MPCA LAB

WEEK – 7

Name : Laxmikant Bhujang Gurav

SRN : PES1UG20CS658

Roll no. : 55

Date : 15-03-2022

Program 1 : Execute the following programs on ARMSIM – plug–ins. Display hexadecimal digits [0–9, A–F] on the 8 segment display.

Code :

DISPLAY_0-F - Notepad

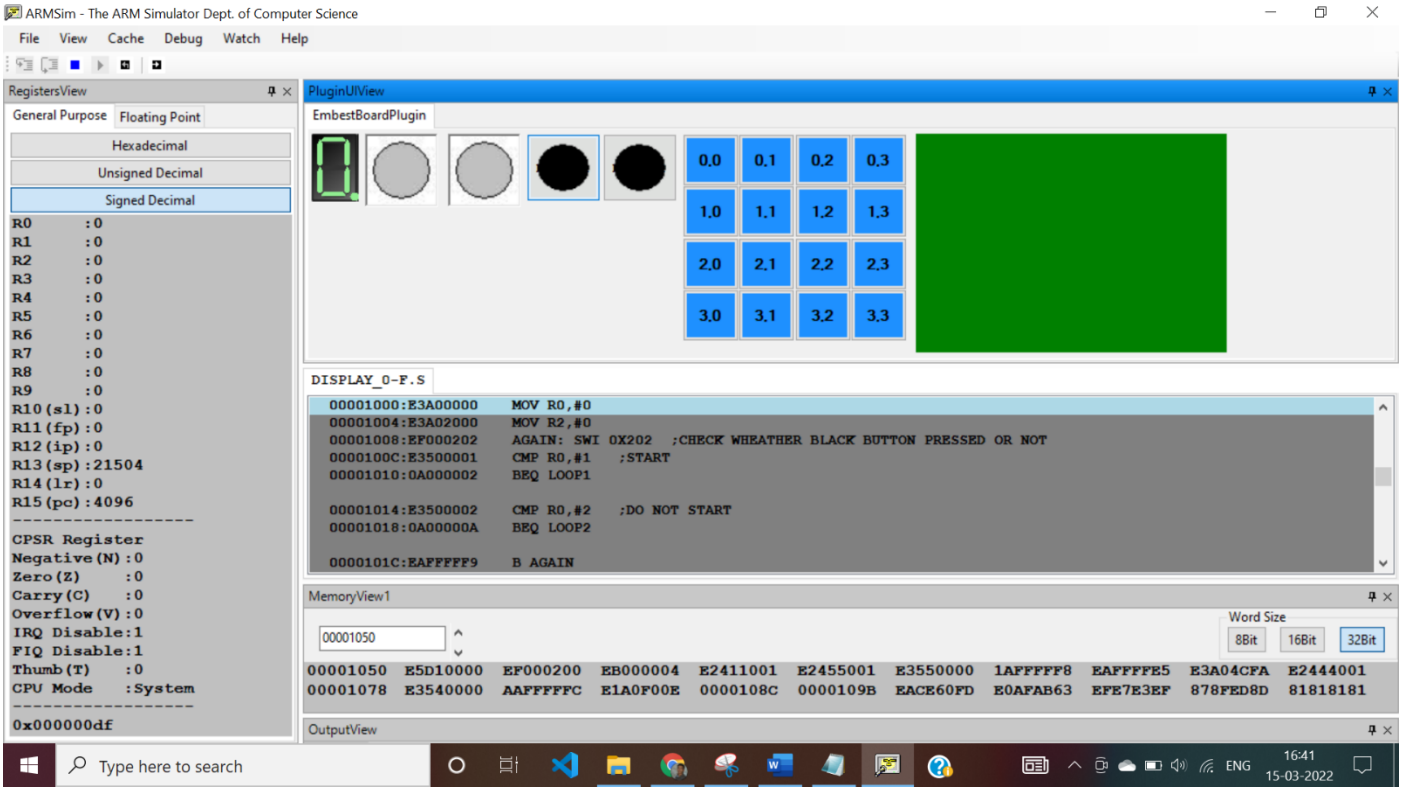
File Edit Format View Help

```
;A=0X80
;B=0X40
;C=0X20
;P=0X10
;D=0X08
;E=0X04
;F=0X02
;G=0X01

.DATA
ZERO:.BYTE 0B11111101
ONE:.BYTE 0B01100000
TWO:.BYTE 0B11001110
THREE:.BYTE 0B11101010
FOUR:.BYTE 0B01100011
FIVE:.BYTE 0B10101011
SIX:.BYTE 0B10101111
SEVEN:.BYTE 0B11100000
EIGHT:.BYTE 0B11101111
NINE:.BYTE 0B11100011
A:.BYTE 0B11100111
B:.BYTE 0B11101111
C:.BYTE 0B10001101
D:.BYTE 0B11101101
E:.BYTE 0B10001111
F:.BYTE 0B10000111

.TEXT

BEGIN:
MOV R0,#0
MOV R2,#0
AGAIN: SWI 0X202  ;CHECK WHEATHER BLACK BUTTON PRESSED OR NOT
CMP R0,#1   ;START
BEQ LOOP1

CMP R0,#2   ;DO NOT START
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
```

