PES UNIVERSITY

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

NAME: ANKITHA C
SRN : PES1UG20CS626
SECTION: K

Sl. No	Programs
Week No.3	

1 Write a program in ARM7TDMI-ISA to find the sum of N data items at alternate [odd or **even** positions] locations in the memory. Store the result in the memory location.

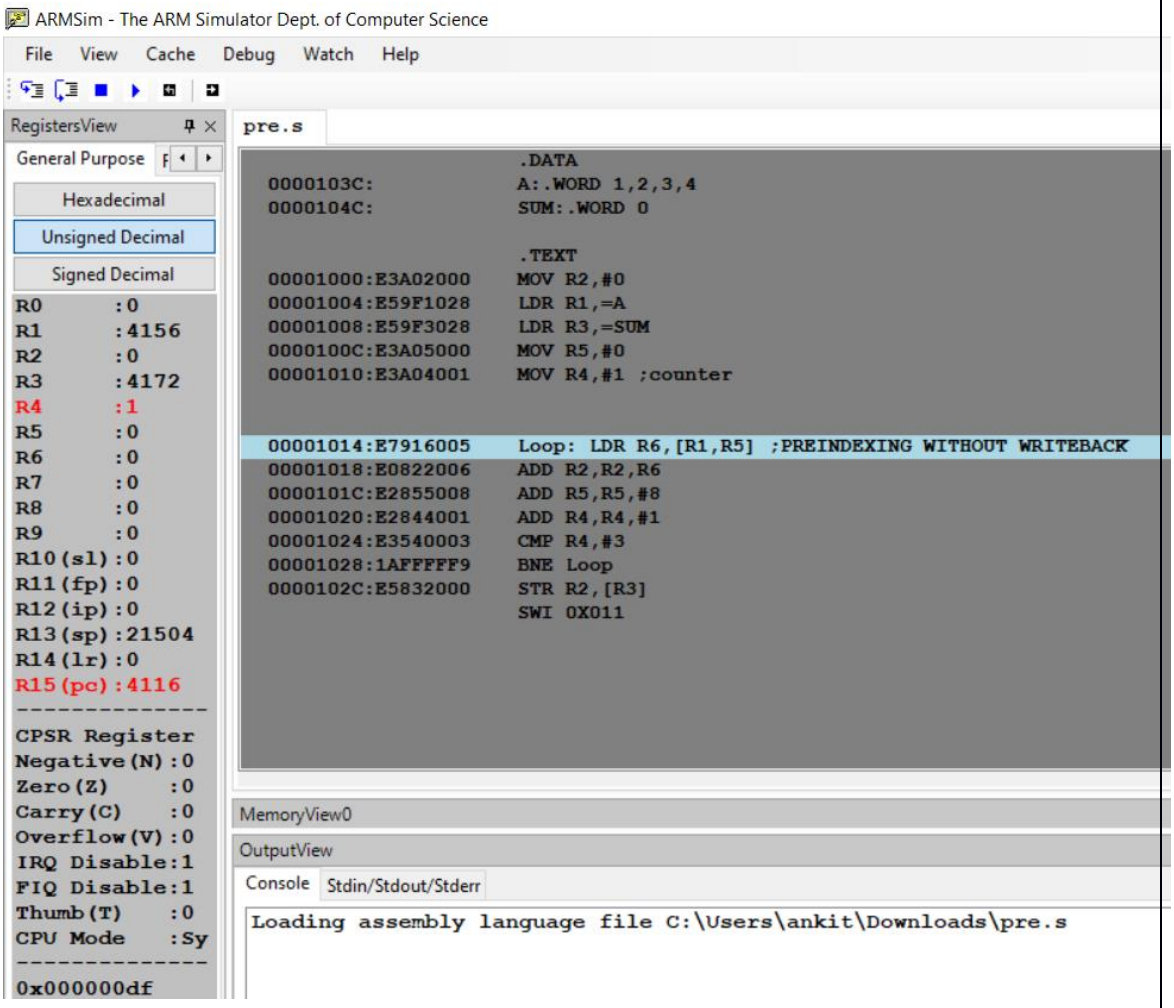
a. Use Pre-indexing addressing mode

```
.DATA
A:.WORD 1,2,3,4
SUM:.WORD 0

.TEXT
MOV R2,#0
LDR R1,=A
LDR R3,=SUM
MOV R5,#0
MOV R4,#1 ;counter


Loop: LDR R6,[R1,R5] ;PREINDEXING WITHOUT WRITEBACK
ADD R2,R2,R6
ADD R5,R5,#8
ADD R4,R4,#1
CMP R4,#3
BNE Loop
STR R2,[R3]
```

