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PES2UG20CS130
MPCA-Lab Week-7

Task 1:Display hexadecimal digits [0-9,A-F] on the 8-segment display. Also display PES on the 8-segment display

Code:

```
.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

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

while:
    swi 0x202
    cmp r0,#1
    beq loop1
    cmp r0,#2
    beq loop2
    b while

loop1:
    mov r5,#16
    ldr r1,=zero

back1:
    ldrb r0,[r1]
    swi 0x200
    bl delay
    add r1,r1,#1
    sub r5,r5,#1
    cmp r5,#0
    bne back1
    b while
```

```asm
loop2:
    mov r5,#16
    ldr r1,=F

back2:
    ldrb r0,[r1]
    swi 0x200
    bl delay
    sub r1,r1,#1
    sub r5,r5,#1
    cmp r5,#0
    bne back2
    b while

delay:
    mov r4,#1

loop3:
    sub r4,r4,#1
    cmp r4,#0
    bge loop3
    mov pc,lr
```


RegistersView

General Purpose | Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

```
R0       :00000087
R1       :0000109b
R2       :00000000
R3       :00000000
R4       :00000000
R5       :00000010
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl) :00000000
R11(fp) :00000000
R12(ip) :00000000
R13(sp) :00005400
R14(lr) :0000105c
R15(pc) :00001070
-----------------
CPSR Register
Negative(N):0
Zero(Z)    :1
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
-----------------
0x600000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

hex.s

```
00001048:E3A05010        mov r5,#16
0000104C:E59F1034        ldr r1,=F

00001050:                back2:
00001050:E5D10000        ldrb r0,[r1]
00001054:EF000200        swi 0x200
00001058:EB000004        bl delay
0000105C:E2411001        sub r1,r1,#1
00001060:E2455001        sub r5,r5,#1
00001064:E3550000        cmp r5,#0
00001068:1AFFFFF8        bne back2
0000106C:EAFFFFE5        b while

00001070:                delay:
00001070:E3A04001        mov r4,#1

00001074:                loop3:
00001074:E2444001        sub r4,r4,#1
00001078:E3540000        cmp r4,#0
0000107C:AAFFFFFC        bge loop3
```

OutputView

Console | Stdin/Stdout/Stderr

Loading assembly language file X:\sem4\MPCA\LAB\week7\hex.s

RegistersView

General Purpose | Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

```
R0       :000000ed
R1       :0000108c
R2       :00000000
R3       :00000000
R4       :00000000
R5       :00000010
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl) :00000000
R11(fp) :00000000
R12(ip) :00000000
R13(sp) :00005400
R14(lr) :00001034
R15(pc) :00001070
-----------------
CPSR Register
Negative(N):0
Zero(Z)    :1
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
-----------------
0x600000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

hex.s

```
0000104C:E59F1034        ldr r1,=F

00001050:                back2:
00001050:E5D10000        ldrb r0,[r1]
00001054:EF000200        swi 0x200
00001058:EB000004        bl delay
0000105C:E2411001        sub r1,r1,#1
00001060:E2455001        sub r5,r5,#1
00001064:E3550000        cmp r5,#0
00001068:1AFFFFF8        bne back2
0000106C:EAFFFFE5        b while

00001070:                delay:
00001070:E3A04001        mov r4,#1

00001074:                loop3:
00001074:E2444001        sub r4,r4,#1
00001078:E3540000        cmp r4,#0
0000107C:AAFFFFFC        bge loop3
                         mov pc,lr
```

OutputView

Console | Stdin/Stdout/Stderr

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Screen 1

RegistersView

General Purpose | Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

```
R0       :000000c7
R1       :0000109b
R2       :00000000
R3       :00000000
R4       :00000000
R5       :00000010
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl) :00000000
R11(fp) :00000000
R12(ip) :00000000
R13(sp) :00005400
R14(lr) :0000105c
R15(pc) :00001070
------------------
CPSR Register
Negative(N):0
Zero(Z)    :1
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
------------------
0x600000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

hex.s

```
0000104C:E59F1034        ldr r1,=F

00001050:                back2:
00001050:E5D10000        ldrb r0,[r1]
00001054:EF000200        swi 0x200
00001058:EB000004        bl delay
0000105C:E2411001        sub r1,r1,#1
00001060:E2455001        sub r5,r5,#1
00001064:E3550000        cmp r5,#0
00001068:1AFFFFF8        bne back2
0000106C:EAFFFFE5        b while

00001070:                delay:
00001070:E3A04001        mov r4,#1

00001074:                loop3:
00001074:E2444001        sub r4,r4,#1
00001078:E3540000        cmp r4,#0
0000107C:AAFFFFFC        bge loop3
                         mov pc,lr
```

OutputView

Console | Stdin/Stdout/Stderr

Loading assembly language file X:\sem4\MPCA\LAB\week7\hex.s

Screen 2

RegistersView

General Purpose | Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

