Program 1 on Greatest Common Divisor (GCD)

CSC 2400 Design of Algorithms

# FIND GCD USING EUCLID’s ALGORITM

## Description

Euclid’s Algorithm solves the problem of finding the greatest common divisor of two non-negative, non-zero integers. You will create a program that will calculate the greatest common divisor of two integers based on Euclid’s Algorithm.

## Specifications

* Your source code should be contained in a single file and should be named your TTU email address excluding the “@students.tntech.edu” (example: **acrockett.cpp**).
* Write a C++ program to find the greatest common divisor of two numbers m and n based on Euclid’s algorithm.
* Your program should be able to calculate the greatest common divisor for all inputs for which it is defined; you may assume the input values can be stored in an int data type.
* Your program will take in two **integers** specifying the value of m and n, and will write to standard output the final result “gcd([m],[n]) = [v]” where [m], [n], and [v] are the values of m, n, and gcd(m,n), respectively.
* In the case where the greatest common divisor is not defined, you will print the text “gcd([m],[n]) is undefined.”
* Refer to the sample output for formatting.

## SAMPLE OUTPUT

### Sample One

User input is highlighted in **yellow**.

**Enter two integers separated by a space: 943857 384**

**gcd(943857, 384) =**

**gcd(384, (943857%384)) =**

**gcd(369, (384%369)) =**

**gcd(15, (369%15)) =**

**gcd(9, (15%9)) =**

**gcd(6, (9%6)) =**

**gcd(3, (6%3)) =**

**SOLUTION: gcd(943857, 384) is 3**

### SAMPLE TWO

User input is highlighted in **yellow**.

**Enter two integers separated by a space: 89 0**

**gcd(6422400, 4201520) is undefined**

# Submission

**Zip** your source file in one zip/compressed folder named your **username\_prog1** (e.g. acrockett\_prog1).

You will upload your submission to ilearn in an assignment folder named **Program 1**.

# Grading

The grading rubric can be seen in ilearn.