

Microprocessor and Computer Architecture Laboratory

UE20CS256

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Week 5

Program Number	1
Program Qn	Write a program in ARM7TDMI-ISA to add 2 matrices of order 3. i.e., Implement $c[i][j] = a[i][j] + b[i][j]$

ARM Assembly Code

```
.data
A: .WORD 1,5,3,6,7,2,1,6,7
B: .WORD 7,3,6,8,2,3,7,8,0
C: .WORD 0,0,0,0,0,0,0,0,0
```

```
.text
```

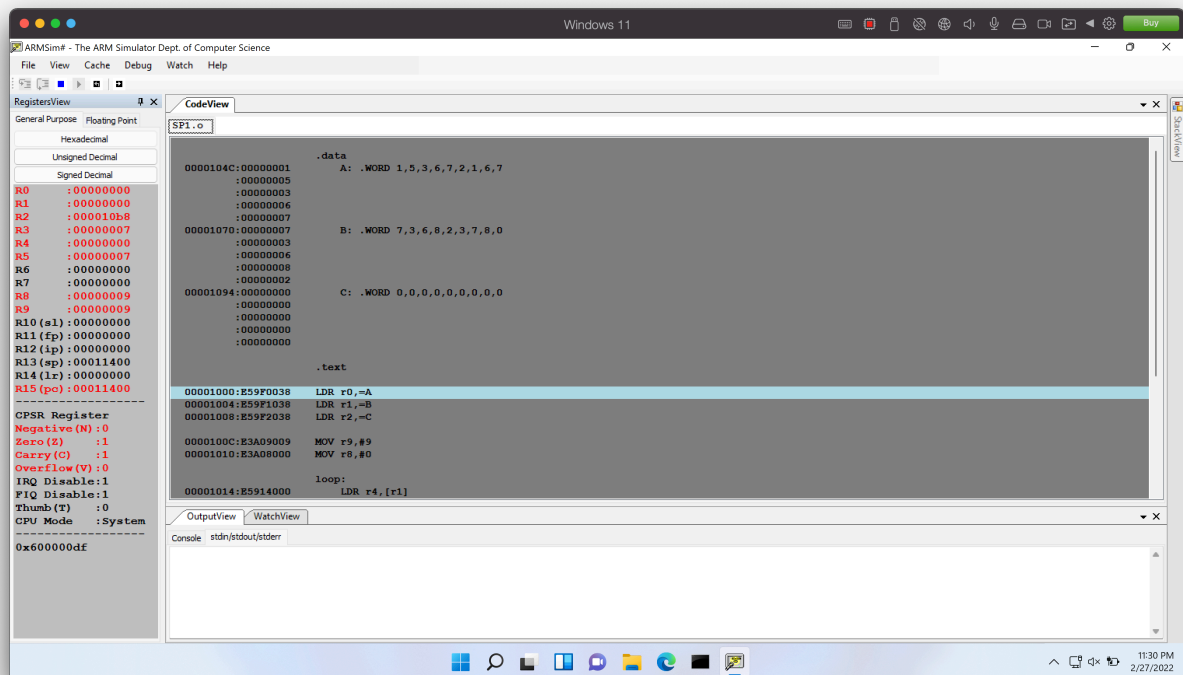
```
LDR r0,=A
LDR r1,=B
LDR r2,=C
```

```
MOV r9,#9
MOV r8,#0
```

```
loop:
    LDR r4,[r1]
    LDR r5,[r0]
    ADD r3,r4,r5
    STR r3,[r2]
    ADD r0,r0,#4
    ADD r2,r2,#4
    ADD r1,r1,#4
```

```
    ADD r8,r8,#1
    CMP r8,r9
    BEQ end
    B loop
end: .end
```

Output Screenshot



Program Number 2

Program Qn

Write a program in ARM7TDMI-ISA to find the ROWSUM of a matrix.

ARM Assembly Code

```
.data
```

```
A: .WORD 5,1,63,7,24,1,7,8,23
ANS: .WORD 0,0,0
```

```
.text
```

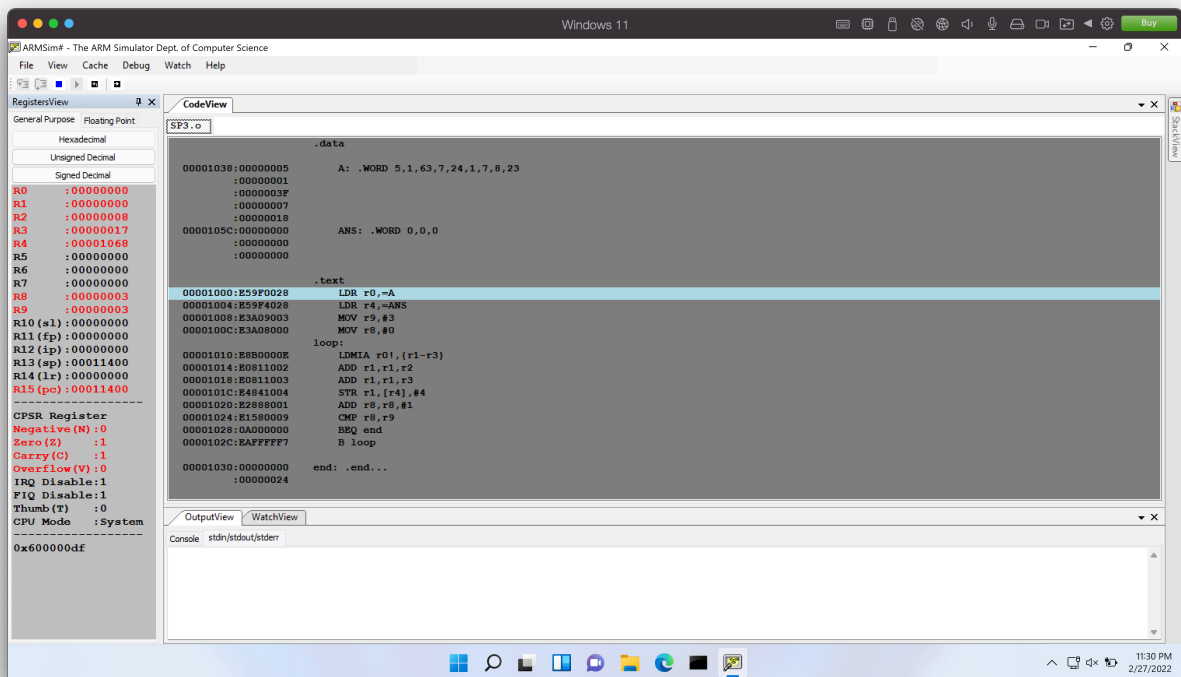
```
LDR r0,=A
LDR r4,=ANS
MOV r9,#3
MOV r8,#0
```

```
loop:
```

```
LDMIA r0!,{r1-r3}
ADD r1,r1,r2
ADD r1,r1,r3
STR r1,[r4],#4
ADD r8,r8,#1
CMP r8,r9
BEQ end
B loop
```

```
end: .end
```

Output Screenshot



Disclaimer:

- The programs and output submitted is duly written, verified and executed by me.
- I have not copied from any of my peers nor from the external resource such as internet.
- If found plagiarized, I will abide with the disciplinary action of the University.

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