

# MICROPROCESSOR LABORATORY

## ASSIGNMENT NO. 2

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Division :- A

## Assignment No. 2

### **Program :**

```
%macro read_or_print 4
```

```
mov Rax, %1
```

```
mov Rdi, %2
```

```
mov Rsi, %3
```

```
mov Rdx, %4
```

```
syscall
```

```
%endmacro
```

```
%macro exit 0
```

```
mov rax,60
```

```
mov rdi,0
```

```
syscall
```

```
%endmacro
```

```
section .data
```

```
msg db 10,13,"Length of the String is:",10,13
```

```
msglen equ $-msg
```

```
section .bss
```

```
str1 resb 200
```

```
result resb 1
```

```
section .text
global _start
_start:

    read_or_print 0,0,str1,200
    call display
    exit

display:
    mov rsi,result+15
    mov rcx,16
loop2: mov rdx,0
    mov rbx,16
    div rbx
    cmp dl,09h
    jbe skip2
    add dl,07h
skip2: add dl,30h
    mov [rsi],dl
    dec rsi
    dec rcx
    jnz loop2
    read_or_print 1,1,msg, msglen
    read_or_print 1,1,result,16
    ret
```

</> Code    ≡ Input    >\_ Output

▶ Run

📄 Save

```
1 %macro read_or_print 4
2 mov Rax, %1
3 mov Rdi, %2
4 mov Rsi, %3
5 mov Rdx, %4
6 syscall
7 %endmacro
8
9 %macro exit 0
10 mov rax,60
11 mov rdi,0
12 syscall
13 %endmacro
14
15 section .data
16 msg db 10,13,"Length of the String is:",10,13
17 msglen equ $-msg
18
19 section .bss
20 str1 resb 200
```

</> Code    ≡ Input    >\_ Output

▶ Run

📄 Save

```
21 result resb 17
22
23 section .text
24 global _start
25 _start:
26
27 read_or_print 0,0,str1,200
28 call display
29 exit
30
31 display:
32 mov rsi,result+15
33 mov rcx,16
34 loop2: mov rdx,0
35         mov rbx,16
36         div rbx
37         cmp dl,09h
38         add dl,07h
39 skip2: add dl,30h
40         dec rsi
```

