Lab-2

Objective 1: Find the sum and average of N numbers (integer numbers).

Program:

; Find sum and average of N 16-bit number

```
MOV SI,5000H
MOV CL,[SI]                    ;DECLARE N IN THE MEMORY LOCATION 5000H
MOV BL,CL
MOV BH,00H                     ;  OPTIONAL
MOV DX,0000;                   ;  OPTIONAL
MOV AX,0000H
MOV DL,00H
L2: INC SI
   INC SI                      ;16-bit data to be given from 2002 Memory location onwards
   ADD AX,[SI]
   JNC L1
   INC DL
L1: DEC CL
   JNZ L2
   DIV BX
   INC SI
   INC SI
   MOV [SI],AX
   INC SI
   INC SI
   MOV [SI],DX
   HLT
```

Objective 2: **Count no. of 0s in an 8-bit number.**

Program:

; counting no of 0s using direct addressing mode

```
   MOV BX,     ; SI CAN BE USED INSTEAD OF BX
         MOV AL,[ 2000H]        ; DATA TO BE ENTERED IN 2000 MEMORY LOCATION
          MOV CL,08H
         MOV BL,00H
L2:      SHR AL,1H
          JC L1
```

```
        INC BL
L1:     DEC CL
        JNZ L2
        INC BX
        MOV [2001],BL      ; RESULT TO BE CHECKED IN 2001 MEMORY LOCATION
        HLT
```

Objective 3: Move a block of 16-bit data from one location to another.

Program:

```
; Move a block of 16-bit data from one location to another (Intra Segment Transfer).
   MOV AX,2000H
    MOV DS,AX       ; DS=2000H
    MOV SI, 3000H
    MOV DI, 5000H
     MOV CL,05H
L1: MOV BX,[SI]
     MOV [DI],BX
     INC SI
     INC SI
     INC DI
     INC DI
     DEC CL
     JNZ L1
      HLT
```

Obj-4 Multiplication of two 16-bit numbers without using MUL instruction using direct addressing mode.

Program:

```
     MOV BX, [1000H]  ; BX = MULTIPLICAND
     MOV CX, [1002H]   ; CX = MULTIPLIER
     MOV DX,0000H     ; DX= STORES HIGHER 16-BIT RESULTS
     MOV AX, 0000H
L2:  ADD AX,BX
     JNC L1
     INC DX
L1:  DEC CX
     JNZ L2
     MOV [1004H], AX
     MOV [1006H], DX
     HLT
```