Exp No: 8 **Date:** 19/10/2020

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CASE CONVERSION

Aim:

To program and execute case conversions using 8086 microprocessor using DOSBOX.

Algorithm:

- Count carries the value od number of characters.
- In a loop input characters. Compare input value with 60h.
- If AL>60h, move to upper.
- Else add 20h.then move to skip.
- In Upper subtract 20h from AL.
- In skip output character using mov functions.
- End the program.

PROGRAM	*COMMENT*
; Program to convert case	
ASSUME *CS: CODE, DS: data*	
data SEGMENT	DEFINE DATA SEGMENT
COUNT equ 10h	

```
data ends

CODE SEGMENT

START:  MOV AX, data
        MOV DS, AX
        MOV CX, COUNT        LOOP COUNTER
        L1:MOV AH,1,         INPUT CHARACTER
        INT 21H

        CMP AL,60H           IF AL IS greater THAN 60
        JNC UPPER
        ADD AL,20H
        JMP SKIP             CONVERT TO UPPER CASE
UPPER:  SUB AL,20H           CHARACTER OUTPUT FUNCTION
SKIP:   MOV AH,2             CHARACTER MUST BE IN DL
        MOV DL, AL           DISPLAY THE CHARACTER
        INT 21H              REPEAT LOOP
        LOOP L1
        MOV AH,4CH           TERMINATE THE PROGRAM
        INT 21H

CODE ENDS

end start
```

Unassembled Code:

```
-u
076A:0000 B86A07        MOV     AX,076A
076A:0003 8ED8          MOV     DS,AX
076A:0005 B91000        MOV     CX,0010
076A:0008 B401          MOV     AH,01
076A:000A CD21          INT     21
076A:000C 3C60          CMP     AL,60
076A:000E 7304          JNB     0014
076A:0010 0420          ADD     AL,20
076A:0012 EB02          JMP     0016
076A:0014 2C20          SUB     AL,20
076A:0016 B402          MOV     AH,02
076A:0018 8AD0          MOV     DL,AL
076A:001A CD21          INT     21
076A:001C E2EA          LOOP    0008
076A:001E B44C          MOV     AH,4C
-
```

Snapshot of sample input and output:

INPUT:

```
-d 076a:0000
076A:0000  B8 6A 07 8E D8 B9 10 00-B4 01 CD 21 3C 60 73 04   .j.........!<`s.
076A:0010  04 20 EB 02 2C 20 B4 02-8A D0 CD 21 E2 EA B4 4C   . .., .....!...L
076A:0020  CD 21 80 BF B8 2C 00 75-05 88 46 F8 EB 1E 8A 5E   .!...,.u..F....^
076A:0030  F9 B7 00 D1 E3 8B 87 AE-16 3B 46 FE 77 09 89 46   .........;F.w..F
076A:0040  FE 8A 46 F9 88 46 F8 FE-46 F9 EB C9 8A 5E F8 B7   ..F..F..F....^..
076A:0050  00 8A 87 48 2F D0 D8 73-17 E8 B6 00 8A 5E F8 B7   ...H/..s.....^..
076A:0060  00 8A 87 48 2F D0 D8 73-07 53 B0 01 50 E8 73 01   ...H/..s.S..P.s.
076A:0070  A0 B6 2C 3A 46 F8 74 7E-C7 46 FA 00 00 8A 46 F8   ..,:F.t~.F....F.
-
```

OUTPUT:

```
-g
aAAabBBbcCCcdDDdeEEefFFfgGGghHHh
Program terminated normally
-
-d 076a:0000
076A:0000  B8 6A 07 8E D8 B9 10 00-B4 01 CD 21 3C 60 73 04   .j.........!<`s.
076A:0010  04 20 EB 02 2C 20 B4 02-8A D0 CD 21 E2 EA B4 4C   . .., .....!...L
076A:0020  CD 21 80 BF B8 2C 00 75-05 88 46 F8 EB 1E 8A 5E   .!...,.u..F....^
076A:0030  F9 B7 00 D1 E3 8B 87 AE-16 3B 46 FE 77 09 89 46   .........;F.w..F
076A:0040  FE 8A 46 F9 88 46 F8 FE-46 F9 EB C9 8A 5E F8 B7   ..F..F..F....^..
076A:0050  00 8A 87 48 2F D0 D8 73-17 E8 B6 00 8A 5E F8 B7   ...H/..s.....^..
076A:0060  00 8A 87 48 2F D0 D8 73-07 53 B0 01 50 E8 73 01   ...H/..s.S..P.s.
076A:0070  A0 B6 2C 3A 46 F8 74 7E-C7 46 FA 00 00 8A 46 F8   ..,:F.t~.F....F.
```

Result:

The assembly level programs were written to perform the above specified system operations and the output was verified.