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

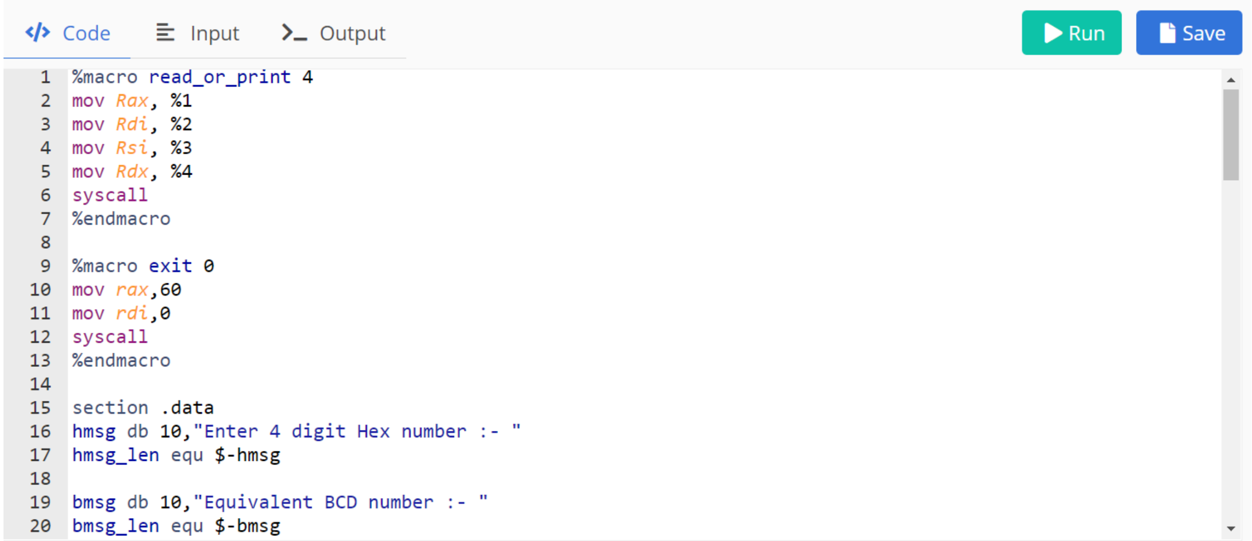
error: read_or_print 1,1,errmsg,errmsg_len

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
```



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%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
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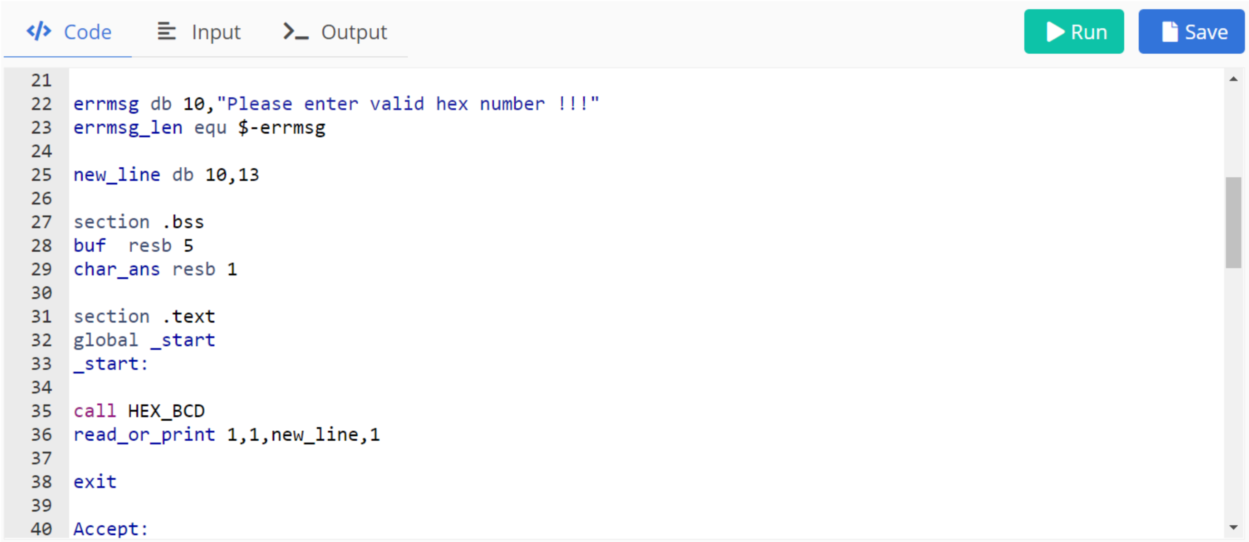
