CS220 – Logic Design
Project 5 – Euclid's Algorithm

Although you may consult with other students about program design and/or assembly language concepts, all programs should be entirely your own work. You may not work in teams on programming projects!

Write an assembly language program that uses Euclid's algorithm to compute the greatest common divisor of two non-negative integers.

Your program should display an error message if the user enters a number that is negative.

Here are a couple of example runs of the program to illustrate how the program output should look (user input is shown in bold):

```
$ euclid
   Enter two integers greater than or equal to 0: 1071 1029
   The greatest common divisor of 1071 and 1029 is 21.

$ euclid
   Enter two integers greater than or equal to 0: 91 770
   The greatest common divisor of 91 and 770 is 7.

$ euclid
   Enter two integers greater than or equal to 0: 36 -250
   Invalid input. Numbers must be non-negative.
```

For top marks your program should produce output that is identical to that shown.

There are both recursive and iterative implementations of Euclid's algorithm. Implementations typically use either the mod (remainder) operator or repeated subtraction. You may use any of the implementations. The program will be graded based only on the correctness of the results. (Note: The recursive implementation, while elegant and simple, is conceptually much more difficult to code in assembly than are the iterative implementations.)

I strongly recommend designing your program in pseudo-code before trying to implement it in assembly. (I also recommend implementing the algorithm in C++ to ensure logical correctness.)

Email your program source code file(s) in a zip or tar archive to richardson@evansville.edu. Use “CS220 Project 5 – Your Name” as the email subject. Submit printed hardcopy of your source code also.

Correct programs handed in after 9:00 AM on the due date will receive a top score of 80%. Correct programs handed in after the due date will receive a top score of 50%.