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LAB TASK # 8

1. Create one PROCEDURE & MACRO. Give reason how this helps you in your code writing.

Code:

The screenshot shows a DOSBox window with the title bar "DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: EDIT" and the file path "C:\NPRO1.ASM". The assembly code is as follows:

```
;program which use macro to print string and procedure to print string in next line
dosseg
print macro p1
    mov dx,offset p1
    mov ah,9
    int 21h
endm
.model small
.stack 100h
.data
str1 db 'Top 10 Famous places in Karachi city$'
str2 db ' 1. Mazar-e-Quaid$'
str3 db ' 2. Frere Hall$'
str4 db ' 3. Mohatta Palace Museum$'
str5 db ' 4. Port Grand Karachi$'
str6 db ' 5. Pakistan Air Force Museum$'
str7 db ' 6. Empress Market$'
str8 db ' 7. Masjid-e-Tooba$'
str9 db ' 8. Do Darya$'
str10 db ' 9. National Museum Of Pakistan$'
str11 db '10. Pakistam Maritime Museum$'
.code
main proc
    mov ax,@data
    mov ds,ax

    print str1          ;to print string we need a 3 lines block of code
    call nextline        ;to print in nextline we need a 6 line block of code
    print str2
    call nextline
    print str3
    call nextline
    print str4
    call nextline
    print str5
    call nextline
    print str6
    call nextline
    print str7
    call nextline
    print str8
    call nextline
    print str9
    call nextline
```

```
print str10
call nextline
print str11

mov ah,4ch
int 21h
main endp
nextline proc
mov dx,10
mov ah,2
int 21h
mov dx,13
mov ah,2
int 21h
ret
nextline endp
end main
```

F1=Help

Line:62 Col:1

Output:

DOSBox 0.74, Cpu speed: 3000 cycles, Frameskip 0, Program: DOSBOX

s:\ 51666 + 464878 Bytes symbol space free

0 Warning Errors
0 Severe Errors

C:\>link pro1.obj;

Microsoft (R) Overlay Linker Version 3.60
Copyright (C) Microsoft Corp 1983-1987. All rights reserved.

C:\>pro1.exe
Top 10 Famous places in Karachi city

1. Mazar-e-Quaid
2. Frere Hall
3. Mohatta Palace Museum
4. Port Grand Karachi
5. Pakistan Air Force Museum
6. Empress Market
7. Masjid-e-Tooba
8. Do Darya
9. National Museum Of Pakistan
10. Pakistam Maritime Museum

C:\>_

Reason:

The use of macro and procedure helps a lot in my recent code.

In the above code I tried to print 11 strings at a time and for this purpose I need to rewrite the code many times

```
Mov dx, offset str1  
Mov ah, 2  
Int 21h
```

So instead of this code I use macro and declare it just one time before my code. And with the help of macro I didn't had to rewrite Block of code 11 times which makes the code easier and also helps in detecting the error and make my code minimal.

And for printing each string on a next line we need to write this block of code which makes our program

```
Mov dx, 10  
Mov ah, 2  
Int 21h  
  
Mov dx, 13  
Mov ah, 2  
Int 21h
```

Complex so for this purpose we use procedure and instead of this code we just declare this one time and use it multiple times in our code. This helps me to save time and reduced the chances of error.