# EMBEDDED PROGRAMMING LAB

## LAB-4 DATE: 2-10-2024

## PREETHISH K R

1. Write a program to find sum of all first 10 odd numbers.

**Program:**

```
        AREA BASIC,CODE,READONLY
        ENTRY
        EXPORT __main
__main
        MOV R0,#1
        MOV R1,#0
        MOV R2,#10
NEXT ADD R1,R1,R0
        ADD R0,R0,#2
        SUB R2,#1
        CMP R2,#00
        BNE NEXT
        NOP
        END
```

**Output:**

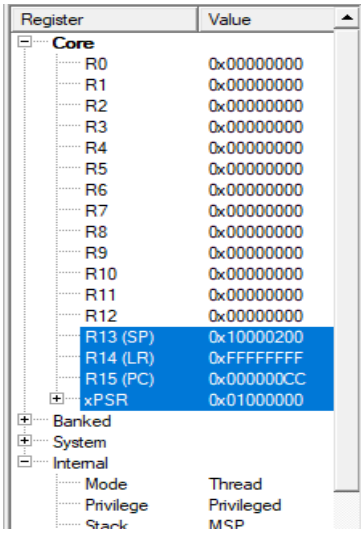


Fig 1.1- Before execution

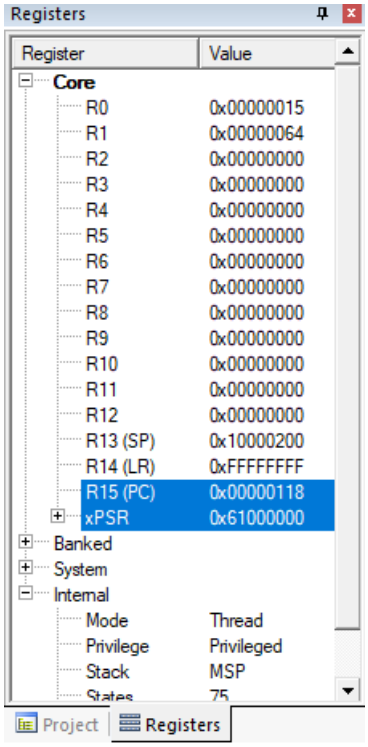


Fig 1.2- Result obtained on register R1

2. Write a program to find the factorial of a given number

**Program:**

```
        AREA BASIC,CODE,READONLY
        ENTRY
        EXPORT __main
__main
        MOV R0,#1
        MOV R1,#5
AGAIN MUL R0,R0,R1
        SUB R1,#1
        CMP R1,#00
        BNE AGAIN
        NOP
        END
```

**Output:**

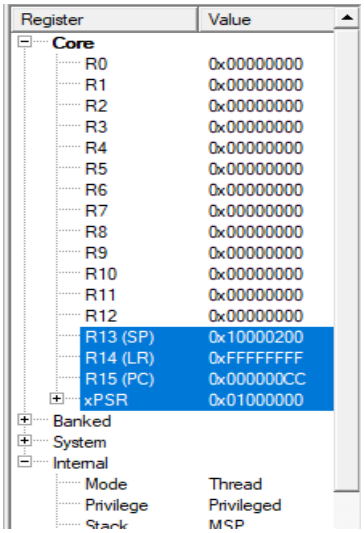


Fig 2.1- Before execution

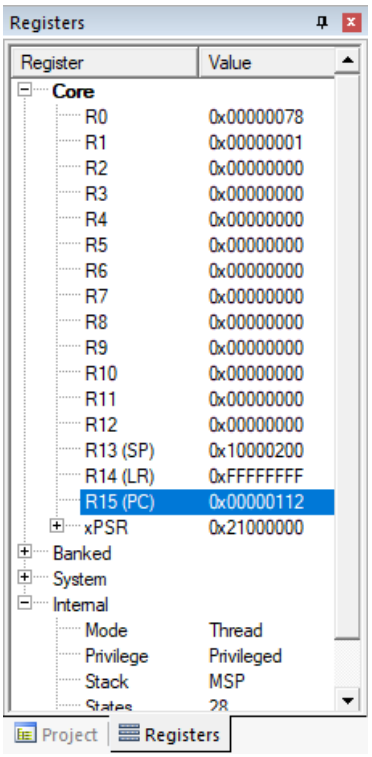


Fig 2.2- Result obtained on register R0

3. Write a program to count number of zeroes and number of ones in the given number.

**Program:**

```
        AREA BASIC,CODE,READONLY
        ENTRY
        EXPORT __main
__main
        LDR R0,=0X10000000
```

```
        LDRB R1,[R0]
        MOV R4,#8
        MOV R3,#00
        MOV R5,#00
AGAIN LSRS R1,#1
        ADDCS R3,#1
        ADDCC R5,#1
        SUB R4,#1
        CMP R4,#00
        BNE AGAIN
        STR R3,[R0,#4]
        STR R5,[R0,#8]
        NOP
        END
```