```
R0       :0000008f
R1       :0000109a
R2       :00000000
R3       :00000000
R4       :ffffffff
R5       :00000002
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl) :00000000
R11(fp) :00000000
R12(ip) :00000000
R13(sp) :00005400
R14(lr) :00001034
R15(pc) :00001070
------------------
CPSR Register
Negative(N):0
Zero(Z)    :0
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
------------------
0x200000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

hex.s

```
0000104C:E59F1034        ldr r1,=F

00001050:                back2:
00001050:E5D10000        ldrb r0,[r1]
00001054:EF000200        swi 0x200
00001058:EB000004        bl delay
0000105C:E2411001        sub r1,r1,#1
00001060:E2455001        sub r5,r5,#1
00001064:E3550000        cmp r5,#0
00001068:1AFFFFF8        bne back2
0000106C:EAFFFFE5        b while

00001070:                delay:
00001070:E3A04001        mov r4,#1

00001074:                loop3:
00001074:E2444001        sub r4,r4,#1
00001078:E3540000        cmp r4,#0
0000107C:AAFFFFFC        bge loop3
                         mov pc,lr
```

OutputView

Console | Stdin/Stdout/Stderr

Loading assembly language file X:\sem4\MPCA\LAB\week7\hex.s

Screen 3

RegistersView

General Purpose | Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

```
R0       :000000ab
R1       :00001091
R2       :00000000
R3       :00000000
R4       :ffffffff
R5       :0000000b
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl) :00000000
R11(fp) :00000000
R12(ip) :00000000
R13(sp) :00005400
R14(lr) :00001034
R15(pc) :00001070
------------------
CPSR Register
Negative(N):0
Zero(Z)    :0
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
------------------
0x200000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

hex.s

```
0000104C:E59F1034        ldr r1,=F

00001050:                back2:
00001050:E5D10000        ldrb r0,[r1]
00001054:EF000200        swi 0x200
00001058:EB000004        bl delay
0000105C:E2411001        sub r1,r1,#1
00001060:E2455001        sub r5,r5,#1
00001064:E3550000        cmp r5,#0
00001068:1AFFFFF8        bne back2
0000106C:EAFFFFE5        b while

00001070:                delay:
00001070:E3A04001        mov r4,#1

00001074:                loop3:
00001074:E2444001        sub r4,r4,#1
00001078:E3540000        cmp r4,#0
0000107C:AAFFFFFC        bge loop3
                         mov pc,lr
```

OutputView

Console | Stdin/Stdout/Stderr

Loading assembly language file X:\sem4\MPCA\LAB\week7\hex.s

Task 2: Move a string from RIGHT to LEFT on the LCD display panel. Display your name on the LCD Panel

Code:
```
.data
    str: .asciz "MYTHREYA\n"

.text
    mov r0,#25
    mov r1,#3
    ldr r2,=str

loop:
    cmp r0,#0
    beq exit
    swi 0x204
    sub r0,r0,#1
    swi 0x206
    b loop

exit:
    swi 0x01
```

RegistersView   🔲 ×

General Purpose   Floating Point

| Hexadecimal |
| Unsigned Decimal |
| Signed Decimal |

```
R0       :00000015
R1       :00000003
R2       :0000102c
R3       :00000000
R4       :00000000
R5       :00000000
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl):00000000
R11(fp):00000000
R12(ip):00000000
R13(sp):00005400
R14(lr):00000000
R15(pc):0000101c
------------------
CPSR Register
Negative(N):0
Zero(Z)    :0
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
------------------
0x200000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

MYTHREYA

asciiLtoR1.s

```
                          .data
0000102C:                 str: .asciz "MYTHREYA\n"

                          .text
00001000:E3A00019         mov r0,#25
00001004:E3A01003         mov r1,#3
00001008:E59F2018         ldr r2,=str

0000100C:        loop:
0000100C:E3500000         cmp r0,#0
00001010:0A000003         beq exit
00001014:EF000204         swi 0x204
00001018:E2400001         sub r0,r0,#1
0000101C:EF000206         swi 0x206
00001020:EAFFFFF9         b loop

00001024:        exit:
00001024:EF000001         swi 0x01
00001028:0000102C
```

RegistersView   🔲 ×

General Purpose   Floating Point

| Hexadecimal |
| Unsigned Decimal |
| Signed Decimal |

```
R0       :0000000f
R1       :00000003
R2       :0000102c
R3       :00000000
R4       :00000000
R5       :00000000
R6       :00000000
R7       :00000000
R8       :00000000
R9       :00000000
R10(sl):00000000
R11(fp):00000000
R12(ip):00000000
R13(sp):00005400
R14(lr):00000000
R15(pc):00001018
------------------
CPSR Register
Negative(N):0
Zero(Z)    :0
Carry(C)   :1
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T)   :0
CPU Mode   :System
------------------
0x200000df
```

PluginUIView

EmbestBoardPlugin

| 0,0 | 0,1 | 0,2 | 0,3 |
| 1,0 | 1,1 | 1,2 | 1,3 |

MYTHREYA

asciiLtoR1.s

```
                          .data
0000102C:                 str: .asciz "MYTHREYA\n"

                          .text
00001000:E3A00019         mov r0,#25
00001004:E3A01003         mov r1,#3
00001008:E59F2018         ldr r2,=str

0000100C:        loop:
0000100C:E3500000         cmp r0,#0
00001010:0A000003         beq exit
00001014:EF000204         swi 0x204
00001018:E2400001         sub r0,r0,#1
0000101C:EF000206         swi 0x206
00001020:EAFFFFF9         b loop

00001024:        exit:
00001024:EF000001         swi 0x01
00001028:0000102C
```