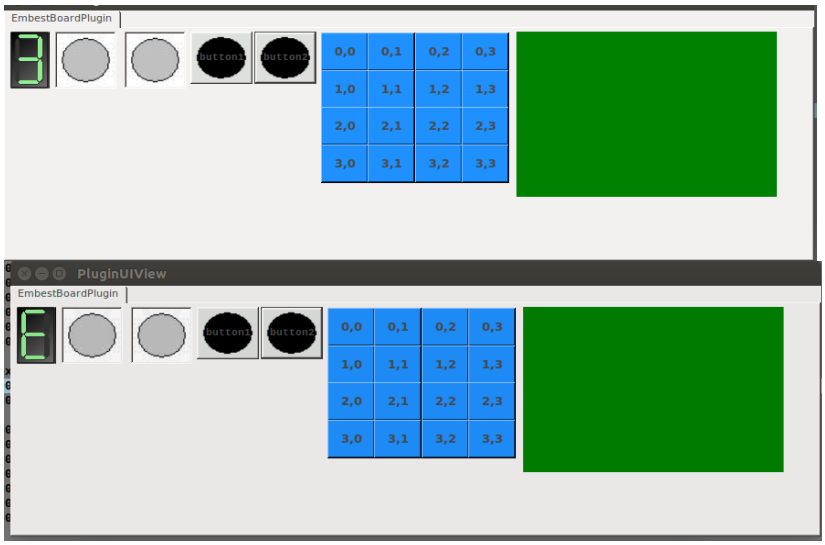
p12.s (~/Desktop/armsim) - gedit

Open Save

```
        beq l2
        cmp r0,#2
        beq l3
        b l1
        l2:
                mov r3,#16
                mov r2,#1
                ldr r1,=z0
                loop1:
                        ldrb r0,[r1]
                        swi 0x200
                        bl d1
                        add r1,r1,r2
                        sub r3,r3,#1
                        cmp r3,#0
                        bne loop1
                        b l1
        l3:
                mov r3,#16
                mov r2,#-1
                ldr r1,=f
                loop2:
                        ldrb r0,[r1]
                        swi 0x200
                        bl d1
                        add r1,r1,r2
                        sub r3,r3,#1
                        cmp r3,#0
                        bne loop2
                        b l1
        d1:
                mov r4,#64000
                delay:
                        sub r4,r4,#1
                        cmp r4,#0
                        bge delay
                        mov PC,LR
```

Plain Text Tab Width: 8 Ln 43, Col 26 INS

II. Output Screen Shot



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Week#____6_____ Program Number: ____3__

Write an ALP to move a string from Right to Left on LCD (40 columns by 15 rows).

I. ARM Assembly Code

p13.s (~/Desktop/armsim) - gedit

Open Save

```
.data
        str: .asciz "OP JOY JEFFERSON"
        num: .word 15000
.text
        mov r0,#30
        mov r1,#7
        mov r7,#0
        ldr r2,=str
        ldr r8,=num
        ldr r8,[r8]
        l1:
                swi 0x204
                bl d
                cmp r0,#0
                subne r0,r0,#1
                swieq 0x011
                b l1
        d:
                cmp r7,r8
                addne r7,r7,#1

                bne d

                swi 0x206
                mov r7,#0
                mov PC,LR
```

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II.Output Screen Shot

Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

Signature:joy
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