NAMES: _____

CSCI 315 Operating Systems Design
Fall 2014 - Prof. Felipe Perrone
Activity 5

This is a *think-pair-share* exercise. First of all, work on it individually. Next, choose a couple of partners and discuss what you conclude. Lastly, the class will talk about it as a group.

Consider the following snippet of C code:

```
…
int counter = 0;
void *bogus;
pthread_t mythreads[2];

void *f (void *) {
      counter = counter + 1;  // write this in MIPS assembly
      return NULL;
}

void *g (void *) {
      counter = counter + 5; // write this in MIPS assembly
      return NULL;
}

pthread_create(&mythreads[0], NULL, f, NULL);
pthread_create(&mythreads[1], NULL, g, NULL);
...
pthread_join(mythreads[0], (void **) &bogus);
pthread_join(mythreads[1], (void **) &bogus);
<<<< HERE >>>>
```

1) Using the space to the right of functions **`f`** and **`g`** above, write the translation to MIPS assembly of the lines that increment the **`counter`** variable.

2) We know that when we create multi-threaded programs, we cannot rely on any assumptions of order of execution or how they are scheduled. Considering that each thread may be interrupted after the execution of any one of its *instructions* (think machine language here!), predict the value contained in variable **`counter`** when the program reaches the point indicated by **`<<<< HERE >>>>`**.