EMBEDDED PROGRAMMING LAB

LAB-2 DATE: 14-08-2024

PREETHISH K R

1)Write a program to perform the operation addition, subtraction, multiplication and division based on the condition as given below

01-Addition

02-Subtraction

03-Multiplication

04-Division

Assume that condition is available at memory location 0x10000000 followed by the next two locations with data.

Program:

```
        AREA BASIC, CODE, READONLY
        ENTRY
        EXPORT __main
__main
        LDR R1,=0X10000000
        LDR R2,[R1]
        LDR R3,[R1,#4]
        LDR R4,[R1,#8]

        CMP R2,#01
        BNE NEXT1
```

```
        ADD R5,R3,R4
        B LAST

NEXT1 CMP R2,#02
        BNE NEXT2
        SUB R5,R3,R4
        B LAST

NEXT2 CMP R2,#03
        BNE NEXT3
        MUL R5,R3,R4
        B LAST

NEXT3 CMP R2,#04
        BNE DEFAULT
        UDIV R5,R3,R4
        B LAST

DEFAULT MOV R5,#0
LAST STR R5,[R1,#12]
        NOP
        END
```

Output:

Addition:

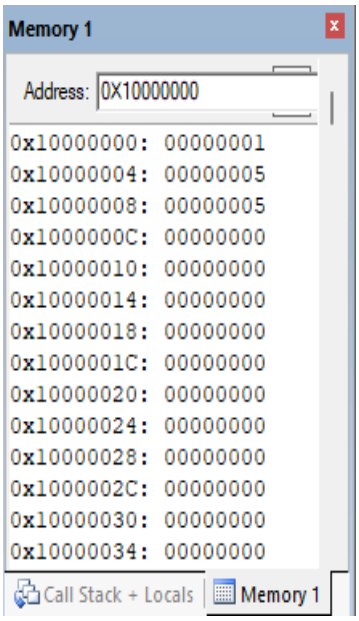

Fig1.1-Data values entered

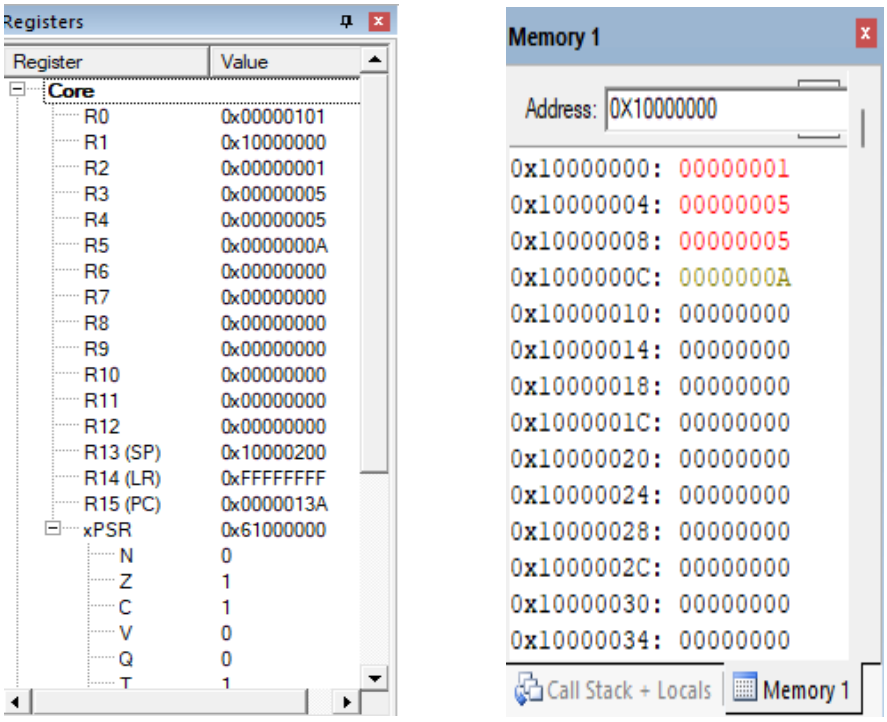

Fig1.2-Result obtained

Subtraction:

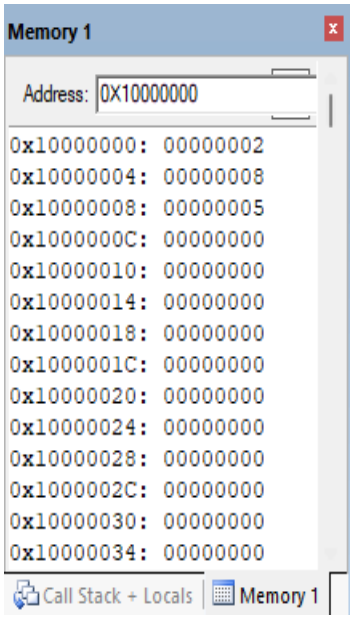

Fig1.3-Data values entered

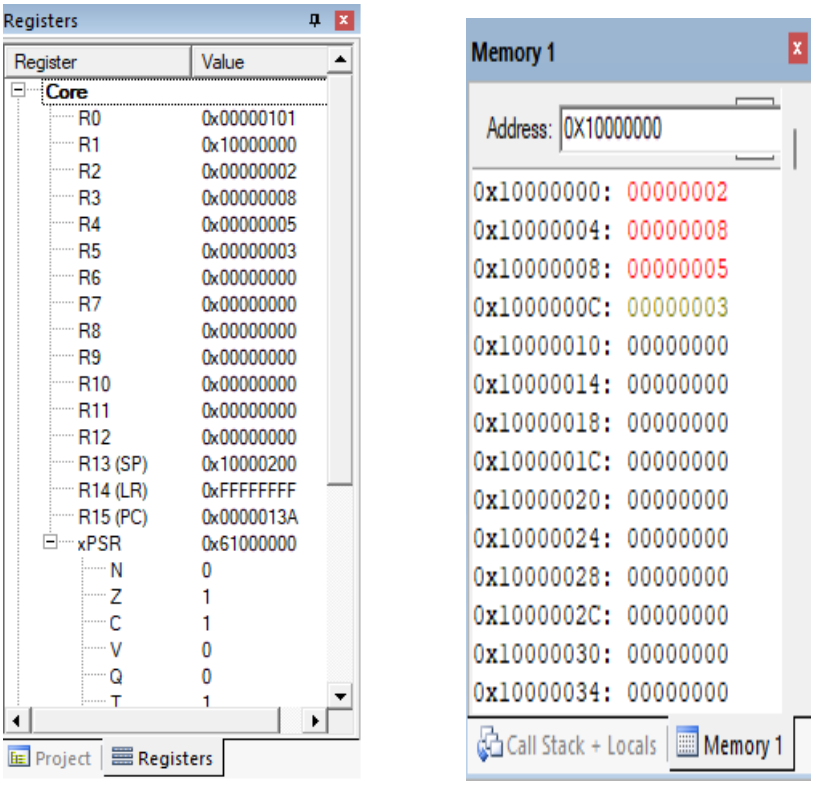

Fig1.4-Result obtained

Multiplication:

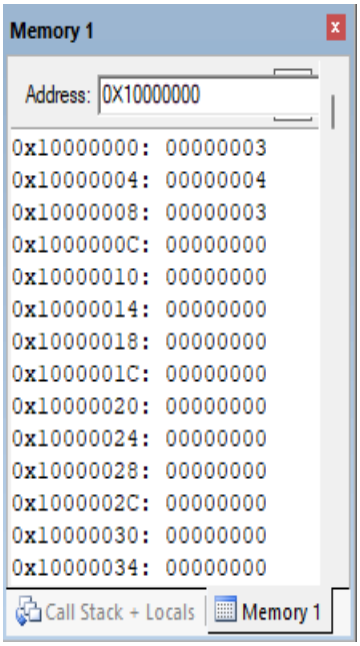

Fig1.5-Data values entered

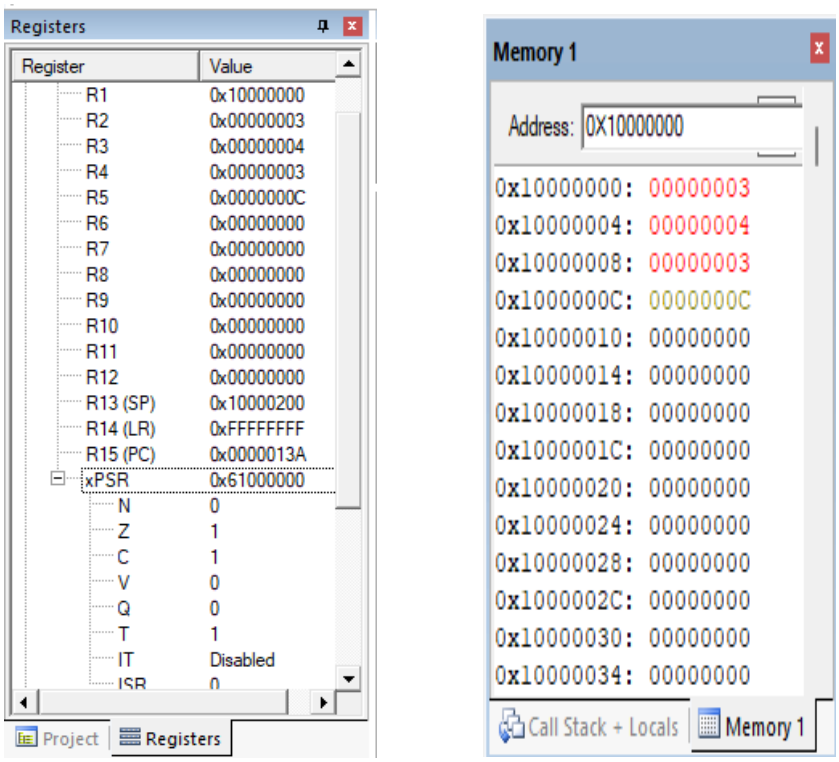

Fig1.6-Result obtained

Division:

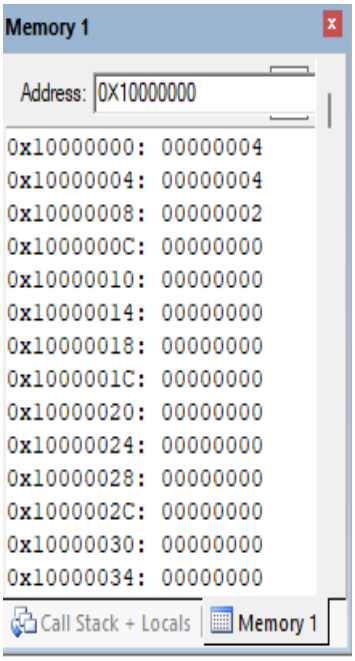

Fig1.7-Data values entered

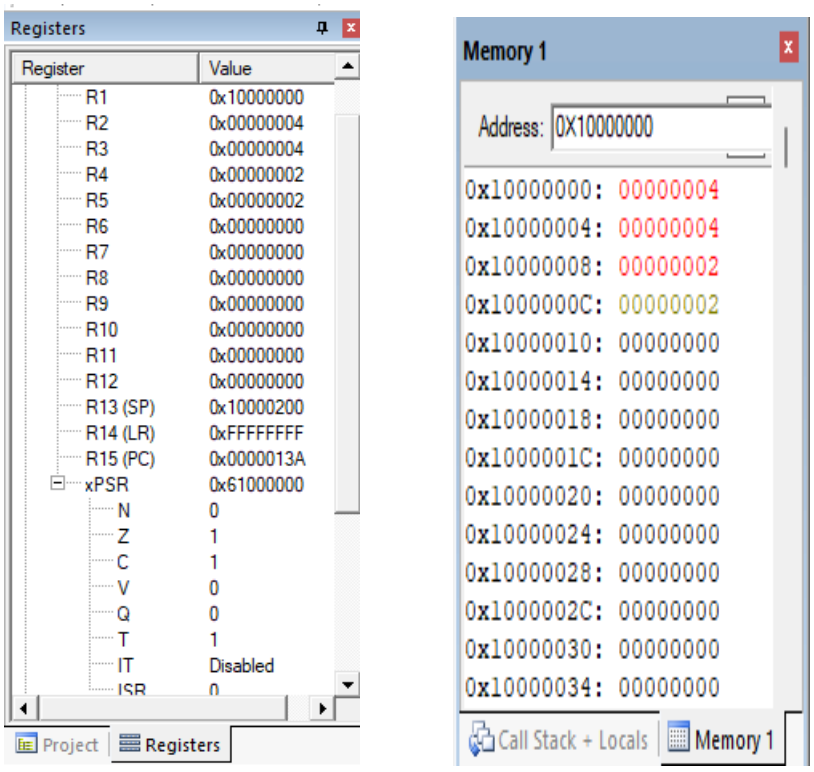

Fig1.8-Result obtained

2)Consider the array of data available at memory location 0x10000000 to 10 memory locations find number of occurrences of given number in the given array.

Finding number of occurrences of 5 in an array.

Program:

```
        AREA BASIC, CODE, READONLY
        ENTRY
        EXPORT __main
__main
        LDR R1,=0X10000000
        MOV R2,#00
        MOV R3,#0X0A
REPEAT LDR R4,[R1],#4
        CMP R4,#05
        BNE SKIP
        ADD R2,R2,#01
SKIP SUB R3,R3,#01
       CMP R3,#00
       BNE REPEAT
        NOP
        END
```

Output:

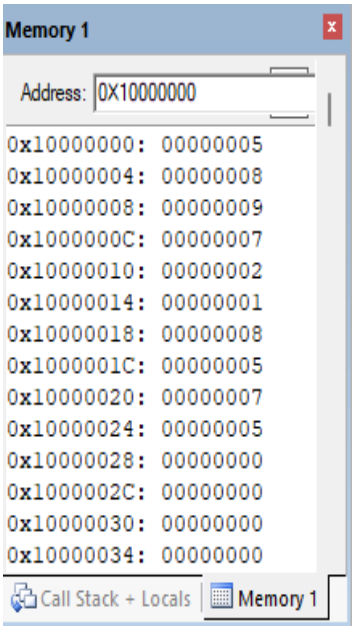

Fig2.1-Data values entered

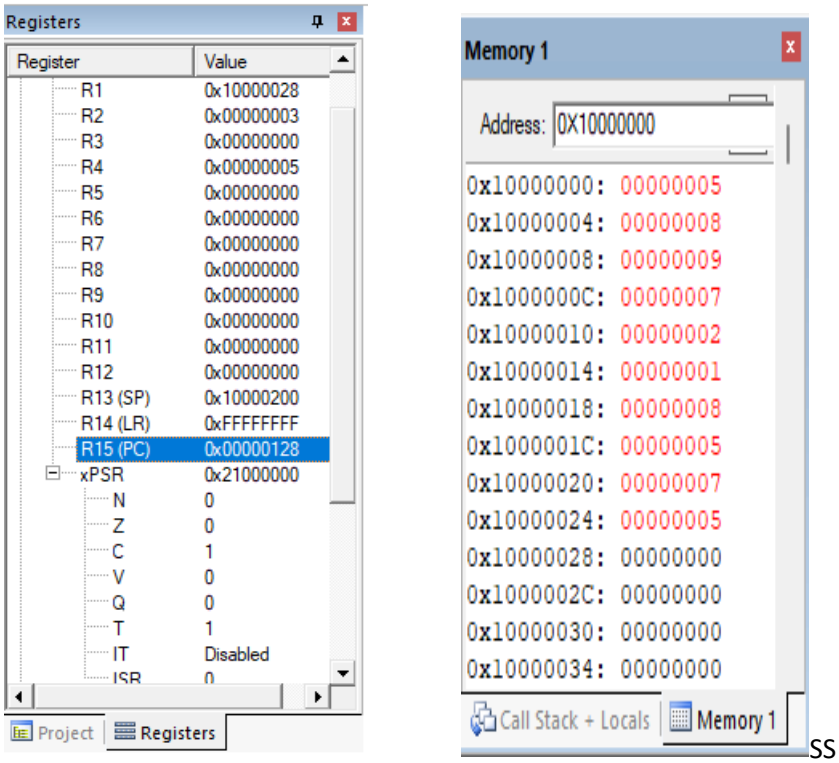

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Fig2.2-Result obtained R2=3 implies 5 occurred 3 times