```
init macro
    MOV ax,@data
    MOV ds,ax
endm

prints macro
    MOV ah,09h
    INT 21h
endm

acceptch macro
    MOV ah,01h
    INT 21h
endm

printch macro
    MOV ah,02h
    INT 21h
endm

terminate macro
    MOV ah,04ch
    INT 21h
endm


.model small
.stack 100h
.data

          str1    db 25 DUP ('$')
          rev     db 25 DUP ('$')
          menu    db '1. Print Length',13,10,'2. Reverse String',13,10,'3. Check
Palindrome',13,10,'4. Exit',13,10,'Your Choice : $'
          msg1    db 'Enter String: $'
          msg2    db 13,10,13,10,'Reverse     : $'
          msg3    db 13,10,13,10,'Length      : $'
          msg4    db 13,10,13,10,'It is a Palindrome String$'
          msg5              db 13,10,13,10,'It is Not a Palindrome String$'
          msg6    db 13,10,13,10,'Incorrect Choice$'
          newline db 13,10,13,10,'$'
          flag    db 0
          choice  db ?

.code

       MAIN PROC

          init

          LEA si,str1
          LEA di,rev

          LEA dx,msg1
          prints

          CALL ACCEPT

  loop1:LEA dx,menu
          prints
```

```
        acceptch
        MOV choice,al
        SUB choice,30h

        CALL SWITCH
        JMP loop1

        ret
    ENDP

    SWITCH PROC

case1:CMP choice,1
        JNE case2
        CALL STRLEN
        LEA dx,newline
        prints
        ret

case2:CMP choice,2
        JNE case3
        CALL REVERSE
        LEA dx,newline
        prints
        ret

case3:CMP choice,3
        JNE case4
        CALL PALINDROME
        LEA dx,newline
        prints
        ret

case4:CMP choice,4
        JNE default
        terminate

default:LEA dx,msg6
        prints
        LEA dx,newline
        prints

        ret
    ENDP

    ACCEPT PROC

        MOV dl,[si]
label1: acceptch
        MOV [si],al
        INC flag
        INC si
        CMP al,13
        JNE label1

        ret
    ENDP

    STRLEN PROC
```

```
        LEA dx,msg3
        prints
        MOV dl,flag
        SUB dl,1
        ADD dl,30h
        printch

        ret
    ENDP

    REVERSE PROC

        LEA dx,msg2
        prints

        MOV cl,flag
        SUB si,2

label2: MOV al,[si]
        MOV [di],al
        INC di
        DEC si
        DEC cl
        CMP cl,0
        JNE label2

        LEA dx,rev
        prints

        ret
    ENDP

    PALINDROME PROC

        LEA si,str1
        LEA di,rev
        MOV cl,flag
        SUB cl,1

label3: MOV al,[si]
        MOV bl,[di]
        CMP al,bl
        JNE label5
        INC si
        INC di
        DEC cl
        CMP cl,0
        JNE label3

        LEA dx,msg4
        prints
        ret

label5: LEA dx,msg5
        prints

        ret
    ENDP
end
```