The following programming exercise makes use of the things we coved in this week's material. This is a practice programming assignment and is not submitted for grading. However, you can ask questions on this exercise just as you would with a graded exercise. Please use this week's discussion board for questions (or send me email if the questions are specific to you and your application). Enjoy!

Program: Greatest Common Divisor

The greatest common divisor, GCD, of two positive integers, A and B, is the largest number that can be evenly divided into both of them. The following algorithm (known as Euclid's algorithm) can be used to find the GCD of two positive integers.

1. Compute the remainder of dividing the larger number by the smaller number.
2. Replace the larger number with the smaller number and the smaller number with the remainder.
3. Repeat this process until the smaller number is zero.

When the smaller number is zero, the larger number will be the greatest common divisor of A and B.

Write a program that lets the user enter two positive integers and compute the GCD. The program should:

1. Prompt the user for the smaller number and the larger number using the Python **input** statement with appropriate conversions to integer types.
2. Use a compound **if** statement to verify the numbers are positive. If not, print an appropriate error message. The program should then conclude.
3. Verify the smaller number is <= larger number and print an error message if it is not.
4. Calculate the GCD in a loop.
5. Display the GCD using the Python **print** statement along appropriately descriptive text.
6. As the final step, put all your code into an infinite while loop so the user can calculate the GCD of as many pairs of numbers as they would like. They will type Ctrl-c to terminate the program.

Create and run this program as a Python script called **gcd.py** and test it with multiple input values.

Hint: Remember that the **input** statement will automatically convert the user's input to a string. Since your calculation will use integer values, you will need to convert the input to an integer type using the **int** function.