**Practical - 27**

**Aim:** Write an assembly language program to Display Digits 0 1 2 3 4 5 6 7 8 9 A B C D E F on output screen with 1 second of delay between each number print.

**Description of instructions used:**

**MOV** − Used to copy the byte or word from the provided source to the provided destination. **Subroutine** - special segment of program that can be called for execution from any point in a program

• Program structure that implements HLL “functions” and “procedures”

• Written as a subroutine and only included once in the program

**Instructions**

♣ Call instruction - initiates the subroutine from the main part of program

♣ Return instruction - initiates return of control to the main program at completion of the subroutine

♣ Push and pop instructions used to save register content and pass parameters

LOOP - The LOOP instruction is mainly used to simulate the different loops in HLL. The Loop instructions use the CX register to indicate the loop count.

The syntax of the Loop instruction is:

**LOOP label**

♣ The Loop instruction decrements CX without changing any flags

♣ If CX is not zero after the decrement, control is transferred to the destination label

♣ The jump is a SHORT jump only

INT 15h - This suspends execution of the caller for the specified interval.

♣ CX,DX interval in microseconds (1,000,000ths of a second) CX is high word, DX is low word

♣ Interrupts are enabled during the delay.

♣ The interval is set in microseconds with CX and DX being the high and low words, respectively.

♣ 1,000,000 microseconds = 1 second; for instance, to set an interval for 2 seconds, set CX=001eH and DX=8480H.

♣ Upon expiration of the interval, control returns to the caller and bit 7 of the byte at 0040:00A0 in the BIOS Data Area will be set.

♣If CX and DX are both 0000H on entry, no action is taken.

♣ In most systems, the finest possible resolution is about 1000 microseconds (about one one-thousandth of a second). Thus, CX must be at least 1000 (03e8H) for this to be useful.

♣ If you want to set a timer and continue processing, use INT 15H 8300H.

**Code:**

.model pract27

.data

str db "0123456789ABCDEF"

.code

mov dx, data

mov ds, dx

mov di, offset str

mov cx, 16

PRINT:

mov bx, cx

mov dx, [di]

mov ah, 2

int 33

inc di

call delay

mov cx, bx

loop PRINT

hlt

delay proc

mov cx, 0fh

mov dx, 4240h

mov ah, 86h

int 15h

ret

delay endp

**Output:**



