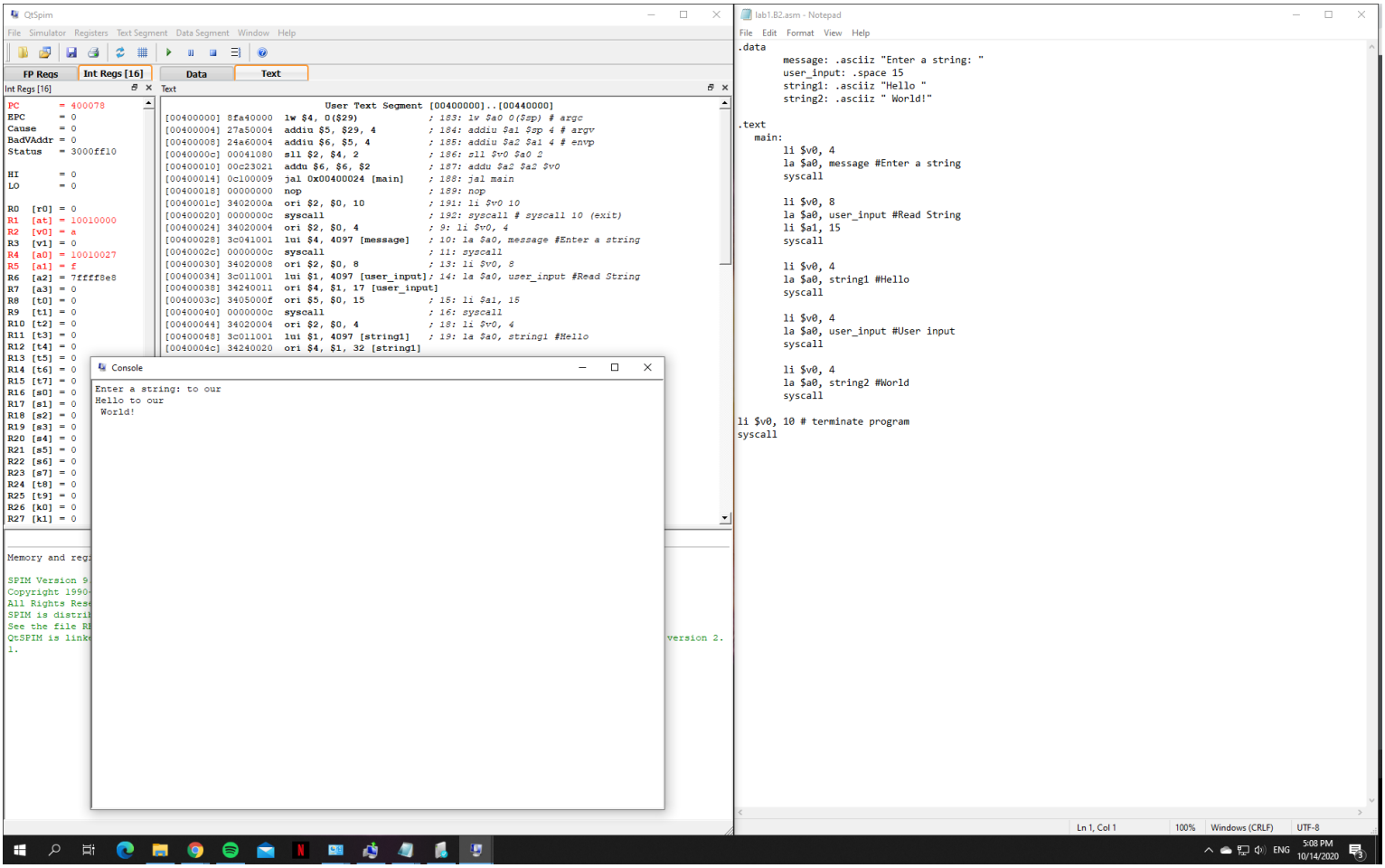
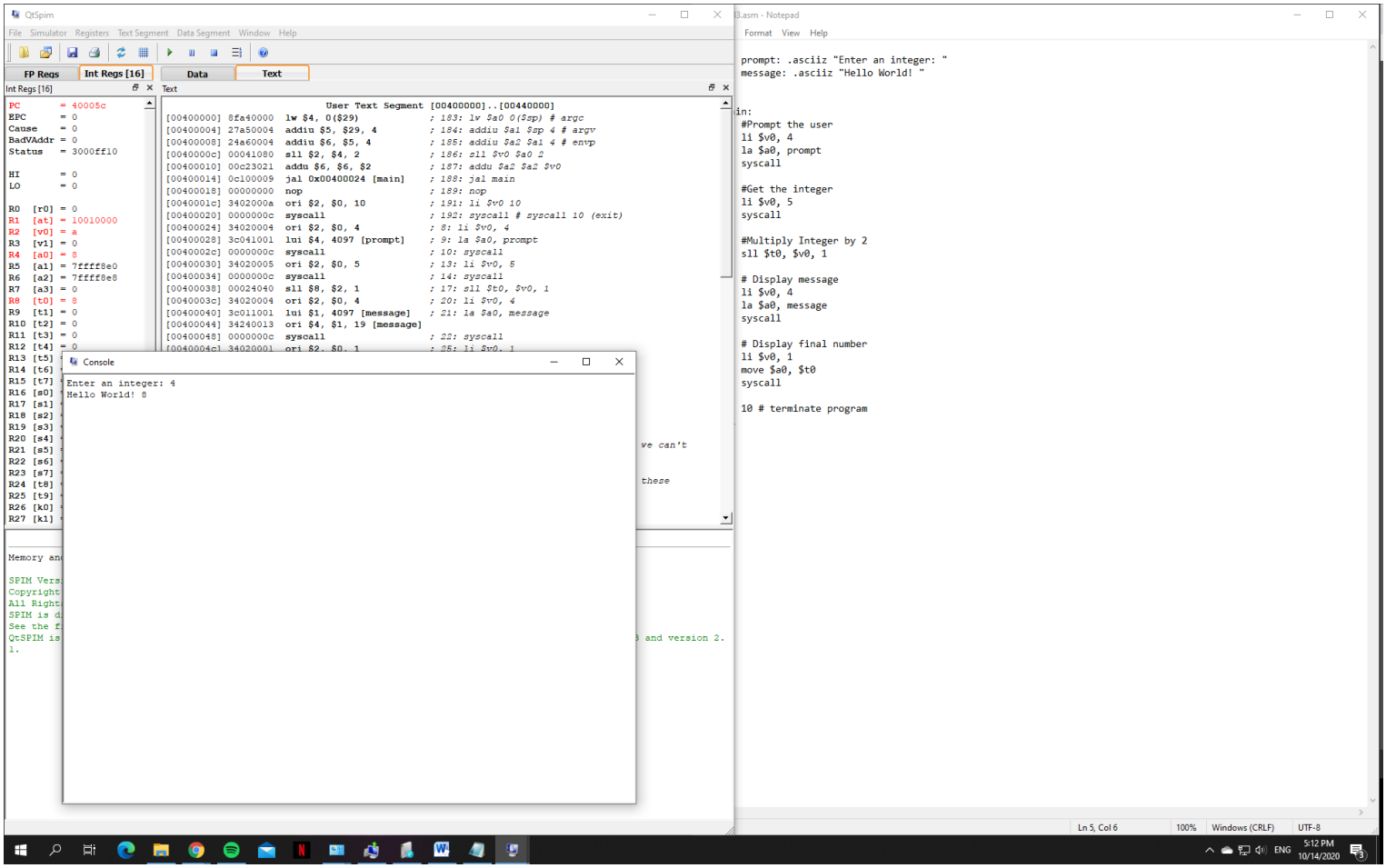
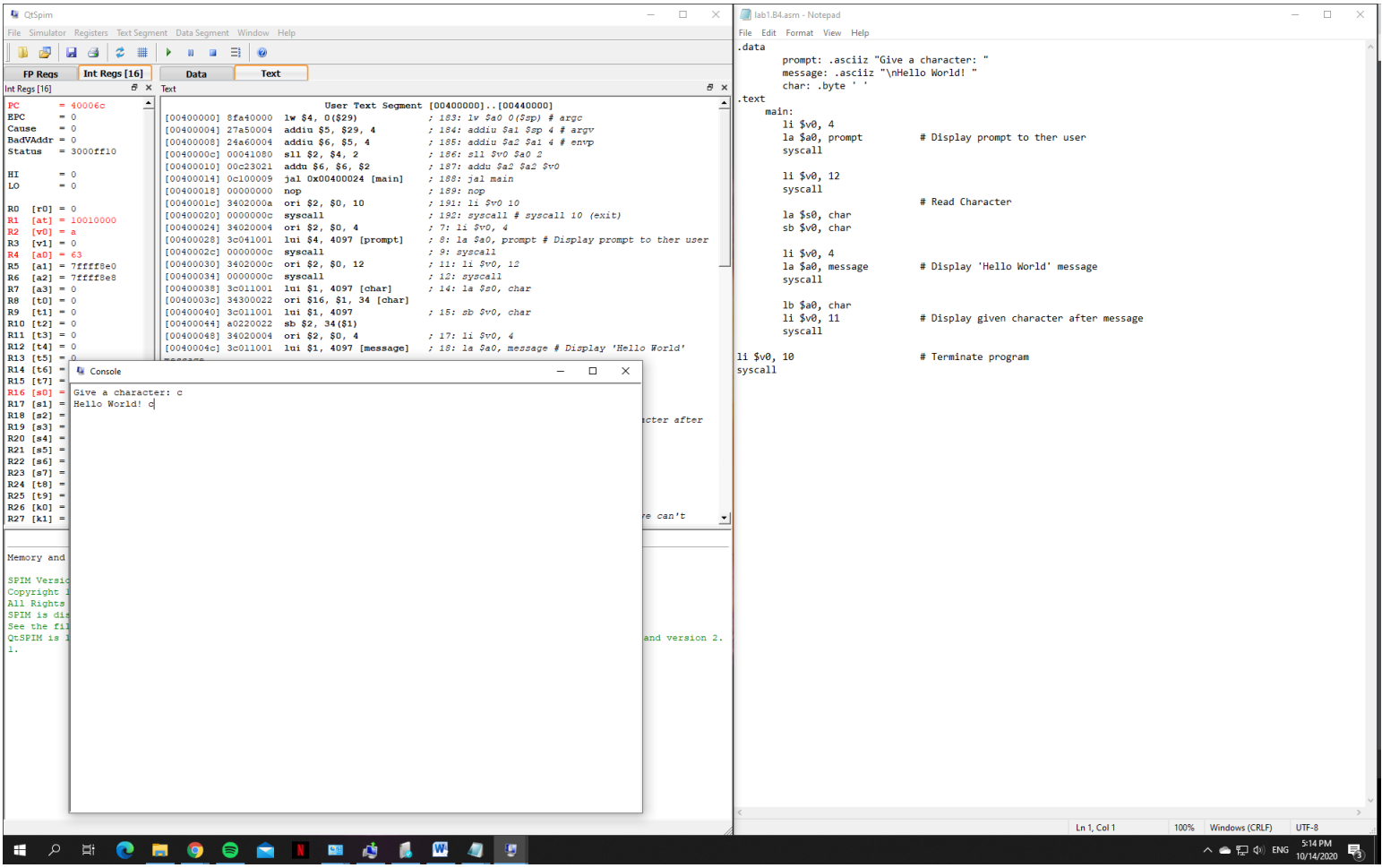
B.2:


QtSpim
File Simulator Registers Text Segment Data Segment Window Help
FP Regs
Int Regs [16]
Data
Text
Int Regs [16]
PC = 400078
EPC = 0
Cause = 0
BadVAddr = 0
Status = 3000ff10
HI = 0
LO = 0
R0 [r0] = 0
R1 [at] = 10010000
R2 [v0] = a
R3 [v1] = 0
R4 [a0] = 10010027
R5 [a1] = f
R6 [a2] = 7fffff8e8
R7 [a3] = 0
R8 [t0] = 0
R9 [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] = 0
R15 [t7] = 0
R16 [s0] = 0
R17 [s1] = 0
R18 [s2] = 0
R19 [s3] = 0
R20 [s4] = 0
R21 [s5] = 0
R22 [s6] = 0
R23 [s7] = 0
R24 [t8] = 0
R25 [t9] = 0
R26 [k0] = 0
R27 [k1] = 0
Text
User Text Segment [00400000]..[00440000]
[00400000] 8fa40000 lw $4, 0($29) ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004 addiu $5, $29, 4 ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004 addiu $6, $5, 4 ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080 sll $2, $4, 2 ; 186: sll $v0 $a0 2
[00400010] 00c23021 addu $6, $6, $2 ; 187: addu $a2 $a2 $v0
[00400014] 0c100009 jal 0x00400024 [main] ; 188: jal main
[00400018] 00000000 nop ; 189: nop
[0040001c] 3402000a ori $2, $0, 10 ; 191: li $v0 10
[00400020] 0000000c syscall ; 192: syscall # syscall 10 (exit)
[00400024] 34020004 ori $2, $0, 4 ; 9: li $v0, 4
[00400028] 3c041001 lui $4, 4097 [message] ; 10: la $a0, message #Enter a string
