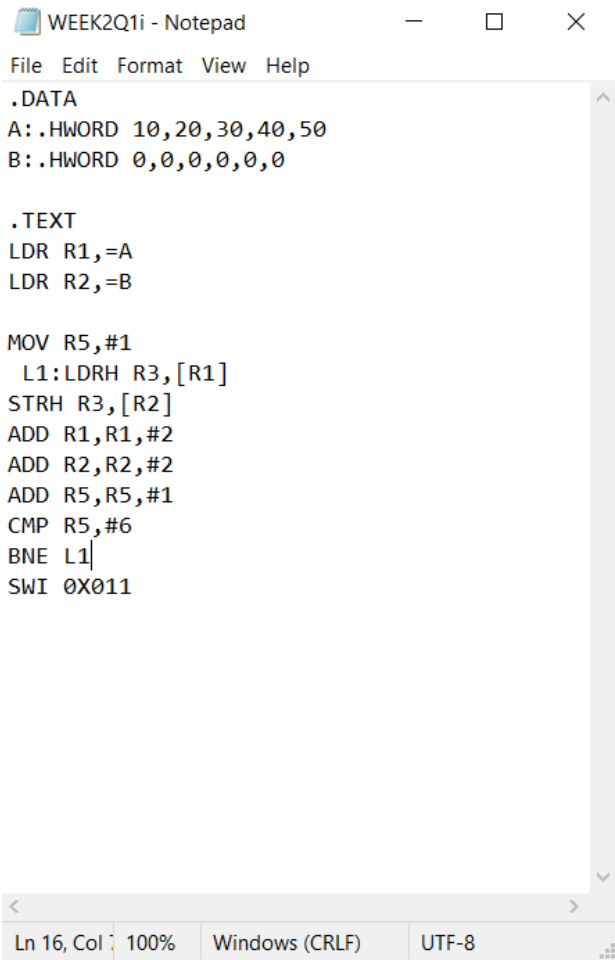
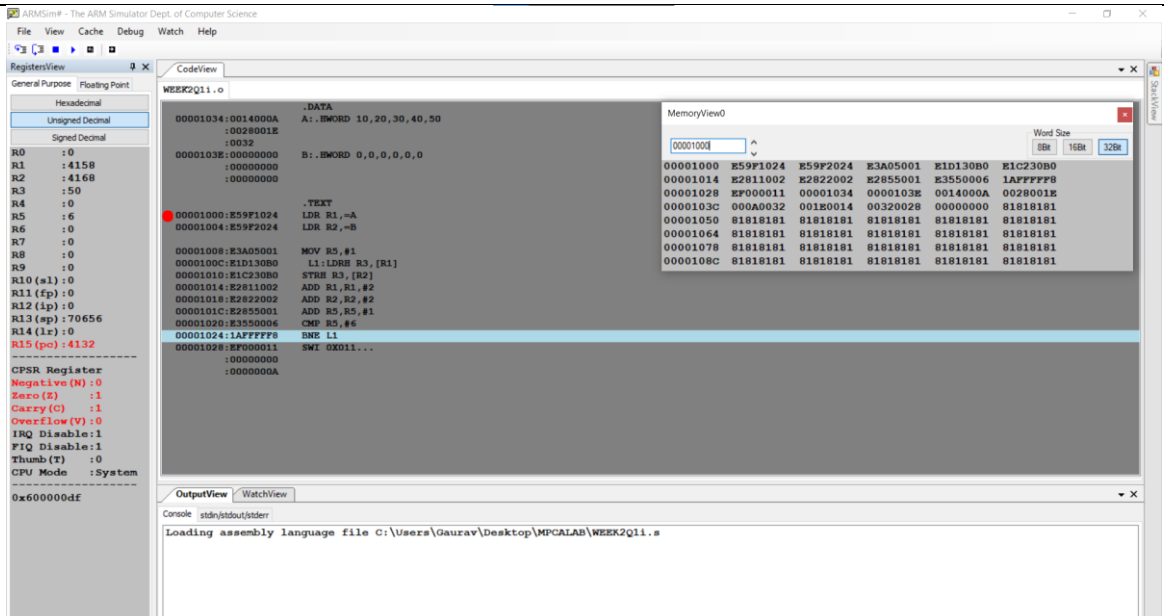




Department of Computer Science & Engineering
Microprocessor & Computer Architecture
MPCA-Laboratory/Assignment/Hands-on/Project
UE20CS252