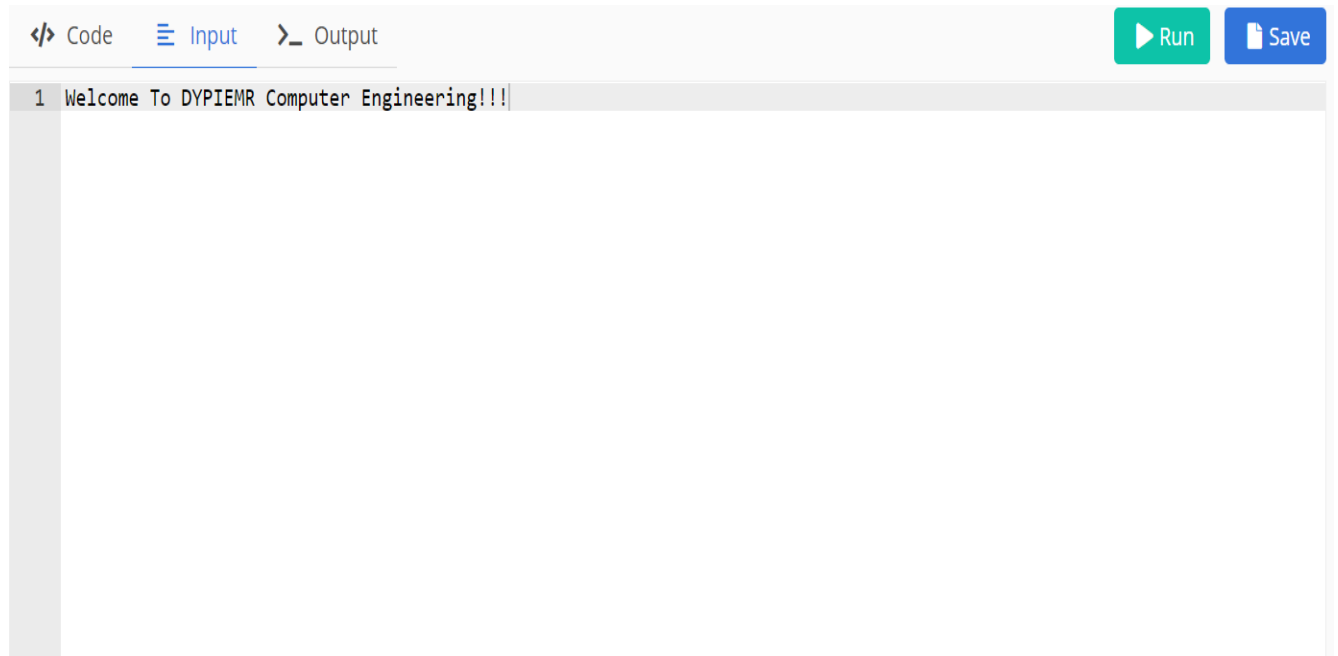
</> Code    ≡ Input    >\_ Output

▶ Run

📄 Save

```
26
27 read_or_print 0,0,str1,200
28 call display
29 exit
30
31 display:
32 mov rsi,result+15
33 mov rcx,16
34 loop2: mov rdx,0
35         mov rbx,16
36         div rbx
37         cmp dl,09h
38         add dl,07h
39 skip2: add dl,30h
40         dec rsi
41         dec rcx
42         jnz loop2
43 read_or_print 1,1,msg,msglen
44 read_or_print 1,1,result,16
45 ret
```

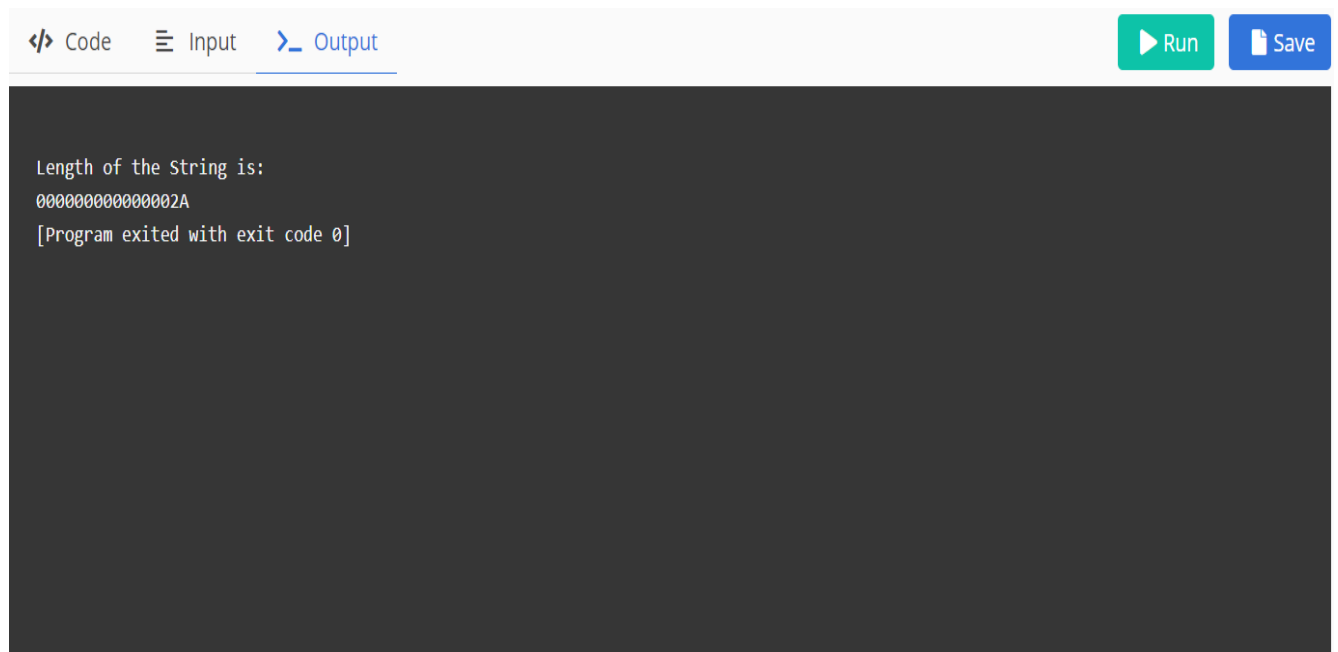
## Input :



The screenshot shows an online code editor interface. At the top, there is a header bar with three tabs: 'Code' (with a code icon), 'Input' (with a list icon and currently selected), and 'Output' (with a terminal icon). To the right of the tabs are two buttons: a green 'Run' button with a play icon and a blue 'Save' button with a document icon. Below the tabs is a large text area for input. The first line of the input is '1 Welcome To DYPIEMR Computer Engineering!!!'. The rest of the text area is empty.

```
1 Welcome To DYPIEMR Computer Engineering!!!
```

## Output :



The screenshot shows the same online code editor interface, but now the 'Output' tab is selected. The header bar shows 'Code', 'Input', and 'Output' (with a terminal icon and currently selected). The 'Run' and 'Save' buttons are still present. The main area is a dark gray terminal window displaying the output of the program. The output consists of three lines: 'Length of the String is:', '000000000000002A', and '[Program exited with exit code 0]'. The first line is followed by a colon, and the second line is a hexadecimal value.

```
Length of the String is:  
000000000000002A  
[Program exited with exit code 0]
```