[0040002c] 0000000c syscall ; 11: syscall
[00400030] 34020008 ori $2, $0, 8 ; 13: li $v0, 8
[00400034] 3c011001 lui $1, 4097 [user_input] ; 14: la $a0, user_input #Read String
[00400038] 34240011 ori $4, $1, 17 [user_input]
[0040003c] 3405000f ori $5, $0, 15 ; 15: li $a1, 15
[00400040] 0000000c syscall ; 16: syscall
[00400044] 34020004 ori $2, $0, 4 ; 18: li $v0, 4
[00400048] 3c011001 lui $1, 4097 [string1] ; 19: la $a0, string1 #Hello
[0040004c] 34240020 ori $4, $1, 32 [string1]
Console
Enter a string: to our
Hello to our
World!
Memory and reg
SPIM Version 9
Copyright 1990
All Rights Rese
SPIM is distri
See the file R
QtSPIM is link
version 2.
1.
lab1.B2.asm - Notepad
File Edit Format View Help
.data
message: .asciiz "Enter a string: "
user_input: .space 15
string1: .asciiz "Hello "
string2: .asciiz " World!"
.text
main:
li $v0, 4
la $a0, message #Enter a string
syscall
li $v0, 8
la $a0, user_input #Read String
li $a1, 15
syscall
li $v0, 4
la $a0, string1 #Hello
syscall
li $v0, 4
la $a0, user_input #User input
syscall
li $v0, 4
la $a0, string2 #World
syscall
li $v0, 10 # terminate program
syscall
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8
ENG
5:08 PM
10/14/2020

B.3:


QtSpim
File Simulator Registers Text Segment Data Segment Window Help
FP Regs
Int Regs [16]
Data
Text
Int Regs [16]
PC = 40005c
EPC = 0
Cause = 0
BadVAddr = 0
