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Student exercises:

1. Write a program in ARM7TDMI-ISA to multiply 2 matrices of order3.

i.e., implement c[i][j]=c[i][j] + a[i][j] x b[i][j].

a. Use MLA instruction

```
.DATA
        A: .WORD 1,3,5
        B: .WORD 2,4,6
        C: .WORD

.TEXT
        LDR R5,=A
        LDR R6,=B
        LDR R7,=C
        MOV R3,#3
        MOV R0,#0

LOOP:
        LDR R1,[R5],#4
        LDR R2,[R6],#4
        MLA R0,R1,R2,R0
        STR R0,[R7]
        SUB R3,R3,#1
        TEQ R3,#0
        BNE LOOP
        SWI 0X11
```
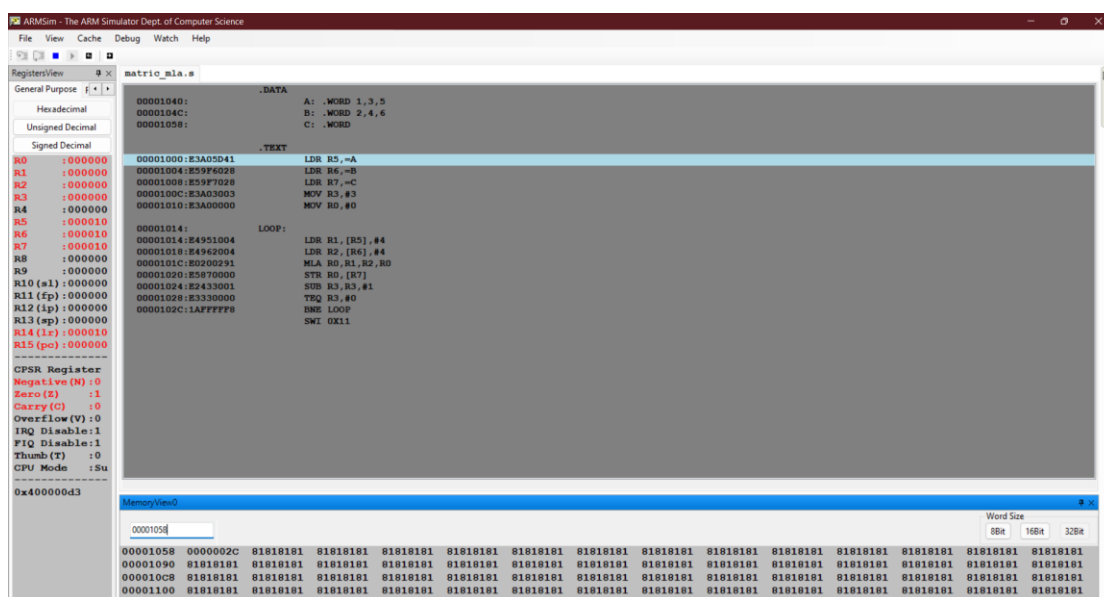
b. Use MUL instruction

.DATA
        A: .WORD 1,3,5
        B: .WORD 2,4,6
        C: .WORD

.TEXT
        LDR R5,=A
        LDR R6,=B
        LDR R7,=C
        MOV R3,#3
        MOV R4,#0
LOOP:
        LDR R1,[R5],#4
        LDR R2,[R6],#4
        MUL R0,R1,R2
        ADD R4,R4,R0
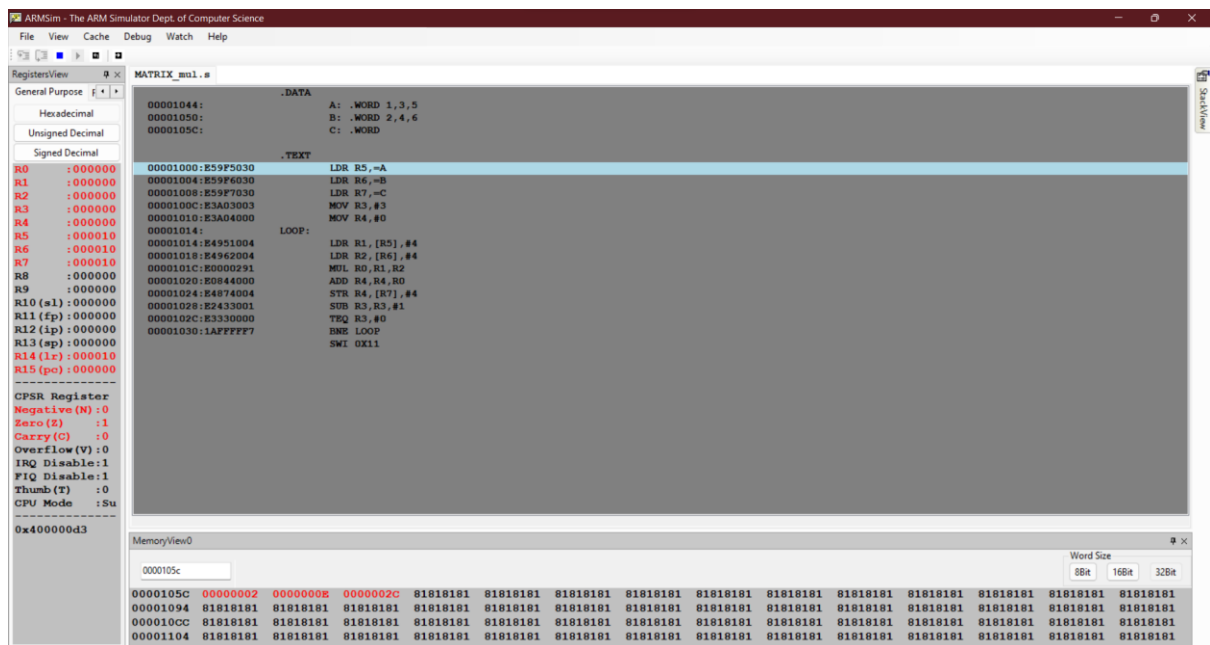   STR R4,[R7],#4
        SUB R3,R3,#1
        TEQ R3,#0
        BNE LOOP
        SWI 0X11

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

.DATA

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

        SUM: .WORD

.TEXT

        LDR R5,=MAT

        LDR R6,=SUM

        MOV R0, #3

LOOP:

        LDMIA R5,{R2-R4}

        ADD R5,R5,#12

        ADD R2,R2,R3

        ADD R2,R2,R4

        STR R2,[R6],#4

        SUB R0,R0,#1

        TEQ R0,#0

        BNE LOOP

        SWI 0X11