

CS 3340 Computer Architecture – Spring 2019 – Mazidi

Homework 3: MIPS Control Structures

Objective: Practice MIPS loops, conditionals, functions.

Instructions

Create a MIPS program that fulfills the following specifications:

1. use the dialog syscall (#54) to input a string from the user
2. call a function which counts the number of characters and number of words in the string and returns these in \$v0 and \$v1; store these in memory
3. output (console) the string and counts to the user (see example below)
4. repeat from 1 until the user enters a blank string or hits “cancel”
5. additionally, use \$s1 somewhere in your function so that you must save it on the stack at the top of your function and restore it before the function exits; Of course this function could be written without using an s register, but this is good practice in using the stack.
6. output a dialog message (syscall #59) to say goodbye before the program ends

Note: space is a character, so it should be counted

What to turn in:

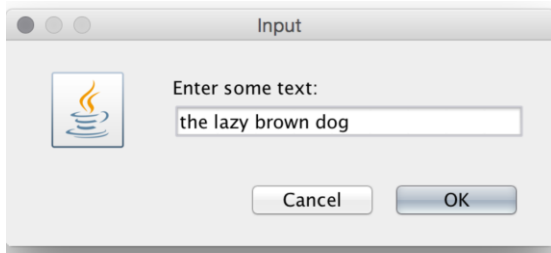
- after you test your program, upload the .asm file to eLearning

Grading Rubric:

Points	Element
10	input string from user using a dialog box
15	write a function, saving/restoring \$s1
20	count characters correctly
20	count words correctly
15	main program ends when user enters cancel or empty string
10	Display results: string, char count, word count
10	Program contains meaningful comments as usual

Sample Run:

Sample input dialog:



Sample output:

```
the lazy brown dog
4 words 18 characters
-- program is finished running --
```