**Output:**

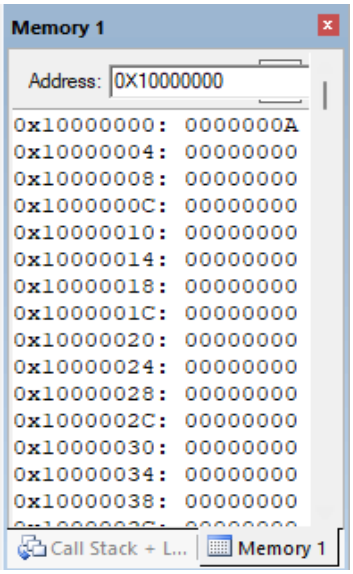


Fig 3.1- Data values entered

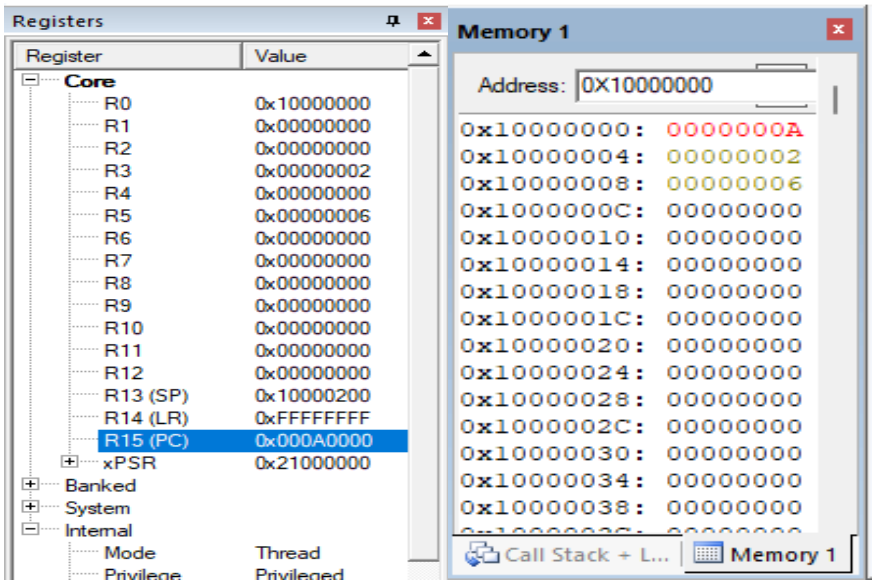


Fig 3.2- Result obtained

4. Write a program to compute the sum of 5 terms Arithmetic progression 1st term is 3 and common difference is 7

**Program:**

```
        AREA BASIC,CODE,READONLY
         ENTRY
         EXPORT __main
    __main
          MOV R0,#5
          MOV R1,#3
    AGAIN ADD R1,#7
          SUB R0,#1
          CMP R0,#00
          BNE AGAIN
          NOP
          END
```

**Output:**

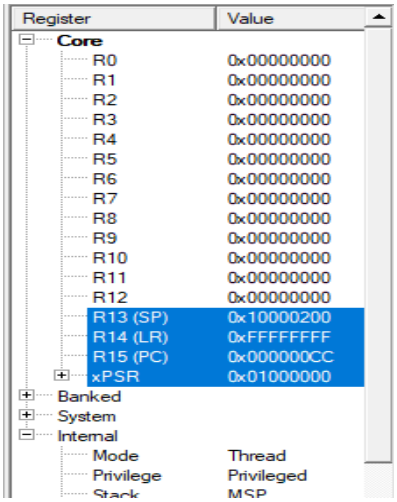


Fig 4.1- Before execution

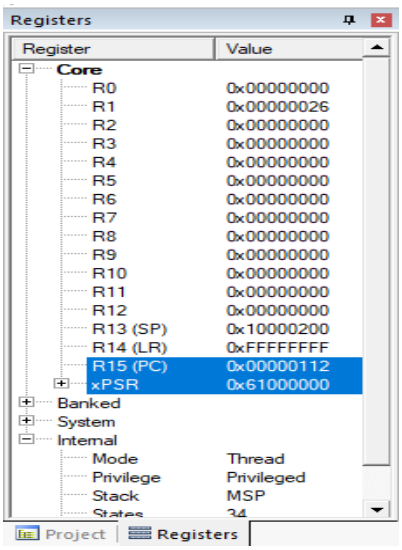


Fig 4.2- Result obtained in R1 register