**ĐẠI HỌC BÁCH KHOA HÀ NỘI**

**TRƯỜNG CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG**

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**BÁO CÁO**

**Bài tập thực hành tuần 5**

**Học phần: Thực hành kiến trúc máy tính**

**Giảng viên hướng dẫn:** Lê Bá Vui

**Sinh viên thực hiện:** Phạm Huy Cảnh - 20194490

**Mã lớp:** 130938

**Hà Nội, tháng 4 năm 2022**

# **1. Assignment 1:**

*#Laboratory Exercise 5, Assignment 1*

.data

*test:* .asciiz "Pham Huy Canh"

.text

li $v0, 4 *# $v0 = 4*

la $a0, test *# Dia chi cua test duoc ghi vao $a0*

syscall *# Loi goi dich vu he thong*

Graphical user interface, application, table

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**2. Assignment 2:**

.data

*str1:* .asciiz "The sum of "

*str2:* .asciiz " and "

*str3:* .asciiz " is "

.text

li $s0, 4 *# number1 = 4*

li $s1, 8 *# number2 = 8*

add $t0, $s0, $s1 *# $t0 = Sum of 4 and 8*

li $v0, 4 *# Print string "str1"*

la $a0, str1

syscall

li $v0, 1 *# Print $s0*

move $a0, $s0

syscall

li $v0, 4 *# Print string "str2"*

la $a0, str2

syscall

li $v0, 1 *# Print $s1*

move $a0, $s1

syscall

li $v0, 4 *# Print string "str3"*

la $a0, str3

syscall

li $v0, 1 *# Print $t0*

move $a0, $t0

syscall

*Exit:* li $v0, 10

syscall

Graphical user interface, application, table

Description automatically generated

Graphical user interface, application, table, Excel

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Graphical user interface, application

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**3. Assignment 3:**

*#Laboratory Exercise 5, Assignment 3*

.data

*x:* .space 32 *# destination string x, empty*

*y:* .asciiz "Hello" *# source string y*

.text

*strcpy:* add $s0, $zero, $zero *# $s0 = i = 0*

la $a1, y *# Load address of y to $a1*

la $a0, x *# Load address of x to $a0*

*L1:* add $t1,$s0,$a1 *# $t1 = $s0 + $a1 = i + y[0]*

*# = address of y[i]*

lb $t2,0($t1) *# $t2 = value at $t1 = y[i]*

add $t3,$s0,$a0 *# $t3 = $s0 + $a0 = i + x[0]*

*# = address of x[i]*

sb $t2,0($t3) *# x[i]= $t2 = y[i]*

beq $t2,$zero,end\_of\_strcpy *# if y[i] == 0, exit*

nop

addi $s0,$s0,1 *# $s0 = $s0 + 1 <-> i = i + 1*

j L1 *# next character*

nop

*end\_of\_strcpy:*

Graphical user interface, application, table, Excel

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**4. Assignment 4:**

*#Laboratory Exercise 5, Assignment 4*

.data

*string:* .space 50

*Message1:* .asciiz "Nhap xau: "

*Message2:* .asciiz "Do dai xau la: "

.text

*main:*

*get\_string:* li $v0, 54 *# Get a string from dialog*

la $a0, Message1 *# Load address of the Message1 to $a0*

la $a1, string *# Load address of input buffer "string" to $a1*

la $a2, 50  *# Maximum number of characters to read = 50*

syscall

*get\_length:* la $a0,string *# $a0 = address(string[0])*

add $t0,$zero,$zero *# $t0 = i = 0*

*check\_char:* add $t1,$a0,$t0 *# $t1 = $a0 + $t0*

*# = address(string[i])*

lb $t2, 0($t1) *# $t2 = string[i]*

beq $t2, $zero, end\_of\_str *# is null char?*

addi $t0, $t0, 1 *# $t0 = $t0 + 1 -> i = i + 1*

j check\_char

*end\_of\_str:*

*end\_of\_get\_length:*

*print\_length:* addi $t0, $t0, -1 *# Do dai xau = $t0–(null\_char)*

li $v0, 56 *# Show the length to message dialog*

la $a0, Message2 *# Load address of the Message1 to $a0*

move $a1, $t0 *# Set $a1 to contents of $t0*

syscall

Graphical user interface, application

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A screenshot of a computer

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**5. Assignment 5:**

*#Laboratory Exercise 5, Assignment 5*

.data

*get\_char:* .space 20

*message1:* .asciiz "Nhap ky tu thu "

message2: .asciiz ": "

*message3:* .asciiz "\n"

*message4:* .asciiz "Chuoi ky tu vua nhap la: "

.text

li $s0, 20 *# N = 20*

li $s1, 0 *# i = 0*

la $s2, get\_char *# Load address of get\_char[0]*

li $s3, 10 *# Char \n in ASCII*

*read\_char:*

beq $s1, $s0, end\_read\_char *# i = N branch to exit*

*# Show message "Nhap ky tu thu i: "*

li $v0, 4

la $a0, message1

syscall

addi $t1, $s1, 1

li $v0, 1

move $a0, $t1

syscall

li $v0, 4

la $a0, message2

syscall

li $v0, 12 *# Read character*

syscall

move $t0, $v0

beq $t0, $s3, end\_read\_char *# Press "Enter" branch to exit*

li $v0, 4

la $a0, message3

syscall

add $s5, $s2, $s1 *# $s5=Address of get\_char[i]=get\_char[0]+i*

sb $t0, 0($s5) *# Store character to get\_char[i]*

addi $s1, $s1, 1 *# i++*

j read\_char

*end\_read\_char:*

li $v0, 4 *# Show message4*

la $a0, message4

syscall

*print\_string:*

li $v0, 11 *# Show ky tu tai dia chi trong $s5*

lb $a0, 0($s5)

syscall

beq $s5, $s2, exit *# $s5 = address cua ky tu cuoi cung*

addi $s5, $s5, -1 *# Tien dan den ky tu dau tien*

j print\_string

*exit:*

li $v0, 10

syscall

