MICROPROCESSOR LABORATORY

ASSIGNMENT NO. 9

Name :- Ojus Pravin Jaiswal
Roll No. :- SACO19108
Division :- A

Assignment No. 9

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
hmsg db 10,"Enter 4 digit Hex number :- "
hmsg_len equ $-hmsg

bmsg db 10,"Equivalent BCD number :- "
bmsg_len equ $-bmsg

errmsg db 10,"Please enter valid hex number !!!"
errmsg_len equ $-errmsg
```

```
new_line db 10,13

section .bss
buf  resb 5
char_ans resb 1

section .text
global _start
_start:

call HEX_BCD
read_or_print 1,1,new_line,1

exit

Accept:
read_or_print 0,0,buf,5
mov rcx,4
mov rsi,buf
xor bx,bx
up: shl bx,4
mov al,[rsi]
cmp al,'0'
jb error
cmp al,'9'
jbe sub30
cmp al,'A'
```

```
jb error
cmp al,'F'
jbe sub37
cmp al,'a'
jb error
cmp al,'f'
jbe sub57

sub57:sub al,20h
sub37:sub al,07h
sub30:sub al,30h

add bx,ax
inc rsi
dec rcx
jnz up
ret

error: read_or_print 1,1,errmsg,errmsg_len

exit

HEX_BCD:
read_or_print 1,1,hmsg,hmsg_len
call Accept
read_or_print 1,1,buf,5
mov ax,bx
mov bx,10
```

xor bp,bp

back: xor dx,dx

div bx

push dx

inc bp

cmp ax,0

jne back

read_or_print 1,1,bmsg,bmsg_len

back1:pop dx

add dl,30h

mov [char_ans],dl

read_or_print 1,1,char_ans,1

dec bp

jnz back1

ret

Code Input Output Run Save

```
%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
hmsg db 10,"Enter 4 digit Hex number :- "
hmsg_len equ $-hmsg

bmsg db 10,"Equivalent BCD number :- "
bmsg_len equ $-bmsg
```

Code Input Output Run Save

```
21
22 errmsg db 10,"Please enter valid hex number !!!"
23 errmsg_len equ $-errmsg
24
25 new_line db 10,13
26
27 section .bss
28 buf  resb 5
29 char_ans resb 1
30
31 section .text
32 global _start
33 _start:
34
35 call HEX_BCD
36 read_or_print 1,1,new_line,1
37
38 exit
39
40 Accept:
```

Code Input Output Run Save

```
41 read_or_print 0,0,buf,5
42 mov rcx,4
43 mov rsi,buf
44 xor bx,bx
45 up: shl bx,4
46 mov al,[rsi]
47 cmp al,'0'
48 jb error
49 cmp al,'9'
50 jbe sub30
51 cmp al,'A'
52 jb error
53 cmp al,'F'
54 jbe sub37
55 cmp al,'a'
56 jb error
57 cmp al,'f'
58 jbe sub57
59
60 sub57:sub al,20h
```

Code Input Output Run Save

```
61 sub37:sub al,07h
62 sub30:sub al,30h
63
64 add bx,ax
65 inc rsi
66 dec rcx
67 jnz up
68 ret
69
70 error: read_or_print 1,1,errmsg,errmsg_len
71
72 exit
73
74 HEX_BCD:
75 read_or_print 1,1,hmsg,hmsg_len
76 call Accept
77 read_or_print 1,1,buf,5
78 mov ax,bx
79 mov bx,10
80 xor bp,bp
```

Code Input Output Run Save

```
call Accept
read_or_print 1,1,buf,5
mov ax,bx
mov bx,10
xor bp,bp
back: xor dx,dx
div bx
push dx
inc bp
cmp ax,0
jne back

read_or_print 1,1,bmsg,bmsg_len
back1:pop dx
add dl,30h
mov [char_ans],dl
read_or_print 1,1,char_ans,1
dec bp
jnz back1
ret
```

Input :

Code Input Output Run Save

```
0026
```

Output :


Code
Input
Output
Run
Save
Enter 4 digit Hex number :- 0026
Equivalent BCD number :- 38
[Program exited with exit code 0]