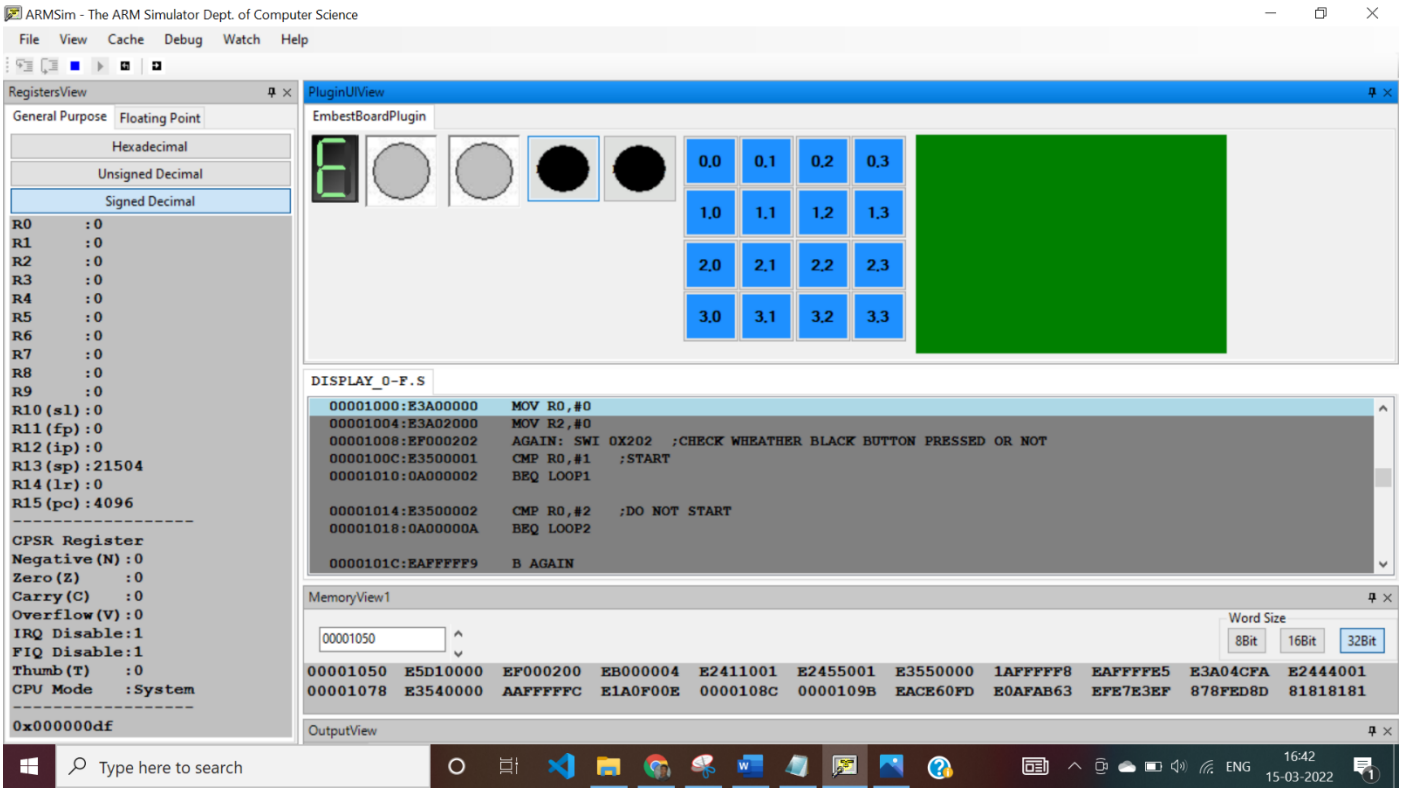
```
BACK2:
LDRB R0,[R1]
SWI 0X200    ;SET 8 SEGMENT DISPLAY TO LIGHT UP

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
```

Output :

