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Department of Computer Engineering

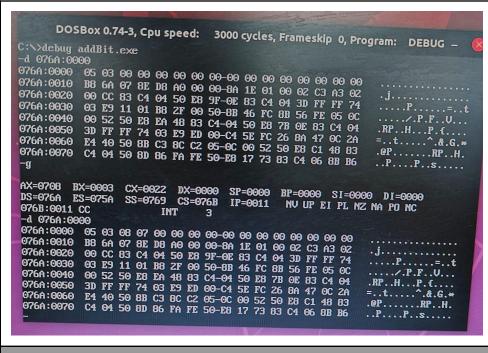
Name	Sujal Dingankar
UID no.	2024301005
Experiment No.	1

AIM:	To implement various Arithmetic Operations through Assembly Language Programming for microprocessor 8086 (MASM)		
	Program 1		
PROBLEM STATEMENT:	To perform 8 -bit addition of two numbers.		
PROGRAM:	data segment a db 05h b db 03h c dw ? data ends code segment assume cs:code,ds:data start: mov ax,data mov ds,ax mov al,a mov bl,b add al,bl mov c,ax int 3 code ends end start		
RESULT:			

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Program 2	
PROBLEM STATEMENT :	To perform 8- bit substraction of two numbers.
PROGRAM:	data segment a db 05h b db 02h c dw ? data ends code segment assume cs:code,ds:data start: mov ax,data mov ds,ax mov al,a mov bl,b add al,bl mov c,ax int 3 code ends

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	end start
ESULT:	
DOSPAY 0.74.3	Coursed 3000 and as France in O Brosson DEBUG
	Cpu speed: 3000 cycles, Frameski 0, Program: DEBUG – 🛞
C:\>debug SUB.exe -d 076A:0000	
	00 00 00 00 00-00 00 00 00 00 00 00 00
	BE D8 A0 00 00-8A 1E 01 00 2A C3 A3 02 .j E8 2A 00 E8 27-00 E8 24 00 E8 21 00 E8*'\$!
076A:0030 1E 00 E8	1B 00 E8 18 00-E8 15 00 E8 12 00 E8 0F
	90 E8 09 00 E8-06 00 E8 03 00 E8 00 00
	A3 78 13 8C CO-87 46 O4 5D 2D D3 12 51 %×F.JQ
076A:0070 B1 03 F6 : -g	F1 59 C1 E0 02-89 26 76 13 8C 16 74 13Y&vt.
076B:0011 CC -d 076A:0000 076A:0000 05 02 03 0 076A:0010 B8 6A 07 0 076A:0020 00 CC 00 1 076A:0030 1E 00 E8 0 076A:0040 00 E8 0C 0 076A:0050 FA 1E 2E 0 076A:0060 25 FF BC 0	=0769 CS=076B IP=0011 NV UP EI PL NZ NA PE NC INT 3 07 00 00 00 00-00 00 00 00 00 00 00 00 00
	Program 3
PROBLEM STATEMENT:	To perform 16-bit addition of two numbers.
PROGRAM:	data segment
	a db 0202h
	b db 0804h
	c dw?
	data ends
	data chas
	code segment
	code segment

assume cs:code,ds:data

start:

mov ax,data mov ds,ax

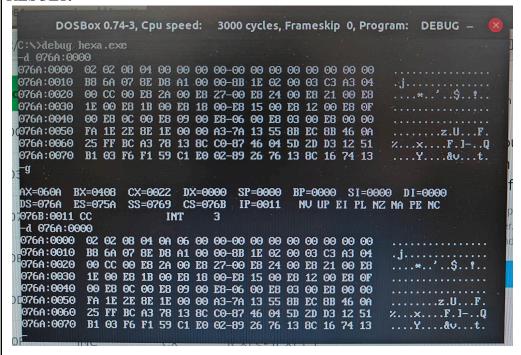
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mov ax,a
mov bx,b add ax,bx
mov c,ax
int 3 code ends
end start

RESULT:



Program 4	
PROBLEM STATEMENT:	To perform 32-bit addition of two numbers.
PROGRAM:	data segment abc dd 78563412h def dd F0DEBC98H ghi dw ? data ends code segment assume cs:code, ds:data

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start:
mov ax, data
mov ds, ax
mov dl, 00h
mov ax, word ptr abc
mov bx, word ptr def
add ax,bx
mov word ptr ghi,ax
mov ax, word ptr abc+2
mov bx, word ptr def+2
adc ax,bx
code ends
end start

RESULT:

```
DOSBox 0.74-3, Cpu speed: 3000 cycles, Frameskip 0, Program: DEBUG –
C:\>debug bit32.exe
-d 076A:0000
076A:0000 78 56 34 12 F0 DE BC 9A-00 00 00 00 00 00 00 00 00 076A:0010 B8 6A 07 8E D8 B2 00 A1-00 00 8B 1E 04 00 03 C3
076A:0020 A3 08 00 A1 02 00 8B 1E-06 00 13 C3 A3 0A 00 73
076A:0040 00 E8 0C 00 E8 09 00 E8-06 00 E8 03 00 E8 00 00
076A:0050
           FA 1E ZE 8E 1E 00 00 A3-7A 13 55 8B EC 8B 46 0A
                                                                   .....z.U...F.
076A:0060 25 FF BC A3 78 13 8C CO-87 46 04 5D 2D
                                                      D3 12 51
                                                                  и...х....F.1-..Q
076A:0070 B1 03 F6 F1 59 C1 E0 02-89 26 76 13 8C 16 74 13
                                                                  ....Y....&v...t.
AX-ACF1 BX-9ABC CX-0038 DX-0000 SP-0000 BP-0000 SI-0000 DI-0000
DS-076A ES-075A SS-0769 CS-076B IP-0027 NV UP EI NG NZ AC PO NC
                                                 NU UP EI NG NZ AC PO NC
076B:0027 CC
                          INT
-d 076A:0000
           78 56 34 12 F0 DE BC 9A-68 35 F1 AC 00 00 00 00 B8 6A 07 8E D8 B2 00 A1-00 00 8B 1E 04 00 03 C3
076A:0000
                                                                  xV4.....h5.....
076A:0010
                                                                  .j.....
           A3 08 00 A1 02 00 8B 1E-06 00 13 C3 A3 0A 00 73
076A:0020
           92 FE C2 88 16 9C 99 CC-E8 15 99 E8 12 99 E8 9F
076A:0030
076A:0040
            00 E8 OC 00 E8 09 00 E8-06 00
                                            E8 03 00 E8
076A:0050
           FA 1E 2E 8E 1E 00 00 A3-7A 13 55 8B EC 8B 46 0A
                                                                  .....z.U...F.
076A:0060
            25 FF BC A3 78 13 8C CO-87 46 04 5D 2D D3 12 51
                                                                  χ....x....F.1−..Q
076A:0070
            B1 03 F6 F1 59 C1 E0 02-89 26 76 13 8C 16 74 13
                                                                  ....Y....&v...t.
```

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CONCLUSION:	In this experiment, I got acquainted with the basics of 8086 assembly
	language programming and solved various arithmetic operations.