CALIFORNIA STATE POLYTECHNIC UNIVERSITY
Computer Science Department
CS 2640 (3) ***T. Nguyen/F20***

HOMEWORK: **4 (10)**
DUE DATE: **October 30, 2020**

Description:

Exercises 6.2

1. Name the subprogram **search**
2. Write a **main** that will:
   a. Declare an array of bytes with value "**MIPS assembly language!**"
   b. Use **search** to find letter '!' and output the result
   c. Use **search** to find letter 'z' and output the result
   d. **main** must return to the startup code (via the jr instruction)

Required I/O:

```
Search by F. Last

MIPS assembly language!

!:23
z:-1
```

Output must be exactly as show. F. Last is your first initial and last name.

Turn in:

1. Submit the source code to:

   `cp search.s /user/tvnguyen7/cs2640-00#/BroncoName-search.s`

   # is your section number, 1 or 2. BroncoName is the part preceding @cpp.edu in your email address.

Notes:
1. The following information is required in the beginning of every source file.

```
#
#     Name:         Last, First
#     Homework:     #
#     Due:          date
#     Course:       cs-2640-0#-f20
#
#     Description:
#                   A brief description of the project.
#
```

Hints:

1. In main, save/restore $ra separate from the calls, for example:

```
main:
     save ra
     …
     restore ra
     return
```

2. For the second call, you can assume only the location L is changed by search and reuse the parameters on the stack if needed, eg. only change the search value V and make the call.

3. Subprogram to display the result:

```
# sub: showans(a0:label, a1:value)
#   output the label ‘a’ and value 10 as:
#   a:10
showans:
     li        $v0, 11
     syscall
     li        $a0, ':'
     li        $v0, 11
     syscall
     move      $a0, $a1
     li        $v0, 1
     syscall
     li        $a0, '\n'
     li        $v0, 11
     syscall
     jr        $ra
```