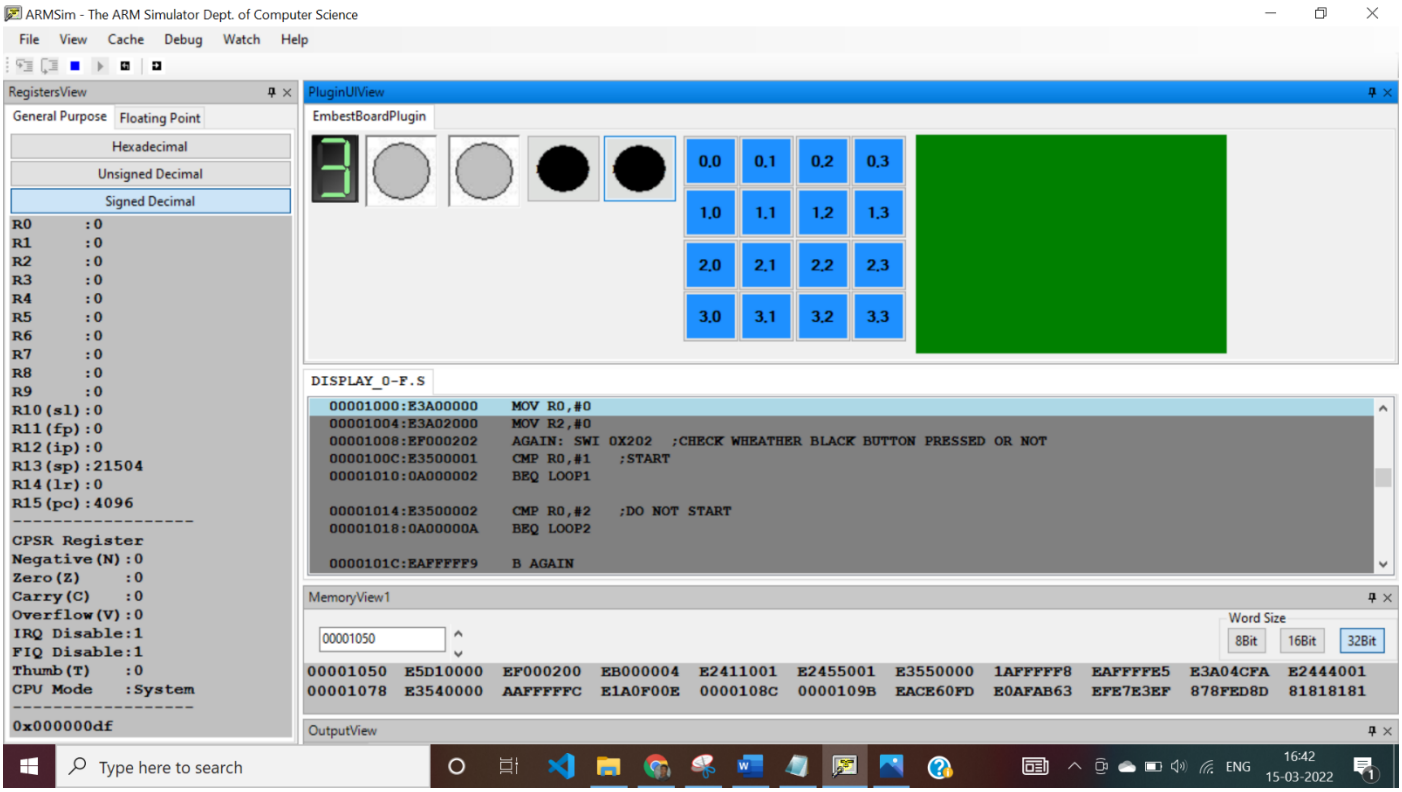
Screenshot 1:



Screenshot 2:



Screenshot 3:



PROGRAM 2 :

Execute the following programs on ARMSIM – plug–ins.

