LAB NO: 3

PROGRAMS ON ARITHMETIC INSTRUCTIONS

❑ Objectives:

Identify and use the instructions required to perform addition and subtraction.

Debug and trace the programs.

Write a program to add two 32 bit numbers available in the code memory. Store the result in the data memory

```
        AREA    RESET, DATA, READONLY
        EXPORT  __Vectors


__Vectors
        DCD  0x40001000    ; stack pointer value when stack is empty
        DCD  Reset_Handler ; reset vector


        ALIGN
        AREA mycode, CODE, READONLY
        ENTRY
        EXPORT Reset_Handler
```

```
Reset_Handler
        LDR R0, =VALUE1   ;pointer to the first value1
        LDR R1, [R0]       ;load the first value into R1
        LDR R0, =VALU2    ;pointer to the second value
        LDR R3, [R0]       ;load  second number into r3
        ADDS R6, R1, R3    ;add two numbers and store the result in r6
        LDR R2, =RESULT
        STR R6, [R2]
```

```
        STOP
                B STOP
VALUE1 DCD 0X12345678          ; First 32 bit number
VALUE2 DCD 0XABCDEF12          ; Second 32 bit number
                AREA data, DATA, READWRITE
RESULT DCD 0
                END
```

Lab Exercises:

1. Write a program to add ten 32 bit numbers available in code memory and store the result in data memory.
2. Write a program to add two 128 bit numbers available in code memory and store the result in data memory.
   Hint: Use indexed addressing mode.
3. Write a program to subtract two 32 bit numbers available in the code memory and store the result in the data memory.
4. Write a program to subtract two 128 bit numbers available in the code memory and store the result in the data memory.