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
```

```asm
        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 ¡ 2δ┼⇧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
```