%endmacro

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

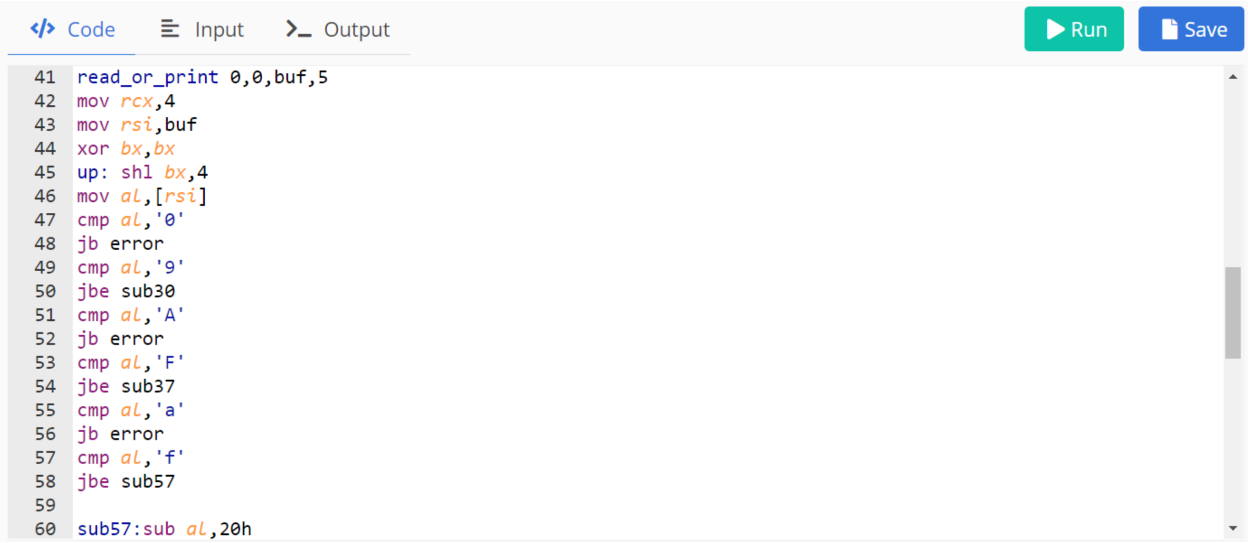
section .bss
buf  resb 5
char_ans resb 1

section .text
global _start
_start:

call HEX_BCD
read_or_print 1,1,new_line,1

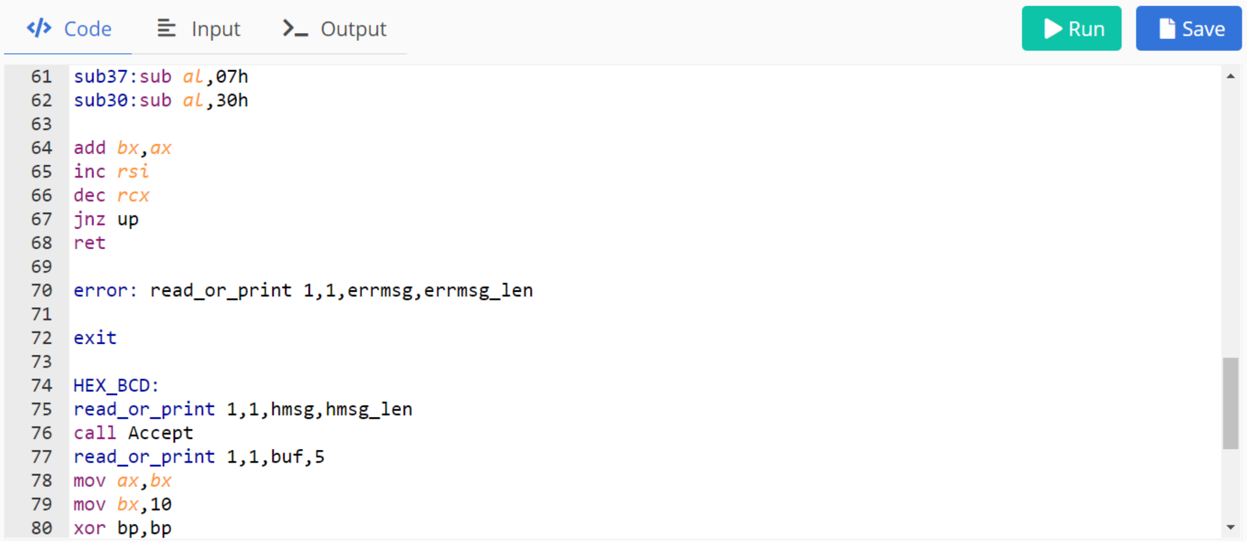
exit

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