Status = 3000ff10
HI = 0
LO = 0
R0 [r0] = 0
R1 [at] = 10010000
R2 [v0] = a
R3 [v1] = 0
R4 [a0] = 8
R5 [a1] = 7fffff8e0
R6 [a2] = 7fffff8e8
R7 [a3] = 0
R8 [t0] = 8
R9 [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
Text
User Text Segment [00400000]..[00440000]
[00400000] 8fa40000 lw $4, 0($29) ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004 addiu $5, $29, 4 ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004 addiu $6, $5, 4 ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080 sll $2, $4, 2 ; 186: sll $v0 $a0 2
[00400010] 00c23021 addu $6, $6, $2 ; 187: addu $a2 $a2 $v0
[00400014] 0c100009 jal 0x00400024 [main] ; 188: jal main
[00400018] 00000000 nop ; 189: nop
[0040001c] 3402000a ori $2, $0, 10 ; 191: li $v0 10
[00400020] 0000000c syscall ; 192: syscall # syscall 10 (exit)
[00400024] 34020004 ori $2, $0, 4 ; 8: li $v0, 4
[00400028] 3c041001 lui $4, 4097 [prompt] ; 9: la $a0, prompt
[0040002c] 0000000c syscall ; 10: syscall
[00400030] 34020005 ori $2, $0, 5 ; 13: li $v0, 5
[00400034] 0000000c syscall ; 14: syscall
[00400038] 00024040 sll $8, $2, 1 ; 17: sll $t0, $v0, 1
[0040003c] 34020004 ori $2, $0, 4 ; 20: li $v0, 4
[00400040] 3c011001 lui $1, 4097 [message] ; 21: la $a0, message
[00400044] 34240013 ori $4, $1, 19 [message]
[00400048] 0000000c syscall ; 22: syscall
Console
Enter an integer: 4
Hello World! 8
3.asm - Notepad
Format View Help
