**NAME: VISHWAS M**

**SRN: PES2UG20CS390**

**SEC:F**

**DATE:15/03/2022**

**WEEK:7**

**Department of Computer Science & Engineering**

**Microprocessor & Computer Architecture - UE20CS252**

|  |  |
| --- | --- |
| **Sl. No** | **Programs** |
| **Week No.7** | 1. Demonstration of programs using plug-ins using ARMSIM.  a. Set the LED to be light up.  **.text**  **mov r0, #0**  **loop: swi 0x201 ; to light up LED , r0= 1 means right led light up, r0=2 means left**  **; LED and r0=3 means both LED light up**  **add r0, r0, #1**  **mov r4, #64000**  **delay: sub r4, r4,#1**  **cmp r4, #0**  **bne delay**  **cmp r0, #3**  **ble loop**  **.end**    b. Display hexadecimal digits [0-9,A-F] on the 8 segment display.  ; Program to display 0 to F and F-0 on the 8 segment display depending  ; on the which black button is pressed  .text  .global \_start    begin: mov r0, #0  mov r2,#0  again: swi 0x202 ; check whether  ; black button pressed or not  cmp r0, #1  beq loop1  cmp r0, #2  beq loop2  b again  loop1: mov r5,#16  ldr 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  ldr 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, lr  .data    zero: .byte 0b11101101  one: .byte 0b01100000  two: .byte 0b01101110  three: .byte 0b11111010  four: .byte 0b00110011----01110011  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.  .text  mov r0 , #30 ; r0 = x  mov r1 , #7 ; r1 = y  mov r7 , #0  ldr r8 , =num  ldr r8 , [r8]  ldr r2 , =str  loop: swi 0x204  bl sum  cmp r0 , #0  subne r0 , r0 , #1  swieq 0x11  b loop  sum: cmp r7 , r8  addne r7 , r7 , #1  bne sum  swi 0x206 ;Clear one line in the display on the LCD screen.r0-line no(y)  mov r7 , #0  mov pc , lr    .data  str: .asciz "HELLO WORLD"  num: .word 15000    **Student Exercises:**  1. Execute the following programs on ARMSIM – PLUG-INS.  a. Display hexadecimal digits [0-9,A-F] on the 8 segment display.  ; Program to display 0 to F and F-0 on the 8 segment display depending  ; on the which black button is pressed  .text  .global \_start    begin: mov r0, #0  mov r2,#0  again: swi 0x202 ; check whether  ; black button pressed or not  cmp r0, #1  beq loop1  cmp r0, #2  beq loop2  b again  loop1: mov r5,#16  ldr 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  ldr 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, lr  .data    zero: .byte 0b11101101  one: .byte 0b01100000  two: .byte 0b01101110  three: .byte 0b11111010  four: .byte 0b00110011----01110011  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.  .text  mov r0 , #0 ; r0 = x  mov r1 , #7 ; r1 = y  mov r7 , #0  ldr r8 , =num  ldr r8 , [r8]  ldr r2 , =str  loop: swi 0x204  bl sum  cmp r0 , #30  addne r0 , r0 , #1  swieq 0x11  b loop  sum: cmp r7 , r8  addne r7 , r7 , #1  bne sum  swi 0x206 ;Clear one line in the display on the LCD screen.r0-line no(y)  mov r7 , #0  mov pc , lr    .data  str: .asciz "HELLO WORLD"  num: .word 15000 |

**MPCA-Laboratory/Assignment/Hands-on/Project**