

## Experiment 2

**Class:** SE Comp

**Year:** 2020-21

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### Factorial of a number:

**Code:**

```
org 100h
.data
    num dw 05h
    result dw ?
.code
    mov ax, @data
    mov ds, ax
    mov ax, 01
    mov bx, num
up:
    cmp bx, 01
    jz down
    mul bx
    dec bx
    jmp up
Down:
    mov result, ax
ret
```

## Output:

emu8086 - assembler and microprocessor emulator 4.08

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```
01 org 100h
02 .data
03 num dw 05h
04 result dw ?
05 .code
06 mov ax, @data
07 mov ds, ax
08 mov ax, 01
09 mov bx, num
10 up:
11 cmp bx, 01
12 jz down
13 mul bx
14 dec bx
15 jmp up
16 down:
17 mov result, ax
18 ret
19
20
21
22
23
24
```

variables

size: word elements: 1

edit show as: hex

NUM 0005h

RESULT 0078h

emulator: noname.com\_

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Load reload step back single step run step delay ms: 0

registers

	H	L
AX	00	78
BX	00	01
CX	00	1F
DX	00	00
CS	F400	
IP	0154	
SS	0700	
SP	FFFA	
BP	0000	
SI	0000	
DI	0000	
DS	0700	
ES	0700	

F400:0154

F4150:	FF	255	RES
F4151:	FF	255	RES
F4152:	CD	205	=
F4153:	20	032	SPA
F4154:	CF	207	±
F4155:	00	000	NULL
F4156:	00	000	NULL
F4157:	00	000	NULL
F4158:	00	000	NULL
F4159:	00	000	NULL
F415A:	00	000	NULL
F415B:	00	000	NULL
F415C:	00	000	NULL
F415D:	00	000	NULL
F415E:	00	000	NULL
F415F:	00	000	NULL
F4160:	FF	255	RES
F4161:	FF	255	RES
F4162:	CD	205	=
F4163:	1A	026	→
F4164:	CF	207	±
F4165:	00	000	NULL

F400:0154

BIOS DI
INT 020h
I RET
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD BH, BH
DEC BP
SBB CL, BH
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD [BX + SI], AL
ADD BH, BH
DEC BP
ADD BH, CL
ADD [BX + SI], AL
ADD [BX + SI], AL
...

screen source reset aux vars debug stack flags

## Conclusion:

We successfully wrote an assembly language program to find the factorial of a number

## Exp 02

Aim: To write an assembly language program to find the factorial of a number

### Algorithm:

- Start the program
- Initialize the data segment
- Shift the number to AX & BX
- Decrement BX & if zero jump to state or else multiply BX with AX
- If BX is not zero jump to start or else state
- State: Shift AX to ans
- Stop

### Flowchart:

