



Artificial Intelligence and Data Science Department.

MP / Even Sem 2021-22 / Experiment 1.

YASH SARANG.

47 / D6AD.

EXPERIMENT - 1.

AIM: Use of programming tool (TASM) to perform basic arithmetic operations on 8-bit/16-bit data.

(Addition and Subtraction is implemented here)

THEORY:

EQUIPMENT REQUIRED:

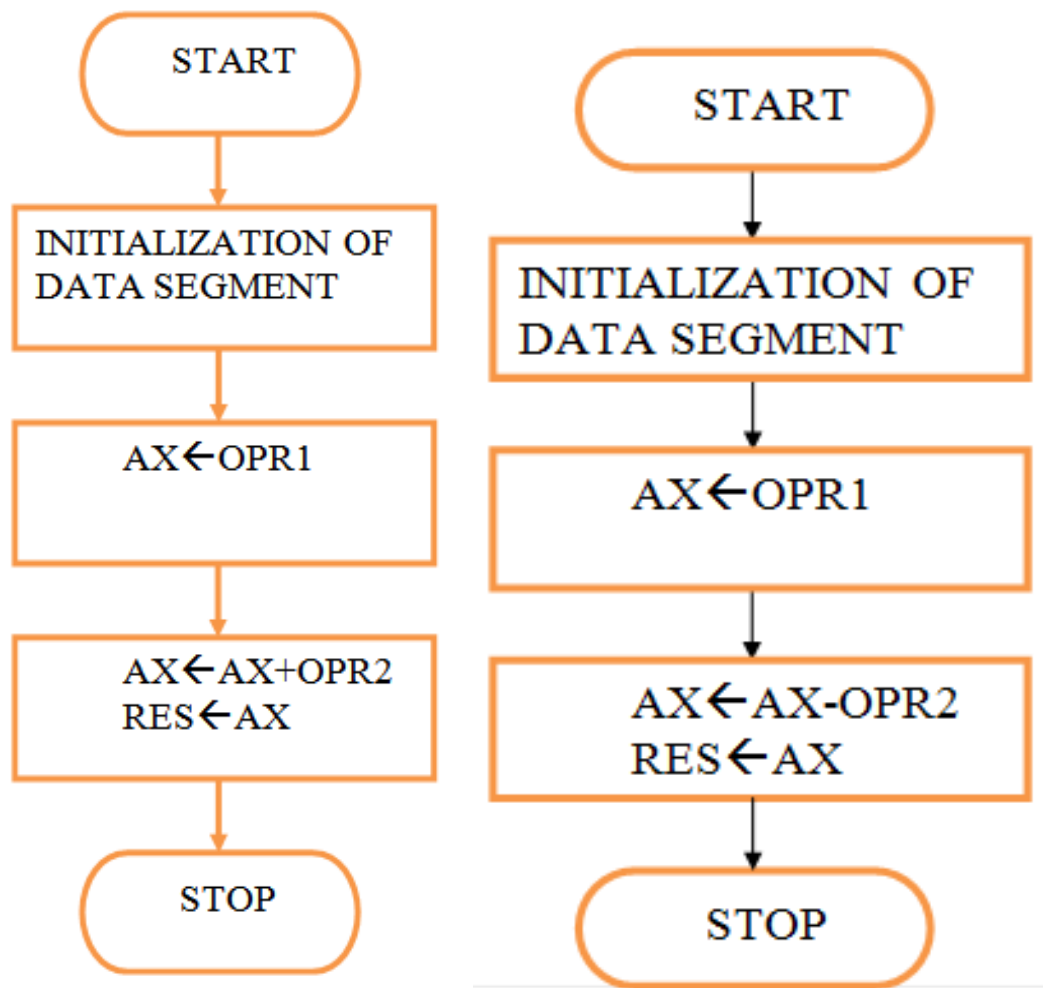
1. TASM Software
2. PC with DOS and Debug program

ALGORITHM:

1. Define the values in the data segment as per the addressing mode.
2. Initialize the data segment register with data segment address
3. Load the words as per the addressing mode and perform addition/ subtraction/ multiplication/ division and store the sum/ difference/ product/ quotient-remainder to the result address.
4. Terminate the program

Flow Chart:

Addition, subtraction respectively :



PROGRAMS (using register addressing mode):

A. 16 BIT ADDITION

```

1          assume cs:code,ds:data
2
3  0000          data segment
4  0000 1243      n1 dw 1243h
5  0002 4567      n2 dw 4567h
6  0004 ???       n3 dw ?
7  0006          data ends
8
9  0000          code segment
10
11  0000          start:
12  0000 B8 0000s  mov ax,data
13  0003 8E D8     mov ds,ax
14

```

15	0005 A1 0000r	mov ax,n1
16	0008 8B 1E 0002r	mov bx,n2
17	000C 03 C3	add ax,bx
18	000E A3 0004r	mov n3,ax
19	0011 BE 0004r	lea si,n3
20	0014 CC	int 3
21		
22	0015	code ends
23		end start

B. 16 BIT SUBTRACTION

1		assume cs:code,ds:data
2		
3	0000	data segment
4	0000 FFFF	n1 dw 0ffffh
5	0002 4567	n2 dw 4567h
6	0004 ????	n3 dw ?
7	0006	data ends
8		
9	0000	code segment
10		
11	0000	start:
12	0000 B8 0000s	mov ax,data
13	0003 8E D8	mov ds,ax
14		
15	0005 A1 0000r	mov ax,n1
16	0008 8B 1E 0002r	mov bx,n2
17	000C 2B C3	sub ax,bx
18	000E A3 0004r	mov n3,ax
19	0011 BE 0004r	lea si,n3
20	0014 CC	int 3
21		
22	0015	code ends
23		end start

RESULT:

A. 16 BIT ADDITION

AX= 57AA & SI=0004 ; D 0004 0005 AA 57

B. 16 BIT SUBTRACTION

AX= BA98 & SI=0004 ; D 0004 0005 98 BA