SWI 0X011



b. Use Post- Indexing addressing mode

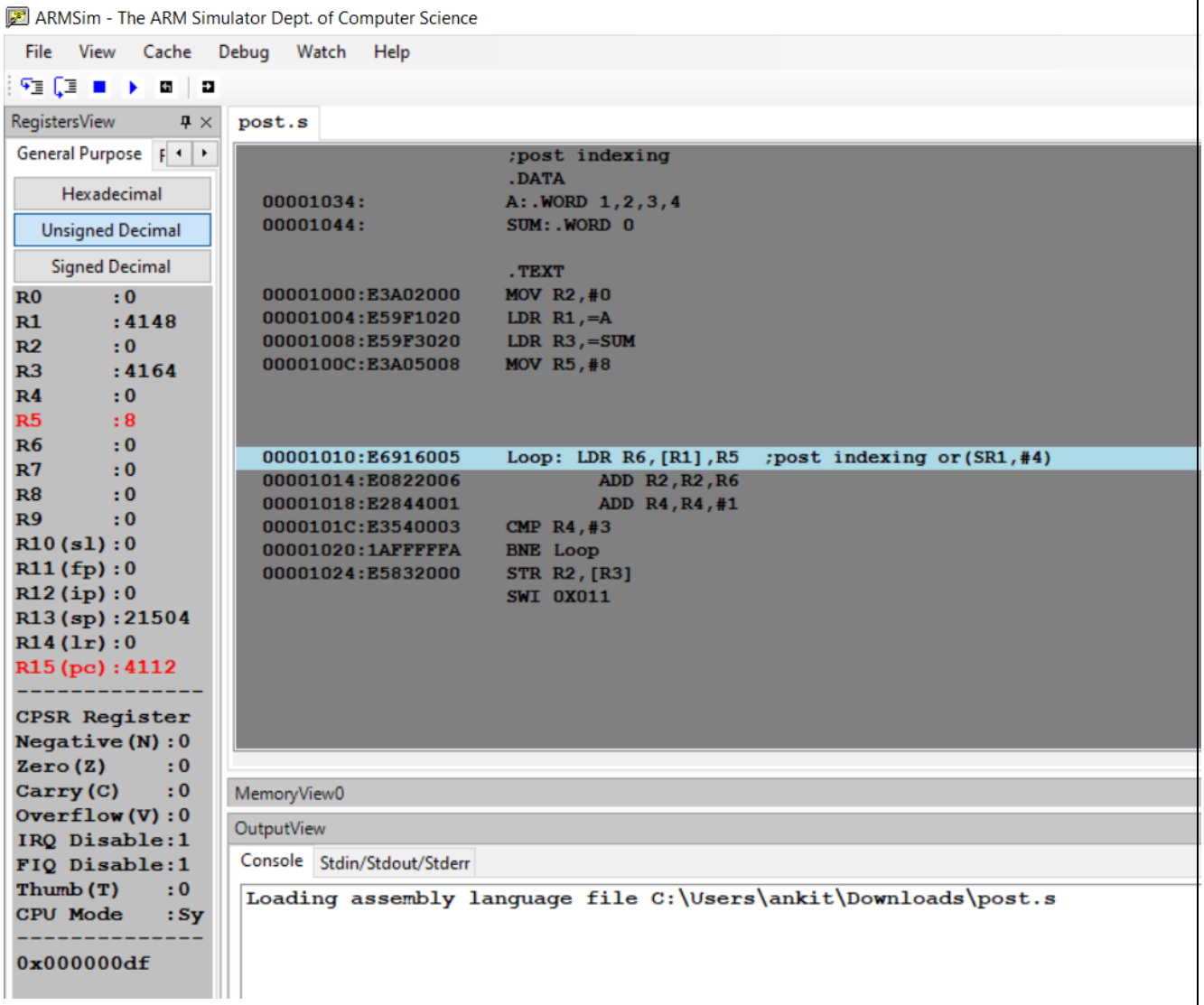
```
;post indexing
.DATA
A:.WORD 1,2,3,4
SUM:.WORD 0

.TEXT
MOV R2,#0
LDR R1,=A
LDR R3,=SUM
MOV R5,#8



Loop: LDR R6,[R1],R5  ;post indexing or(SR1,#4)
  ADD R2,R2,R6
  ADD R4,R4,#1
```

CMP R4,#3
BNE Loop
STR R2,[R3]
SWI 0X011



c. Use Auto-indexing addressing mode

```
.DATA
A:.WORD 1,2,3,4
SUM:.WORD 0

.TEXT
MOV R2,#0
LDR R1,=A
LDR R3,=SUM
MOV R5,#8
MOV R4,#1 ;counter
SUB R1,R1,#8
```

```
Loop: LDR R6,[R1,R5]!  ;PREINDEXING WITH WRITEBACK
    ADD R2,R2,R6
    ADD R4,R4,#1
CMP R4,#3
BNE Loop
STR R2,[R3]
SWI 0X011
```