Experiment No: 3

Name of The Experiment: Write a 8086 Assembly program to display a '?', read two capital letters, and display them on the next line in alphabetical order.

Theory: The assembly program initially prints '?' and then takes two uppercase character inputs. It compares these characters based on their ASCII codes. If the characters are not entered in ascending order, indicating the second character is smaller than the first, the program displays them in lowercase by adding 20H to their ASCII codes and printing the lowercase equivalents. The code assumes valid uppercase inputs and doesn't address error handling for non-alphabetic characters or lowercase inputs.

Program:

```
.MODEL SMALL
.STACK 100H
.CODE
MAIN PROC
            MOV AH,2
            MOV DL,'?'
            INT 21H             ;display '?'
            MOV AH,1
            INT 21H             ; read 1st char. & put it in BL
            MOV BL,AL
            INT 21H
            MOV CL,AL           ;read 2nd char. in AL
            CMP BL,CL
            JG  SWITCH          ;if not orderd
            JMP CONTINUE
    SWITCH:
            MOV BH,BL
            MOV BL,CL
            MOV CL,BH
    CONTINUE:
            MOV AH,2
            MOV DL, 0AH         ;enter
            INT 21H
            MOV DL,BL
            ADD DL,20H
            INT 21H
            MOV DL,CL
            ADD DL,20H
            INT 21H
```

```
                MOV AH,4CH
                INT 21H
MAIN ENDP
END MAIN
```

Input and Output:

```
  51702 + 464826 Bytes symbol space free

      0 Warning Errors
      0 Severe  Errors

D:\>link D:\test;

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D:\>D:\test
?DF
df
D:\>
```

Comments:

I first print '?' with AH,2 and then take two Capital character inputs by AH,2 one by one and compare them with CMP if they were input orderly according to ascii codes, if not They are displayed in small hand letters in order with AH,2 and ADD 20H.