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**EE488 Computer Architecture**

**Quiz 2**

1. Write a program in MIPS assembly language to find out the max and min values which are read in from the keyboard among the 5 integers.

.data

prompt: .asciiz "Enter an integer: "

newline: .asciiz "\n"

max\_msg: .asciiz "Maximum value is: "

min\_msg: .asciiz "Minimum value is: "

.text

.globl main

main:

# Initialize registers

li $t0, 5 # counter for number of integers to read

li $t1, -2147483648 # min\_value (smallest 32-bit signed int)

li $t2, 2147483647 # max\_value (largest 32-bit signed int)

# Loop to read integers

read\_loop:

# Print prompt

li $v0, 4

la $a0, prompt

syscall

# Read integer from keyboard

li $v0, 5

syscall

move $t3, $v0 # store input in $t3

# Check for max value

bgt $t3, $t1, update\_max

j check\_min

update\_max:

move $t1, $t3 # update max value

check\_min:

# Check for min value

blt $t3, $t2, update\_min

j next\_int

update\_min:

move $t2, $t3 # update min value

next\_int:

# Decrement counter and check if all integers are read

sub $t0, $t0, 1

bgtz $t0, read\_loop

# Print max value

li $v0, 4

la $a0, max\_msg

syscall

li $v0, 1

move $a0, $t1

syscall

li $v0, 4

la $a0, newline

syscall

# Print min value

li $v0, 4

la $a0, min\_msg

syscall

li $v0, 1

move $a0, $t2

syscall

li $v0, 4

la $a0, newline

syscall

# Exit program

li $v0, 10

syscall