**Problem statement:**

An assembly program that will ask user to enter a hex digit (0-9 …A-F) and print it’s decimal value and promt user if he wants to continue.If yes again enter a hex value else terminate program.If user enters wrong input 3 times program will terminate.

**Code:**

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| .MODEL SMALL  .STACK 100H  .DATA  MSG\_ENTER DW 10,13,"ENTER A HEX DIGIT: $"  MSG\_DEC DW 10,13,"IN DECIMAL IT IS: $"  MSG\_WRONG\_INPUT DW 10,13,"ILLEGAL CHARACTER - ENTER 0 .. 9 OR A .. F:$"  ONE DW '1$'  AGAIN DW 10,13,10,13,'DO YOU WANT TO DO IT AGAIN(YES:y/Y,NO:OTHER) ? $'    T DW 10,13,10,13,'EXIT PROGRAM$'  .CODE  MAIN PROC  MOV AX,@DATA  MOV DS,AX  MOV BH,0    ENTER\_HEX:  ;ENTER HEX DIGIT  LEA DX,MSG\_ENTER  MOV AH,9  INT 21H  ;INPUT A CHARACTER  MOV AH,1  INT 21H  MOV BL,AL  ;IF BL>=A && BL <=F  CMP BL,'A'  JNGE ELSE\_IF  CMP BL,'F'  JNLE ELSE\_IF | ;PRINT DEC MSG  LEA DX,MSG\_DEC  MOV AH,9  INT 21H    ;PRINT 1  LEA DX,ONE  MOV AH,9  INT 21H    SUB BL,17  MOV AH,2  MOV DL,BL  INT 21H  JMP END\_IF    ELSE\_IF:  ;BL>=0 , BL<=9  CMP BL,'0'  JNGE ELSE  CMP BL,'9'  JNLE ELSE  ;PRINT DEC MSG  LEA DX,MSG\_DEC  MOV AH,9  INT 21H    MOV AH,2  MOV DL,BL  INT 21H    JMP END\_IF  ELSE:  ;WRONG INPUT  LEA DX,MSG\_WRONG\_INPUT  MOV AH,9  INT 21H | INC BH    CMP BH,3  JNGE ENTER\_HEX  JGE EXIT      END\_IF:  LEA DX,AGAIN  MOV AH,9  INT 21H  MOV AH,1  INT 21H  MOV BL,AL    CMP BL,'Y'  JE ENTER\_HEX    CMP BL,'y'  JE ENTER\_HEX      EXIT:  LEA DX,T  MOV AH,9  INT 21H  MOV AH,4CH  INT 21H    MAIN ENDP  END MAIN |

**Output:**