prompt: .asciiz "Enter an integer: "
message: .asciiz "Hello World! "
in:
#Prompt the user
li $v0, 4
la $a0, prompt
syscall
#Get the integer
li $v0, 5
syscall
#Multiply Integer by 2
sll $t0, $v0, 1
Display message
li $v0, 4
la $a0, message
syscall
Display final number
li $v0, 1
move $a0, $t0
syscall
10 # terminate program
Ln 5, Col 6
100%
Windows (CRLF)
UTF-8
ENG
5:12 PM
10/14/2020

B.4:


QtSpim
File Simulator Registers Text Segment Data Segment Window Help
FP Regs
Int Regs [16]
Data
Text
Int Regs [16]
PC = 40006c
EPC = 0
Cause = 0
BadVAddr = 0
Status = 3000ff10
HI = 0
LO = 0
R0 [r0] = 0
R1 [at] = 10010000
R2 [v0] = a
R3 [v1] = 0
R4 [a0] = 63
R5 [a1] = 7fffff8e0
R6 [a2] = 7fffff8e8
R7 [a3] = 0
R8 [t0] = 0
R9 [t1] = 0
R10 [t2] = 0
R11 [t3] = 0
R12 [t4] = 0
R13 [t5] = 0
R14 [t6] =
R15 [t7] =
R16 [s0] =
R17 [s1] =
R18 [s2] =
R19 [s3] =
R20 [s4] =
R21 [s5] =
R22 [s6] =
R23 [s7] =
R24 [t8] =
R25 [t9] =
R26 [k0] =
R27 [k1] =
Text
User Text Segment [00400000]..[00440000]
[00400000] 8fa40000 lw $4, 0($29) ; 183: lw $a0 0($sp) # argc
[00400004] 27a50004 addiu $5, $29, 4 ; 184: addiu $a1 $sp 4 # argv
[00400008] 24a60004 addiu $6, $5, 4 ; 185: addiu $a2 $a1 4 # envp
[0040000c] 00041080 sll $2, $4, 2 ; 186: sll $v0 $a0 2
[00400010] 00c23021 addu $6, $6, $2 ; 187: addu $a2 $a2 $v0
[00400014] 0c100009 jal 0x00400024 [main] ; 188: jal main
[00400018] 00000000 nop ; 189: nop
