CMPS 351: Spring 2013 Program #3
Date assigned: Thursday, January 31, 2013 Due: Thursday, February 7, 2013

This assignment asks you to write a MIPS assembly program to factor numbers. Your program should read in an integer from the console and print the list of factors for that number. Since numbers less than 2 do not have factors, if the user enters 1 or less, your program should quit.

A simple algorithm for finding the factors of a number is to start with a divisor of 2 and increment it if it is not a divisor of the given number. If it is a divisor of the number, then we print it out and check again.

```
while (i < n) {
       if ( (n % i) == 0 ) {
              print “i, “;
              n /= i;
       } else {
              i++;
       }
}
print “n.\n”;
```

Your program should include appropriate comments indicating what the code should be doing and which registers are being used. Your program should exit cleanly. Please include your name and CLID in the program headers and include your CLID in the file names. Your programs should be turned in through Moodle before class starts on the due date. You should test your programs using the SPIM simulator before submitting them.

Sample output:

Enter an integer: 5
The factors of 5 are 5.
Enter an integer: 42
The factors of 42 are 2, 3, 7.
Enter an integer: 1024
The factors of 1024 are 2, 2, 2, 2, 2, 2, 2, 2, 2, 2.
Enter an integer: 1

Objectives:

1. To review MIPS arithmetic instructions.
2. To introduce and practice with MIPS control statements.
3. To introduce and practice creating loops in MIPS assembly language.

Point Values:
Total. 100pts