Experiment 7

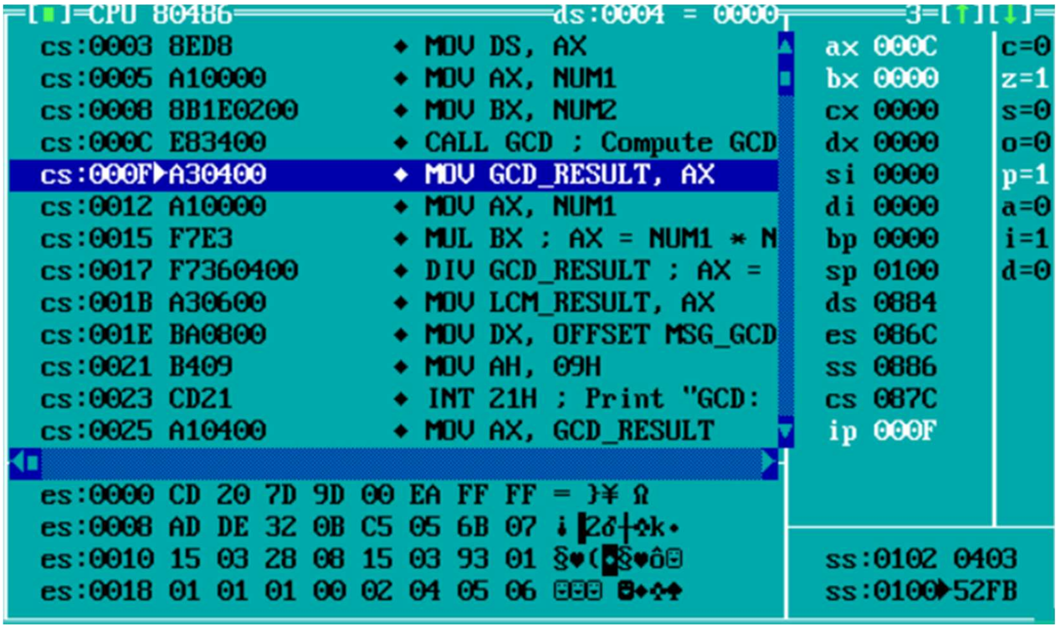
Name:Pratik Chavan

Div/Batch:A/A1   Roll No.07

```
.MODEL SMALL
.STACK 100H
.DATA
   NUM1 DW 36       ; First number
   NUM2 DW 24       ; Second number
   GCD_RESULT DW ?   ; Store GCD result
   LCM_RESULT DW ?   ; Store LCM result
   MSG_GCD DB 'GCD: $'
   MSG_LCM DB ' LCM: $'
   NEWLINE DB 0DH, 0AH, '$'  ; New line for output formatting

.CODE
MAIN PROC
   MOV AX, @DATA
   MOV DS, AX

   MOV AX, NUM1
   MOV BX, NUM2
   CALL GCD        ; Compute GCD
   MOV GCD_RESULT, AX

   MOV AX, NUM1
   MUL BX          ; AX = NUM1 * NUM2
```

```
    DIV GCD_RESULT   ; AX = LCM (Product / GCD)
    MOV LCM_RESULT, AX

    MOV DX, OFFSET MSG_GCD
    MOV AH, 09H
    INT 21H         ; Print "GCD: "

    MOV AX, GCD_RESULT
    CALL PRINT_NUM   ; Print GCD

    MOV DX, OFFSET NEWLINE
    MOV AH, 09H
    INT 21H         ; Print new line

    MOV DX, OFFSET MSG_LCM
    MOV AH, 09H
    INT 21H         ; Print " LCM: "

    MOV AX, LCM_RESULT
    CALL PRINT_NUM   ; Print LCM

    MOV AH, 4CH
    INT 21H         ; Exit program
MAIN ENDP

; GCD Procedure (Euclidean Algorithm)
GCD PROC
    CMP BX, 0
    JE END_GCD
GCD_LOOP:
    MOV DX, 0
    DIV BX          ; AX = AX / BX, Remainder in DX
    MOV AX, BX
    MOV BX, DX
    CMP BX, 0
    JNE GCD_LOOP
END_GCD:
    RET
GCD ENDP

; Print Number Procedure
PRINT_NUM PROC
    MOV CX, 0
NEXT_DIGIT:
    MOV DX, 0
    MOV BX, 10
    DIV BX          ; AX / 10 → Quotient in AX, Remainder in DX
    PUSH DX
    INC CX
    TEST AX, AX
    JNZ NEXT_DIGIT

PRINT_LOOP:
    POP DX
    ADD DL, '0'
    MOV AH, 02H
    INT 21H
    LOOP PRINT_LOOP

    RET
PRINT_NUM ENDP

END MAIN
```

OUTPUT:



```
=[■]=CPU 80486=================ds:0004 = 0000=========3=[↑][↓]=
  cs:0003 8ED8            ◆ MOV DS, AX                 ax 000C   c=0
  cs:0005 A10000          ◆ MOV AX, NUM1               bx 0000   z=1
  cs:0008 8B1E0200        ◆ MOV BX, NUM2               cx 0000   s=0
  cs:000C E83400          ◆ CALL GCD ; Compute GCD     dx 0000   o=0
  cs:000F▸A30400          ◆ MOV GCD_RESULT, AX         si 0000   p=1
  cs:0012 A10000          ◆ MOV AX, NUM1               di 0000   a=0
  cs:0015 F7E3            ◆ MUL BX ; AX = NUM1 * N     bp 0000   i=1
  cs:0017 F7360400        ◆ DIV GCD_RESULT ; AX =      sp 0100   d=0
  cs:001B A30600          ◆ MOV LCM_RESULT, AX         ds 0884
  cs:001E BA0800          ◆ MOV DX, OFFSET MSG_GCD     es 086C
  cs:0021 B409            ◆ MOV AH, 09H                ss 0886
  cs:0023 CD21            ◆ INT 21H ; Print "GCD:      cs 087C
  cs:0025 A10400          ◆ MOV AX, GCD_RESULT         ip 000F

  es:0000 CD 20 7D 9D 00 EA FF FF = }¥ Ω
  es:0008 AD DE 32 0B C5 05 6B 07 ¡▐2♂┼♣k•
  es:0010 15 03 28 08 15 03 93 01 §♥(◘§♥ô☺     ss:0102 0403
  es:0018 01 01 01 00 02 04 05 06 ☺☺☺ ☻♦♣♠     ss:0100▸52FB
```