

### Problem statement:

Input a string and print longest consecutive subsequence.

### Code:

```
.MODEL SMALL
.STACK 100H

.DATA
    PROMPT_1 DB 'ENTER A STRING (ALL CAPITAL LETTERS): $'
    PROMPT_2 DB 0DH,0AH,'THE LONGEST CONSECUTIVELY INCREASING STRING IS
: $'
    INVALID DB 0DH,0AH,'INVALID INPUT. TRY AGAIN : $'

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

    LEA DX, PROMPT_1
    ; LOAD AND DISPLAY THE STRING PROMPT_1
    MOV AH, 9
    INT 21H

    JMP @START

@TRY_AGAIN: ; JUMP LABEL

    LEA DX, INVALID ; LOAD AND DISPLAY THE STRING INVALID
    MOV AH, 9
    INT 21H

@START: ; JUMP LABEL

    MOV AH, 1
    INT 21H ; READ A CHARACTER

    CMP AL, 0DH ; COMPARE AL WITH CARRIAGE RETURN
    JE @TRY_AGAIN ; JUMP TO LABEL @TRY_AGAIN IF AL=CR

    CMP AL, 41H ; COMPARE AL WITH 41H ('A')
    JB @TRY_AGAIN ; JUMP TO LABEL @TRY_AGAIN IF AL<41H

    CMP AL, 5AH ; COMAPRE AL WITH 5AH ('Z')
    JA @TRY_AGAIN ; JUMP TO LABEL @TRY_AGAIN IF AL>5AH

    MOV BL, AL ;BL=AL ->
    MOV BH, AL ;BH=AL
    MOV DH, AL ;DH=AL
    MOV DL, 1 ;DL=1 ->MAX SUBSTRING
    MOV CL, 1 ;CL=1 ->CURRENT MAX SUBSTRING
```

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@INPUT:                                ; LOOP LABEL
    INT 21H                            ; READ A CHARACTER

    CMP AL, 0DH                        ; COMPARE AL WITH CR
    JE @END_INPUT                     ; JUMP TO LABEL @END_INPUT IF AL=CR

    CMP AL, 41H                        ; COMPARE AL WITH 41H
    JB @TRY_AGAIN                     ; JUMP TO LABEL @TRY_AGAIN IF AL<41H

    CMP AL, 5AH                        ; COMAPRE AL WITH 5AH
    JA @TRY_AGAIN                     ; JUMP TO LABEL @TRY_AGAIN IF AL>5AH

    INC BL                            ; SET BL=BL+1

    CMP AL, BL                        ; COMPARE AL WITH BL
    JNE @CHECK_AND_REPLACE            ; JUMP TO LABEL @CHECK_AND_REPLACE IF
AL!=BL

    INC CL                            ; SET CL=CL+1
    JMP @INPUT                        ; JUMP TO LABEL @INPUT

@CHECK_AND_REPLACE:                   ; JUMP LABEL

    CMP CL, DL                        ; COMPARE CL WITH DL
    JLE @SKIP_UPDATION_1             ; JUMP TO LABEL @SKIP_UPDATION_1 IF
CL<=DL

    MOV DH, BH                        ; SET DH=BH
    MOV DL, CL                        ; SET DL=CL

@SKIP_UPDATION_1:                     ; JUMP LABEL

    MOV BH, AL                        ; SET BH=AL
    MOV BL, AL                        ; SET BL=AL
    MOV CL, 1                         ; SET CL=1
    JMP @INPUT                        ; JUMP TO LABEL @INPUT

@END_INPUT:                           ; JUMP LABEL

    CMP CL, DL                        ; COMPARE CL WITH DL
    JLE @SKIP_UPDATION_2             ; JUMP TO LABEL @SKIP_UPDATION_2 IF
CL<=DL

    MOV DH, BH                        ; SET DH=BH
    MOV DL, CL                        ; SET DL=CL

@SKIP_UPDATION_2:                     ; JUMP LABEL

    MOV BX, DX                        ; SET BX=DX

    LEA DX, PROMPT_2                  ; LOAD AND DISPLAY THE STRING PROMPT_2
    MOV AH, 9
    INT 21H

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XOR CX, CX          ; CLEAR CX
MOV CL, BL          ; SET CL=BL

MOV DL, BH          ; SET DL=BH
MOV AH, 2           ; SET OUTPUT FUNCTION

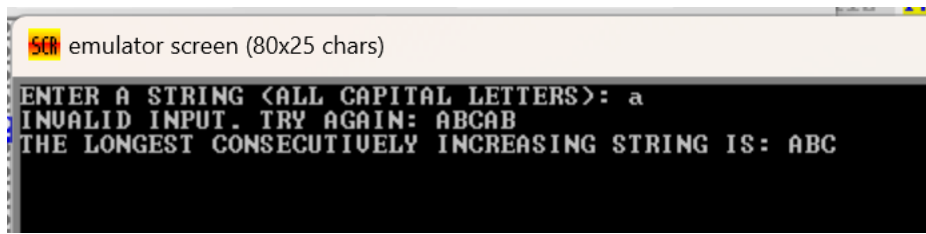
@OUTPUT:            ; LOOP LABEL
    INT 21H         ; PRINT A CHARACTER
    INC DL          ; SET DL=DL+1
    LOOP @OUTPUT    ; JUMP TO LABEL @OUTPUT IF CX!=0

EXIT:
MOV AH, 4CH         ; RETURN CONTROL TO DOS
INT 21H

MAIN ENDP
END MAIN

```

### Output:



```

SCH emulator screen (80x25 chars)
ENTER A STRING <ALL CAPITAL LETTERS>: a
INVALID INPUT. TRY AGAIN: ABCAB
THE LONGEST CONSECUTIVELY INCREASING STRING IS: ABC

```