Assignment 7

Non-Leaf Functions

Introduction

This assignment will build on the previous assignment. In the previous assignment, the `to_upper` function (1) calculated the length of the string, (2) allocated memory for a copy of the string, and (3) converted letters to uppercase as it copied them into the new string. In this assignment, we will implement the first two of those tasks as functions. The C code (using character arrays for strings) in `to_upper` would look like this:

```
int len = str_len(str);
char* copy = (char*)malloc(len + 1);
```

Create the Functions and Function Calls

As you did in Assignment 6, extract the code that computes the length of the string and place it in a function named `str_len` that returns the length of the string (not including the null character) and extract the code that allocates memory for the uppercase copy and place it in a function named `alloc` that returns a pointer to the allocated block of memory.

If your functions use any of the `$s_` registers, then they will need to push the current values of those registers onto the stack at the beginning and restore them off just before returning. Even if you do not use the `$s_` registers, the non-leaf function(s) will need to push the return address onto the stack before calling any function and then popping it off the stack before it returns.

Due Date

Place your work in a folder named `Assignment 7` and drop it in the dropbox. It is due by midnight Friday, September 27.