



# Green University of Bangladesh

Department of Computer Science and Engineering(CSE)

Semester: (Summer, Year:2021), B.Sc. in CSE (Day)

Faculty of Sciences and Engineering

Semester: (Fall, Year:2021), B.Sc. in CSE (Day)

## Lab Report

Course Title: Microprocessors & Microcontrollers Lab

Course Code: CSE-304

Section: 193-DF

### Lab Experiment Name:

a)Take a character input from user, check whether the given character is vowel or not (a,e,i,o,u).

b)Take a number n from user. After that find out the factorial of that number n. (Suppose for n=5, you have to find out factorial=  $1 * 2 * 3 * 4 * 5$ ).

### Student Details

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Submission Date : 09.11.2021

Course Teacher's Name : Md. Atikuzzaman

### Report Status

Marks:

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Comments:.....

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Signature:.....

Date:.....

## **TITLE OF THE LAB EXPERIMENT :**

- I. Given a character, check if it is vowel or consonants .
- II. Factorial of a positive integer is the product of an integer and all the integers below it, the factorial of number  $n$

## **OBJECTIVES :**

- I. To provide an introduction to syntax and structure of assembly language.
- II. The main objective of this topic is to implement basic conditional statements in assembly language.

## **PROCEDURE :**

### Problem 1

#### **Vowels**

A vowel is a sound that is made by allowing breath to flow out of the mouth, without closing any part of the mouth or throat.

There are 5 vowels in the English language: a, e, i, o, u

### Problem 2

As we can see that 5 stacks will have to be maintained until a call to  $f(0)$  is reached whose value is known and is returned. Therefore for  $n$  factorial,  $n$  stacks will have to be maintained. Thus space complexity is  $O(n)$ . It is also evident from the above pictures that for  $n=5$ , 5 stacks will have to be maintained. Therefore for  $n$  factorial,  $n$  stacks will have to be maintained. Thus space complexity is  $O(n)$ .

## IMPLEMENTATION :

### Problem 1

Take a character input from user, check whether the given character is vowel or not (a,e,i,o,u).:

```
.model small
.stack 100h
.data
Vowel db 0dh,0ah,'vowel$'
CONSONANT db 0dh,0ah,'CONSONANTS$'
.code
main proc
    mov ax,@data
    mov ds,ax
    mov ah,1
    int 21h
    cmp AL,'A'
    je vl
    cmp AL,'E'
    je vl
    cmp AL,'I'
    je vl
    cmp AL,'O'
    je vl
    cmp AL,'U'
    je vl
    cmp AL,'a'
    je vl
    cmp AL,'e'
    je vl
    cmp AL,'i'
    je vl
    cmp AL,'o'
```

```
je vl
cmp AL,'u'
je vl
lea dx,consonant
mov ah,9
int 21h
jmp exit
```

```
VL:
lea dx,vowel
mov ah,9
int 21h
EXIt:
mov ah,4ch
main endp
end main
```

## Problem 2

Take a number n from user. After that find out the factorial of that number n.  
(Suppose for n=5, you have to find out factorial=  $1 * 2 * 3 * 4 * 5$ ).

```
.MODEL SMALL
.STACK 100H
```

```
.DATA
```

```
ANS DB ?
```

```
.CODE
MAIN PROC
MOV AX,@DATA
MOV DS,AX
```

```
MOV AL,5
MOV CL,4
MOV BL, AL
SUB BL,1
```

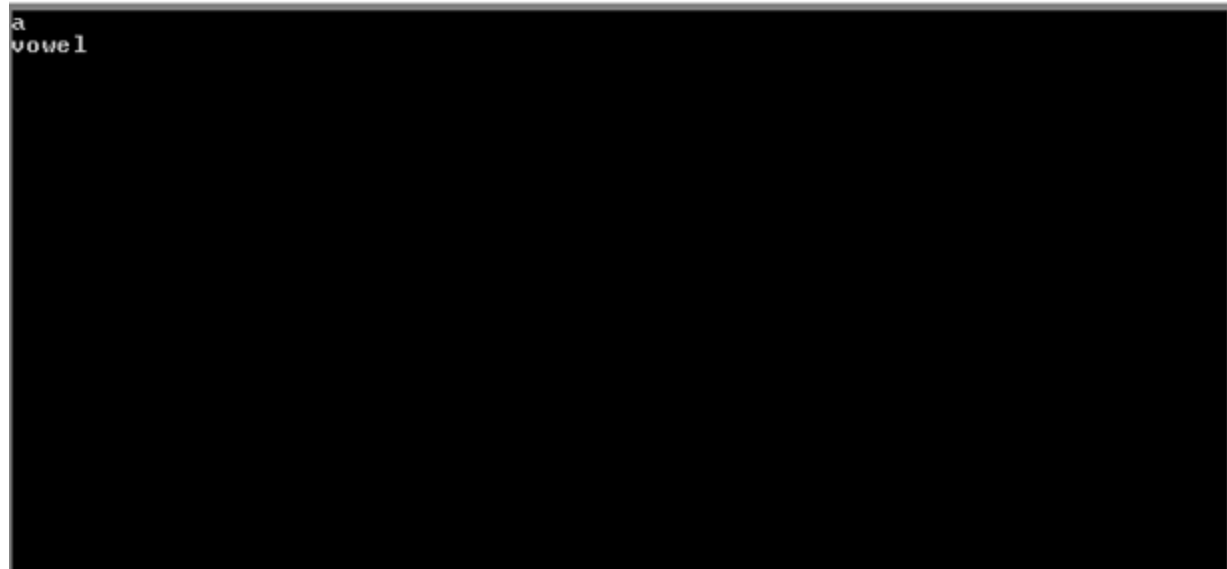
```
L:
MUL BL
SUB BL,1
LOOP L
MOV ANS,AL
END MAIN
```

```
RET
```

## OUTPUT :

Take a character input from user, check whether the given character is vowel or not (a,e,i,o,u).

Output



```
a
vowel
```

Output:



1. I learn machine language.
2. I have some problem face , when write assembly language.
3. There was a problem running the code, but the problem was fixed later