Program :

```
Data Segment
    chc db 0dh,0ah,"Select an operation -------------------- $"
    chc1 db 0dh,0ah," 1. Accept a String $"
    chc2 db 0dh,0ah," 2. Display the String $"
    chc3 db 0dh,0ah," 3. Display the length of string $"
    chc5 db 0dh,0ah," 4. Check Palindrome $"
    chc6 db 0dh,0ah," 5. Exit $"
    len db ?
    msg db 0dh,0ah,"Enter a String: $"
    msg1 db 0dh,0ah,"The length of the entered String is: $"
    msg2 db 0dh,0ah,"The entered String is: $"
    pal db 0dh,0ah,"The String is a Palindrome. $"
    npal db 0dh,0ah,"The String is not a Palindrome. $"
    newl db 0dh,0ah," $"

Data ends

Code Segment
    assume DS:Data,CS:Code

Start:
    mov ax,Data
    mov DS,ax
    call AcceptString

loo:
    mov dx,offset chc
    mov ah,09h
    int 21h
    mov dx,offset chc1
    mov ah,09h
    int 21h
    mov dx,offset chc2
    mov ah,09h
    int 21h
    mov dx,offset chc3
    mov ah,09h
    int 21h
    mov dx,offset chc5
    mov ah,09h
    int 21h
    mov dx,offset chc6
    mov ah,09h
    int 21h
```

```
    mov dx,offset newl
    mov ah,09h
    int 21h
    mov ah,01h
    int 21h
    sub al,30h
    cmp al,05h
    jz exit
    cmp al,04h
    jne n2
    call CheckPal

n2:
    cmp al,03h
    jne n3
    call DisplayLength

n3:
    cmp al,02h
    jne n4
    call DisplayString

n4:
    cmp al,01h
    jne loo
    call AcceptString
    jmp loo

exit:
    mov ah,4ch
    int 21h

AcceptString proc
    mov si,1000h
    mov di,1000h
    mov cx,0000h

    mov dx,offset msg
    mov ah,09h
    int 21h

back:
    mov ah,01h
    int 21h

    cmp al,0dh
    je comp
    inc cx
```

```
    mov [si],al
    mov [di],al
    inc si
    inc di
    jmp back

comp: mov len,cl
    ret
    endp

DisplayString proc
    mov dx,offset msg2
    mov ah,09h
    int 21h
    mov cl,len
    mov ch,00h
    mov si,1000h

disp:
    mov dl,[si]
    mov ah,02h
    int 21h
    inc si
    loop disp
    ret
    endp

DisplayLength proc
    mov dx,offset msg1
    mov ah,09h
    int 21h
    mov bl,len
    call DispNum
    ret
    endp

DispNum proc
    mov al,bl
    and al,0f0h
    ror al,4
    mov dl,al
    call HexDisp
    mov ah,02h
    int 21h
    mov al,bl
    and al,0fh
    mov dl,al
    call HexDisp
```

```
    mov ah,02h
    int 21h
    endp

HexDisp proc
    cmp dl,0ah
    jc nothex
    add dl,07h
    nothex: add dl,30h
    ret
    endp

dispr:
    mov dl,[si]
    mov ah,02h
    int 21h
    dec si
    loop dispr
    ret
    endp

CheckPal proc
    mov al,len
    mov ah,00h
    mov bl,02h
    div bl
    mov cl,len
    dec cl
    mov ch,00h
    mov di,1000h
    mov si,1000h
    add di,cx
    mov cl,al
    mov ch,00h

pchk:
    mov al,[si]
    cmp al,[di]
    jnz np
    inc si
    dec di
    loop pchk
    mov dx,offset pal
    mov ah,09h
    int 21h
    ret

np:
```

```
    mov dx,offset npal
    mov ah,09h
    int 21h
    ret
    endp
Code ends
end Start
```

Output :

```
Enter a String: madam

Select an operation --------------------
 1. Accept a String
 2. Display the String
 3. Display the length of string
 4. Check Palindrome
 5. Exit
 3
The length of the entered String is: 05
Select an operation --------------------
 1. Accept a String
 2. Display the String
 3. Display the length of string
 4. Check Palindrome
 5. Exit
 4
The String is a Palindrome.
Select an operation --------------------
 1. Accept a String
 2. Display the String
 3. Display the length of string
 4. Check Palindrome
 5. Exit
```