Sl. No	Programs
Week No.2	<p>1. Write a program in ARM7TDMI-ISA to copy a block of N data items from Location A to Location B. a. Use Half word (.Hword directive)</p>  <pre>WEEK2Q1i - Notepad File Edit Format View Help .DATA A: .HWORD 10,20,30,40,50 B: .HWORD 0,0,0,0,0,0 .TEXT LDR R1,=A LDR R2,=B MOV R5,#1 L1:LDRH R3,[R1] STRH R3,[R2] ADD R1,R1,#2 ADD R2,R2,#2 ADD R5,R5,#1 CMP R5,#6 BNE L1 SWI 0X011</pre> <p>Ln 16, Col 100% Windows (CRLF) UTF-8</p>



b. Use Byte wise (.Byte directive)

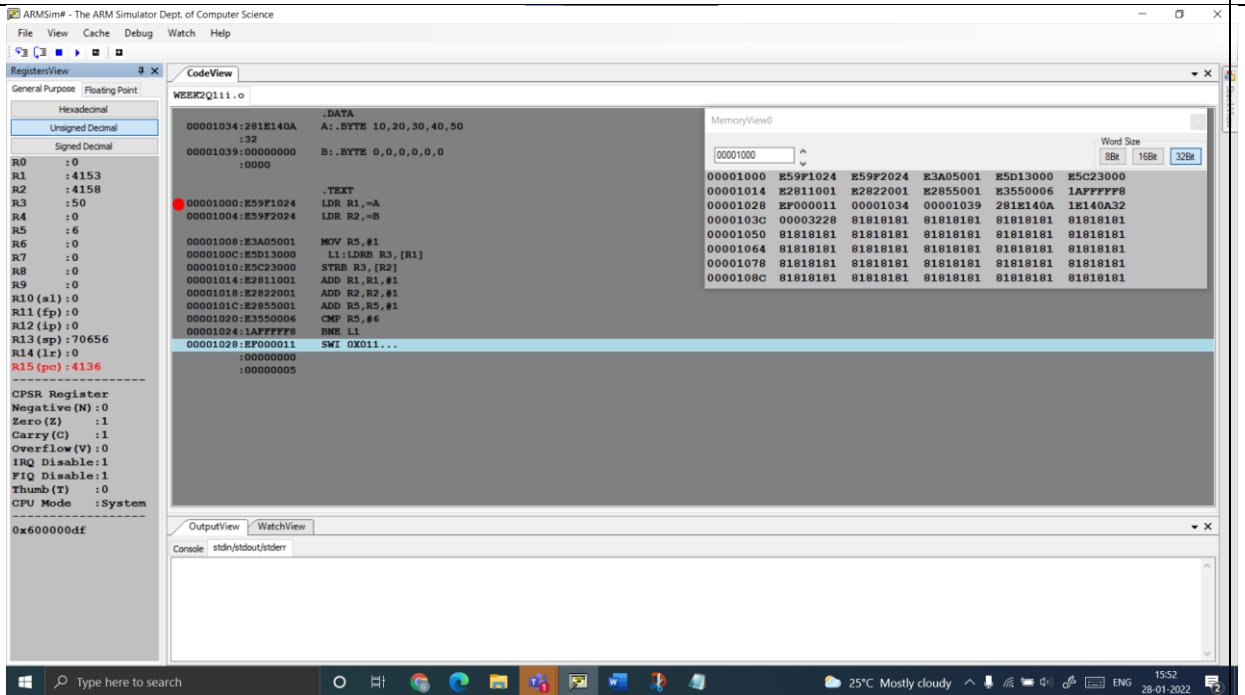
```

WEEK2Q1ii - Notepad
File Edit Format View Help

.DATA
A: .BYTE 10,20,30,40,50
B: .BYTE 0,0,0,0,0,0

.TEXT
LDR R1,=A
LDR R2,=B

MOV R5,#1
    L1:LDRB R3,[R1]
STRB R3,[R2]
ADD R1,R1,#1
ADD R2,R2,#1
ADD R5,R5,#1
CMP R5,#6
BNE L1
SWI 0X011
  
