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CS 264

Extra Credit

Part 2:

.data

array: .word 2,4,5,7,8,11,13,16,19,22,30,40

space: .asciiz " "

newLine: .asciiz "\n"

.globl main

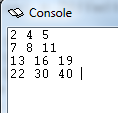
.text

main: li $t0, 12

li $t1,3

la $t2, array

loop1: lw $a0, ($t2)

 li $v0, 1

syscall

la $a0, space

li $v0, 4

syscall

addi $t0, $t0, -1

beqz $t0, end

addi $t1, $t1, -1

addi $t2, $t2, 4

beqz $t1, line

b loop1

line: li $t1,3

la $a0,newLine

li $v0,4

syscall

b loop1

end: li $v0, 10

syscall

Part 3 & 4:

.data

array1: .byte 'h','E','L','l','o'

space: .asciiz " "

string2: .space 100

newLine: .asciiz "\n"

prompt: .asciiz "Enter a character (max 100): "

upper: .asciiz "Smallest uppercase letter: "

lower: .asciiz "Largest lowercase letter: "

.globl main

.text

main: la $a0, prompt

li $v0, 4

syscall

la $a0, string2

li $a1, 100

li $v0, 8

syscall

la $a0, upper

li $v0, 4

syscall

la $a0, array1

jal SL

move $a0, $v0

li $v0, 11

syscall

la $a0, newLine

li $v0, 4

syscall

la $a0, lower

li $v0, 4

syscall

move $a0, $v1

li $v0, 11

syscall

la $a0, newLine

li $v0, 4

syscall

la $a0, upper

li $v0, 4

syscall

la $a0, string2

jal SL

move $a0, $v0

li $v0, 11

syscall

la $a0, newLine

li $v0, 4

syscall

la $a0, lower

li $v0, 4

syscall

move $a0, $v1

li $v0, 11

syscall

li $v0, 10

syscall

SL: move $t0, $a0

li $s0, 90

li $s1, 97

li $s2, 65

li $v0, 91

li $v1, 96

uLoop: lb $t1, ($a0)

beqz $t1, uOut

addi $a0, $a0, 1

ble $t1, $s0, uCheck

b uLoop

uCheck: bge $t1, $s2, uChek2

b uLoop

uChek2: blt $t1, $v0, uMove

b uLoop

uMove: move $v0, $t1

b uLoop

uOut: addi $t1, $v0, -91

beqz $t1, uLegal

lLoop: lb $t1, ($t0)

beqz $t1, lOut

addi $t0, $t0, 1

bge $t1, $s1, lCheck

b lLoop

lCheck: bgt $t1, $v1, lMove

b lLoop

lMove: move $v1, $t1

b uLoop

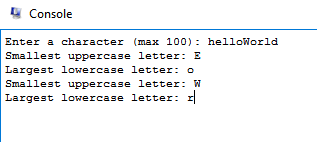
lOut: addi $t1, $v1, -96

beqz $t1, lLegal

b retzz

lLegal: li $v1, 0

b retzz



uLegal: li $v0, 0

b lLoop

retzz: jr $ra

Part 5:

.data

array: .space 400

space: .asciiz " "

newLine: .asciiz "\n"

count: .asciiz "The number of integers in the array: "

sum: .asciiz "The sum is: "

prompt: .asciiz "Enter an integer: "

.globl main

.text

main: la $a0, array

jal Test1

move $t0, $v0

la $a0, count

li $v0, 4

syscall

move $a0, $t0

li $v0, 1

syscall

la $a0, newLine

li $v0, 4

syscall

la $a0, sum

li $v0, 4

syscall

move $a0, $v1

li $v0, 1

syscall

li $v0, 10

syscall

Test1: li $t0, -100

move $t1, $a0

move $t2, $a0

la $a0, prompt

loop1: li $v0,4

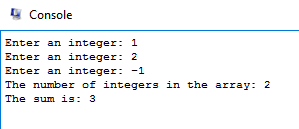
syscall

li $v0,5

syscall

sw $v0, ($t1)

addi $t1, $t1, 4

 addi $t0, $t0, 1

bltz $v0, out1

bltz $t0, loop1

out1: add $v0, $t0, 99

move $t0, $v0

loop2: lw $t3, ($t2)

bltz $t3, retzz

add $v1, $v1, $t3

addi $t2, $t2, 4

addi $t0, $t0, -1

bgtz $t0, loop2

retzz: jr $ra