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# COSC 300

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# Factorials

# Write a MIPS program to find the factorial of a number input number

# ##################################

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# Data Section

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# ##################################

.data

str: .asciiz "This program computes the factorial of a given number"

prompt: .asciiz "\n\nPlease enter a number: "

ans: .asciiz "\n\nThe factorial of the number given is: "

bye: .asciiz "\n\nHave a nice day!"

# ##################################

#

# Text Section

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# ##################################

.text

.globl main

main:

# $t1 contains the initial number given

# $t2 contains the temporary number

# $t3 contains the total

la $a0, str

li $v0, 4

syscall

la $a0, prompt

li $v0, 4

syscall

li $v0, 5

syscall

beqz $v0, End

move $t1, $v0

addi $t2, $t1, -1

mul $t3, $t1, $t2

Loop:

addi $t2, $t2, -1

beqz $t2, End

mul $t3, $t3, $t2

j Loop

End:

la $a0, ans

li $v0, 4

syscall

move $a0, $t3

li $v0, 1

syscall

la $a0, bye

li $v0, 4

syscall

li $v0, 10

syscall