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

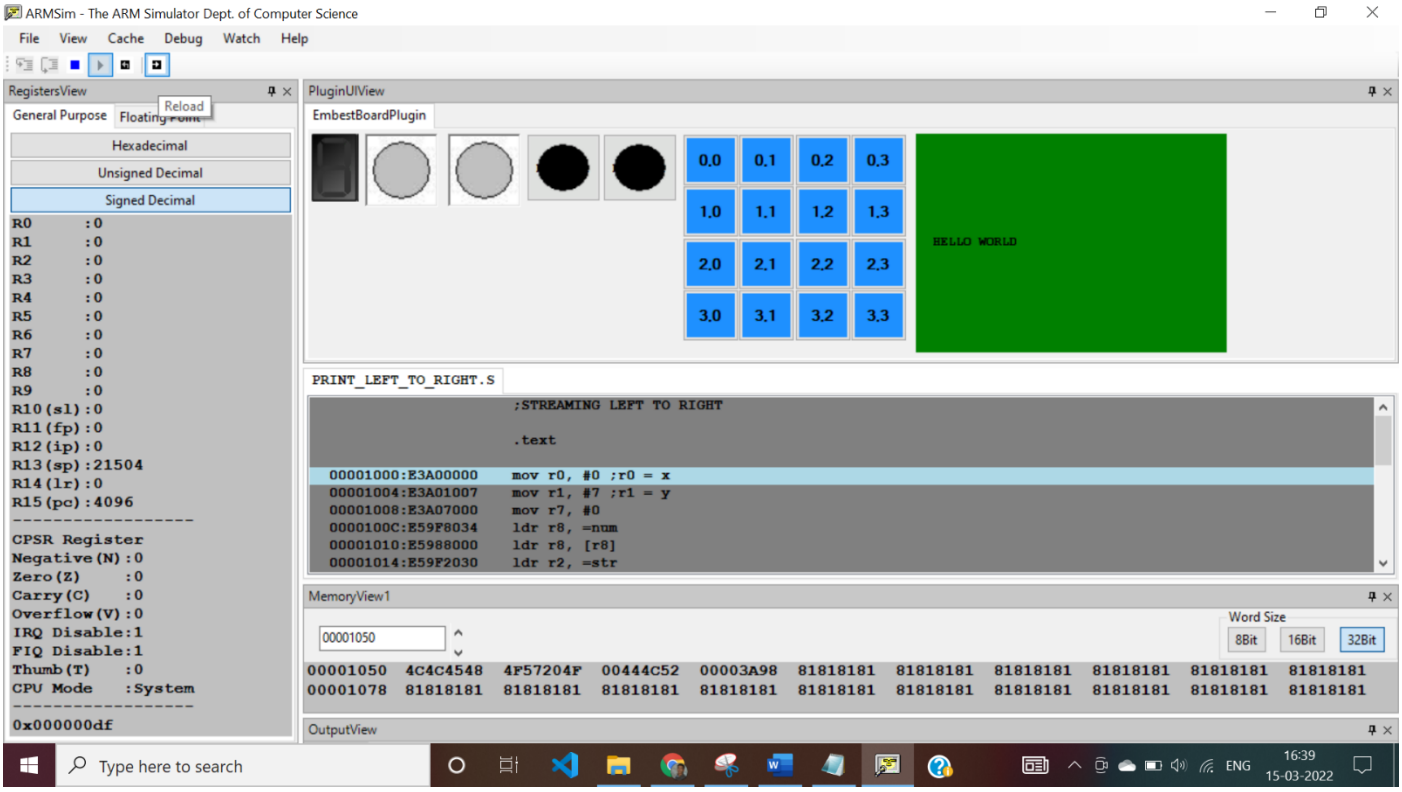
Code :

PRINT_LEFT_TO_RIGHT - Notepad

File Edit Format View Help

```
;STREAMING LEFT TO RIGHT

.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 ;display a string on screen, addressshould be in r2 reg
bl sum
cmp r0, #40
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-lineno(y)
mov r7, #0
mov pc, lr

.data
str: .asciz "HELLO WORLD"
num: .word 15000
```

Output :


ARMSim - The ARM Simulator Dept. of Computer Science
File View Cache Debug Watch Help
RegistersView
Reload
General Purpose
Hexadecimal
Unsigned Decimal
Signed Decimal
R0 :0
R1 :0
R2 :0
R3 :0
R4 :0
R5 :0
R6 :0
R7 :0
R8 :0
R9 :0
R10(sl):0
R11(fp):0
R12(ip):0
R13(sp):21504
R14(lr):0
R15(pc):4096
CPSR Register
Negative(N):0
Zero(Z) :0
Carry(C) :0
Overflow(V):0
IRQ Disable:1
FIQ Disable:1
Thumb(T) :0
CPU Mode :System
0x000000df
PluginUIView
EmbestBoardPlugin
0,0 0,1 0,2 0,3
1,0 1,1 1,2 1,3
2,0 2,1 2,2 2,3
3,0 3,1 3,2 3,3
HELLO WORLD
PRINT_LEFT_TO_RIGHT.S
;STREAMING LEFT TO RIGHT
.text
00001000:E3A00000 mov r0, #0 ;r0 = x
00001004:E3A01007 mov r1, #7 ;r1 = y
00001008:E3A07000 mov r7, #0
0000100C:E59F8034 ldr r8, =num
00001010:E5988000 ldr r8, [r8]
00001014:E59F2030 ldr r2, =str
MemoryView1
00001050
Word Size
8Bit 16Bit 32Bit
00001050 4C4C4548 4F57204F 00444C52 00003A98 81818181 81818181 81818181 81818181 81818181 81818181
00001078 81818181 81818181 81818181 81818181 81818181 81818181 81818181 81818181 81818181 81818181
OutputView
Type here to search
ENG
16:39
15-03-2022