```



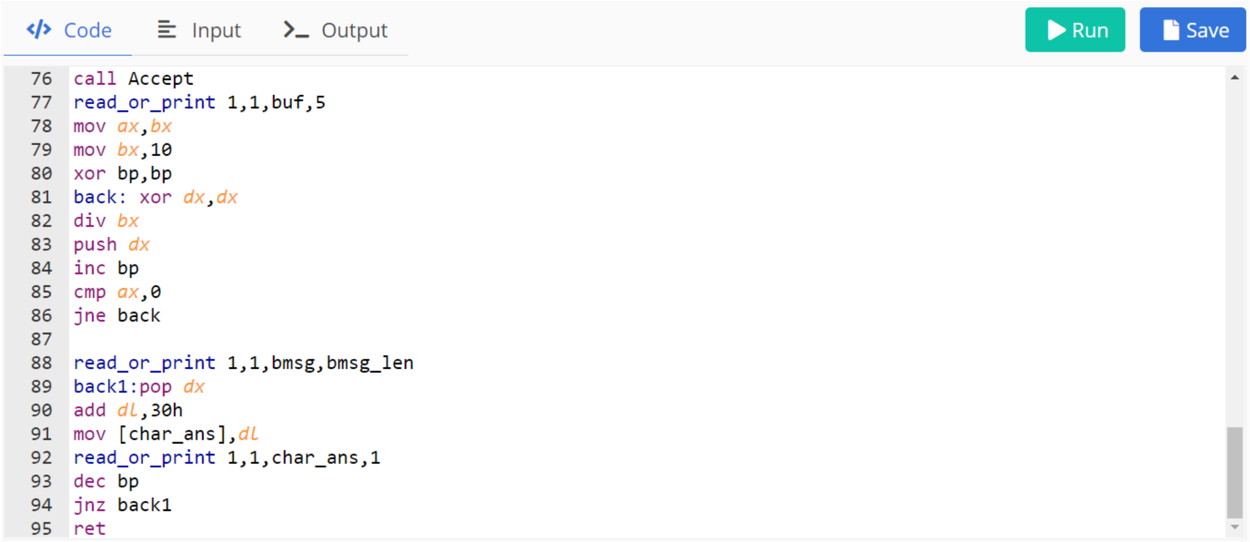
```
sub37:sub al,07h
sub30:sub al,30h

add bx,ax
inc rsi
dec rcx
jnz up
ret

error: read_or_print 1,1,errmsg,errmsg_len

exit

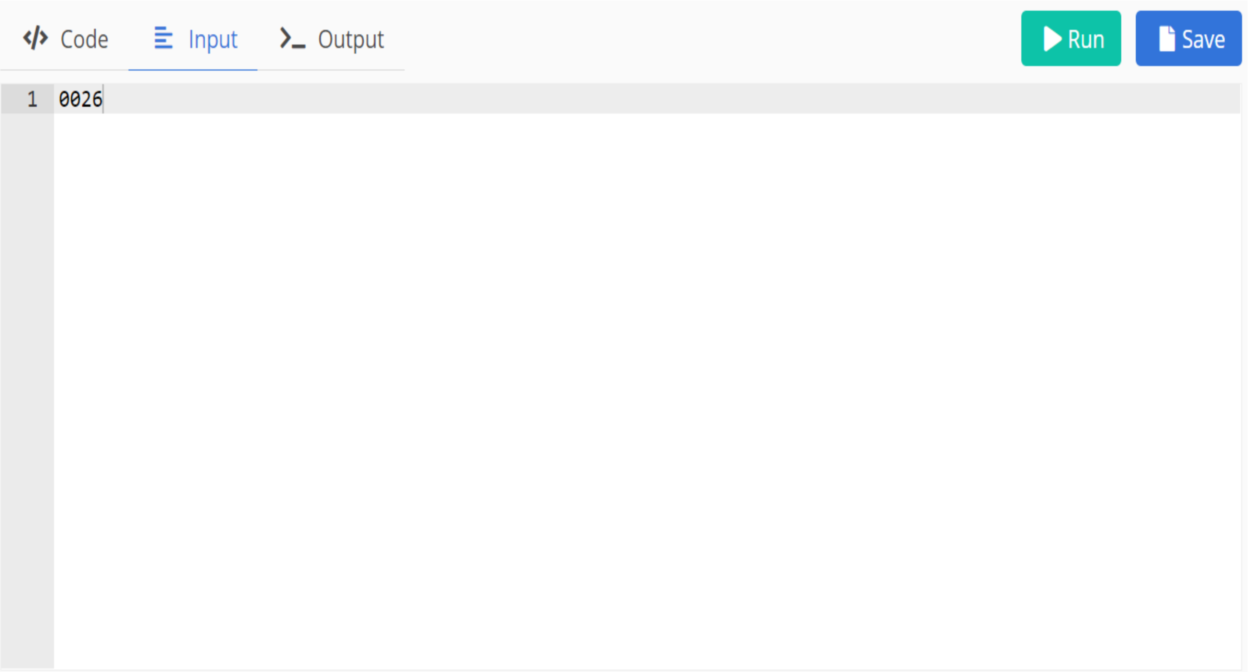
HEX_BCD:
read_or_print 1,1,hmsg,hmsg_len
call Accept
read_or_print 1,1,buf,5
mov ax,bx
mov bx,10
xor bp,bp
```



```
