Computer Architecture: HW2

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1. Some comments of pieces of the code

```
#start from the place where we compute the factorial value
 fac:
        addi $t0, $0, 1          #$t0 = 1
        bgt $a0, $t0, recursive  #if n > 1, then do recursive part.
        move $v0, $t0            #if n = 1 or n = 0, return 1.
        jr $ra

 recursive:
        addi $sp, $sp, -8        #decrement stack pointer by 8
        sw $ra, 0($sp)           #save n
        sw $a0, 4($sp)           #save return address
        addi $a0, $a0, -1        #compute (n – 1)
        jal fac                  #compute (n - 1)!
        lw $t0, 4($sp)           #get n from memory stack
        mult $t0, $v0            #compute n × (n - 1)! = n!
        mflo $v0                 #save the 32 least significant bits of the product.
        lw $a0, 4($sp)           #restore n.
        lw $ra, 0($sp)           #restore return address
        addi $sp, $sp, 8         #restore stack pointer
        jr $ra
```

2. Result

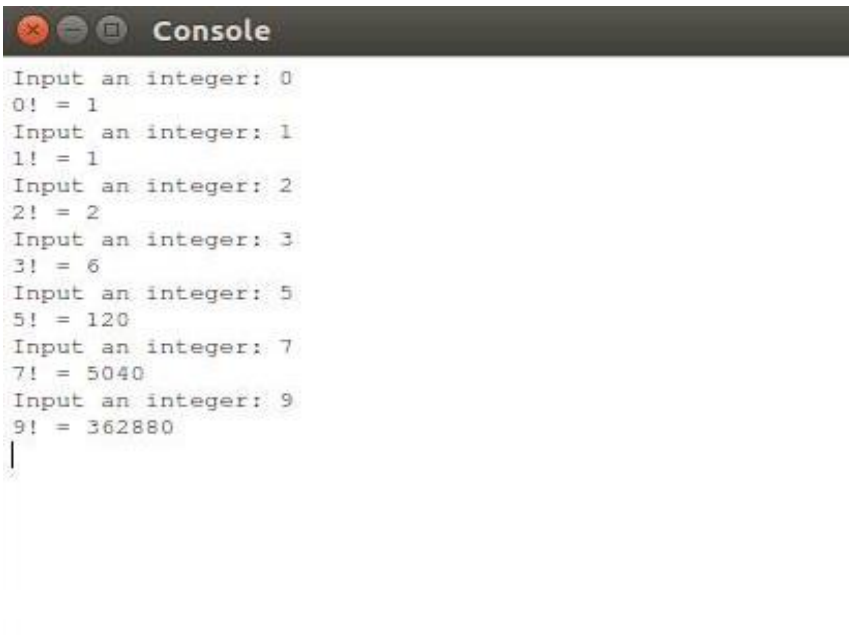

Figure 1. The screenshot of the results produced by my factorial calculator