[0040001c] 3402000a ori $2, $0, 10 ; 191: li $v0 10
[00400020] 0000000c syscall ; 192: syscall # syscall 10 (exit)
[00400024] 34020004 ori $2, $0, 4 ; 7: li $v0, 4
[00400028] 3c041001 lui $4, 4097 [prompt] ; 8: la $a0, prompt # Display prompt to ther user
[0040002c] 0000000c syscall ; 9: syscall
[00400030] 3402000c ori $2, $0, 12 ; 11: li $v0, 12
[00400034] 0000000c syscall ; 12: syscall
[00400038] 3c011001 lui $1, 4097 [char] ; 14: la $s0, char
[0040003c] 34300022 ori $16, $1, 34 [char]
[00400040] 3c011001 lui $1, 4097 ; 15: sb $v0, char
[00400044] a0220022 sb $2, 34($1)
[00400048] 34020004 ori $2, $0, 4 ; 17: li $v0, 4
[0040004c] 3c011001 lui $1, 4097 [message] ; 18: la $a0, message # Display 'Hello World'
Console
Give a character: c
Hello World! c
Memory and
SPIM Versic
Copyright
All Rights
SPIM is dis
See the fil
QtSPIM is
1.
and version 2.
lab1.B4.asm - Notepad
File Edit Format View Help
.data
prompt: .asciiz "Give a character: "
message: .asciiz "\nHello World! "
char: .byte ' '
.text
main:
li $v0, 4
la $a0, prompt # Display prompt to ther user
syscall
li $v0, 12
syscall
Read Character
la $s0, char
sb $v0, char
li $v0, 4
la $a0, message # Display 'Hello World' message
syscall
lb $a0, char
li $v0, 11 # Display given character after message
syscall
li $v0, 10 # Terminate program
syscall
Ln 1, Col 1
100%
Windows (CRLF)
UTF-8
ENG
5:14 PM
10/14/2020