```
.MODEL SMALL
.DATA

PA EQU 0D800H
PB EQU 0D801H
PC EQU 0D802H
CW EQU 0D803H

NUM DW 0FFFFH              ;16 bit input number taken

TABLE DB 0C0H, 0F9H, 0A4H, 0B0H, 99H, 92H, 82H, 0F8H, 80H, 90H              ; 0 1 2 3 .... 9
numbers
LIST DB 0FFH, 0FFH, 0FFH, 0FFH, ? , ? , ? , ? , ? , 0FFH, 0FFH, 0FFH, 0FFH

.CODE
MOV AX,@DATA
MOV DS,AX

MOV DX,CW          ;all ports are output
MOV AL,80H
OUT DX,AL

mov ax,NUM         ;AX = NUM
MOV CX,00H         ;Counter is 0
MOV BX,010D

L1:
        MOV DX,00H
        DIV BX             ;divide by 10
        PUSH DX            ;push remainder, the last digit
        INC CX
        CMP AX,00H
JNZ L1

LEA SI,LIST+8
LEA BX,TABLE       ;converting to BCD digits

L2:
        POP AX
        XLAT               ;match with the table which is in bx
        MOV [SI],AL        ;store it in list digits in BCD
        DEC SI                     ;in reverse order
LOOP L2
```

```
mov bh,010d                ; display from left To right
lea di,list

l3:
        mov si,di          ;si is going to change when display is used
        call DISPLAY
        call DELAY
        INC DI
        DEC BH                      ;loop for 10 times
JNZ L3

MOV BH,09D                 ; display from right to left
lea DI,LIST+8

L4:
        MOV SI,DI
        CALL DISPLAY
        CALL DELAY
        DEC DI
        DEC BH                      ;loop for 9 times
JNZ L4

mov ah,4ch
int 21h

DISPLAY PROC NEAR          ;display using port B for LED
  MOV CX,04H
  letter:
                MOV BL,08H
                MOV AL,[SI]
                segments:
                        ROL AL,01H
                        MOV DX,PB   ;7 segment display with port B
                        OUT DX,AL

                        PUSH AX
                        MOV AL,00H  ;clock trigger
                        MOV DX,PC
                        OUT DX,AL
                        MOV AL,01H
                        OUT DX,AL
                        POP AX
```

```
                DEC BL
            JNZ segments

            INC SI
        LOOP letter
RET
DISPLAY ENDP

DELAY PROC NEAR
        PUSH SI
        PUSH DI

        MOV SI,0FFFFH
        Outer:
            MOV DI,0FFFFH
            Inner:
                DEC DI
            JNZ Inner
            DEC SI
        JNZ Outer

        POP DI
        POP SI
        RET
DELAY ENDP

END
```