**Microprocessor and Computer Architecture (MPCA) Laboratory  
UE20CS252 4th Semester,  
Academic Year 2021-22**

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**Week 1 : 28 Jan 2021**

**1) Title of Program:**

**Write a program to copy a block of N data items from locations A to B using Half Word.**

**Program Code:**

.DATA

A: .HWORD 10,20,30,40,50,60,70,80,90,100

B: .HWORD 0,0,0,0,0,0,0,0,0,0

.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,#11

BNE L1

SWI 0X011

**Screenshot of ARMSimulator:**

**Graphical user interface, text, application

Description automatically generated**

**2a)Title of Program:**

**Write a program to the sum of N data items in the memory using Full Word. Store the result in the memory locations.**

**Program Code:**

.DATA

A: .WORD 0x10,0x20,0x30,0x40,0x50,0x60,0x70,0x80,0x90,0x100

SUM: .WORD 00

.TEXT

LDR R1,=A

LDR R2,=SUM

MOV R4,#0

MOV R5,#1;

L1: LDR R3,[R1]

ADD R4,R4,R3

ADD R1,R1,#4

ADD R5,R5,#1

CMP R5,#11

BNE L1

STR R4,[R2]

SWI 0x011

**Screenshot of ARMSimulator:**

**Graphical user interface, text, application, email

Description automatically generated**

**2b)Title of Program:**

**Write a program to the sum of N data items in the memory using Byte. Store the result in the memory locations.**

**Program Code:**

.DATA

A: .WORD 0x10,0x20,0x30,0x40,0x50,0x60,0x70,0x80,0x90,0x100

SUM: .WORD 00

.TEXT

LDR R1,=A

LDR R2,=SUM

MOV R4,#0

MOV R5,#1;

L1: LDR R3,[R1]

ADD R4,R4,R3

ADD R1,R1,#4

ADD R5,R5,#1

CMP R5,#11

BNE L1

STR R4,[R2]

SWI 0x011

**Screenshot of ARMSimulator:**

**Graphical user interface, text, application

Description automatically generated**

**3)Title of Program:**

**Write a program to find the sum of N natural numbers using Full Word. Store the result in the memory locations.**

**Program Code:**

.DATA

A: .WORD 1,2,3,4,5,6,7,8,9,10

SUM: .WORD 00

.TEXT

LDR R1,=A

LDR R2,=SUM

MOV R4,#0

MOV R5,#1

L1:

LDR R3,[R1]

ADD R4,R4,R3

ADD R1,R1,#4

ADD R5,R5,#1

CMP R5,#11

BNE L1

STR R4,[R2]

SWI 0x011

**Screenshot of ARMSimulator:**

**Graphical user interface, text, application

Description automatically generated**