```



2. Write a program in ARM7TDMI-ISA to find the sum of N data items in the memory. Store the result in the memory location.
 - a. Use Half word (.Hword directive)

```

WEEK2Q2i - Notepad
File Edit Format View Help

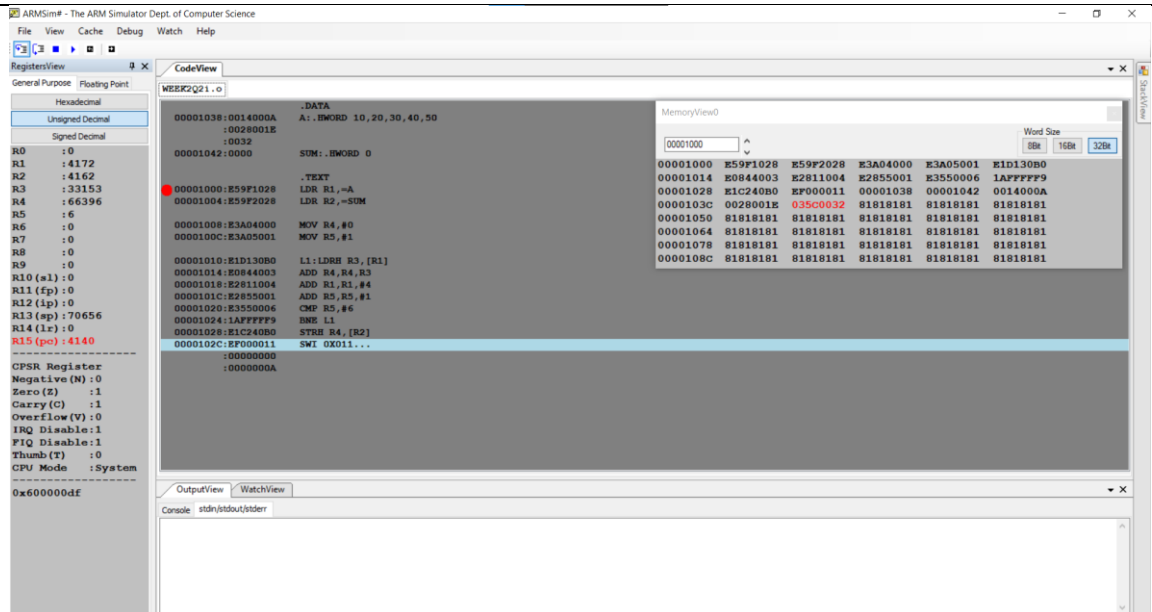
.DATA
A: .HWORD 10,20,30,40,50
SUM: .HWORD 0

.TEXT
LDR R1,=A
LDR R2,=SUM

MOV R4,#0
MOV R5,#1

L1:LDRH R3,[R1]
ADD R4,R4,R3
ADD R1,R1,#4
ADD R5,R5,#1
CMP R5,#6
BNE L1
STRH R4,[R2]
SWI 0X011

```



b. Use Byte wise (.Byte directive)

```

WEEK2Q2ii - Notepad
File Edit Format View Help
.DATA
A: .BYTE 10,20,30,40,50
SUM: .BYTE 0

.TEXT
LDR R1,=A
LDR R2,=SUM

MOV R4,#0
MOV R5,#1

L1:LDRB R3,[R1]
ADD R4,R4,R3
ADD R1,R1,#4
ADD R5,R5,#1
CMP R5,#6
BNE L1
STRB R4,[R2]
SWI 0X011

```

Ln 18, Col 1 100% Windows (CRLF) UTF-8

ARMSim# - The ARM Simulator Dept. of Computer Science

File View Cache Debug Watch Help

RegistersView

General Purpose Floating Point

Hexadecimal
Unsigned Decimal
Signed Decimal

R0 : 0
R1 : 4172
R2 : 4157
R3 : 129
R4 : 447
R5 : 6
R6 : 0
R7 : 0
R8 : 0
R9 : 0
R10 (sl) : 0
R11 (fp) : 0
R12 (ip) : 0
R13 (sp) : 70656
R14 (lr) : 0
R15 (pc) : 4140

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

CodeView

WEEK2Q211.o

.DATA
00001038:281E140A A: .BYTE 10,20,30,40,50
:32
0000103D:00 SUM: .BYTE 0

.TEXT
00001000:E59F1028 LDR R1,=A
00001004:E59F2028 LDR R2,=SUM
00001008:E3A04000 MOV R4,#0
0000100C:E3A05001 MOV R5,#1
00001010:E5D13000 L1:LDRB R3,[R1]
00001014:E0844003 ADD R4,R4,R3
00001018:E2811004 ADD R1,R1,#4
0000101C:E2855001 ADD R5,R5,#1
00001020:E3550006 CMP R5,#6
00001024:1AFFFFF9 BNE L1
00001028:E5C24000 STTB R4,[R2]
0000102C:EF000011 SWI 0X011...
:00000000
:00000005

MemoryView0

Word Size
8Bt 16Bt 32Bt

00001000 E59F1028 E59F2028 E3A04000 E3A05001 E5D13000
00001014 E0844003 E2811004 E2855001 E3550006 1AFFFFF9
00001028 E5C24000 EF000011 00001038 0000103D 281E140A
0000103C 0000BF32 81818181 81818181 81818181 81818181
00001050 81818181 81818181 81818181 81818181 81818181
00001064 81818181 81818181 81818181 81818181 81818181
00001078 81818181 81818181 81818181 81818181 81818181
0000108C 81818181 81818181 81818181 81818181 81818181

OutputView WatchView

Console stdin/stdout/stderr