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

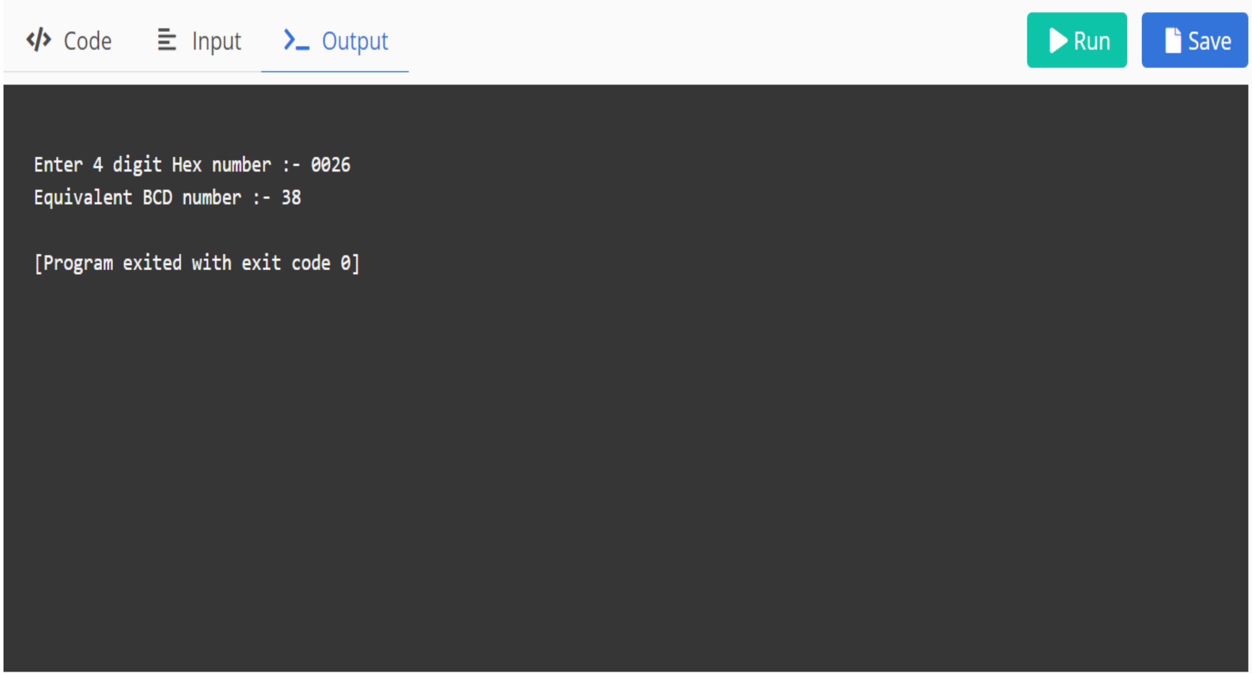
read_or_print 1,1,bmsg,bmsg_len
back1:pop dx
add dl,30h
mov [char_ans],dl
read_or_print 1,1,char_ans,1
dec bp
jnz back1
ret
```

Input :



```
0026
```

Output :



```
Enter 4 digit Hex number :- 0026
Equivalent BCD number :- 38

[Program exited with exit code 0]
```