Program

```
ASSUME CS:CODE, DS:DATA

DATA SEGMENT
MSG1 DB 0AH, 0DH, "Enter 1st Number: $"
MSG2 DB 0AH, 0DH, "Enter 2nd Number: $"
RESULT DB 0AH, 0DH, "The Sum is: $"
DATA ENDS

CODE SEGMENT
START: MOV AX, DATA
       MOV DS, AX

       LEA DX, MSG1
       MOV AH, 09H
       INT 21H

       MOV AH, 01H ; Read 1st
       INT 21H       digit of 1st
                     no.
       MOV BH, AL

       MOV AH, 01H; Read 2nd
       INT 21H      digit of 1st
                    no.
       MOV BL, AL

       LEA DX, MSG2
       MOV AH, 09H
       INT 21H

       MOV AH, 01H; Read 1st
       INT 21H      digit of 2nd
                    no.
       MOV CH, AL
       MOV AH, 01H; Read 2nd
       INT 21H      digit of 2nd
                    no.
       MOV CL, AL

       MOV AH, 00H ; Clear AH
       MOV AL, BL
       ADD AL, CL
       AAA
       ADD AX, 3030H
       MOV BL, AL
       MOV AL, AH ; Move carry
                    to AL
       MOV AH, 00H
       ADD AL, BH
       ADD AL, CH
       AAA
       ADD AX, 3030H ; Convert to ASCII
       MOV BH, AL
       MOV CL, AH
       LEA DX, RESULT
       MOV AH, 09H
       INT 21H
       MOV DL, CL
       MOV AH, 02H ; To display output
       INT 21H
       MOV DL, BH
       MOV AH, 02H ; To display output
       INT 21H
       MOV DL, BL
       MOV AH, 02H ; To display output
       INT 21H

       MOV AH, 4CH ; To terminate program
       INT 21H
CODE ENDS
END START
```

Output

```
Enter 1st Number: 99
Enter 2nd Number: 99
The Sum is: 198
```

Experiment Name / No.: 3: ADDITION OF TWO 8-BIT NUMBERS

Camlin Page No. 15
Date 23 / 01 / 2020

Aim

To perform the addition of two 8-bit numbers.

Logic

The Most Significant Digit (MSD) of the first number is read into BH & the Least Significant Digit (LSD) into BL. The MSD of the second number is read into CH & the LSD into CL.

BL is moved to AL & CL is added to AL. AH is cleared & AAA is performed. AH has the carry from the LSD & it is stored in AL. AL contains the sum digit & it is converted to ASCII by adding 30H. It is then moved to BL.

AH is cleared, BH is added to AL & CH is added to AL. AAA is performed. The carry in AH is converted to ASCII by adding 30H & it is stored in CL. The sum term in AL is converted to ASCII by adding 30H & it is stored in BH. The output is shown using CL as MSD, BH as the next significant digit & BL as the LSD.

Result

Performed the addition of two 8-bit numbers.

Teacher's Signature: