

Name: Luka Aitken

Student ID: T00663672

Date: March 5, 2025

SENG 4630 – Lab 8 – Contracts

Program Output:

Correct Conditions:

```
x86_64-linux-gnu-gcc-10 -c -gnatp task1_luka.adb
x86_64-linux-gnu-gnatbind-10 -x task1_luka.ali
x86_64-linux-gnu-gnatlink-10 task1_luka.ali
root@19507a54709f:/usr/src# ./task1_luka
Enter first number: 100
Enter second number: 50
GCD is: 50
root@19507a54709f:/usr/src# ./task1_luka
Enter first number: 10000
Enter second number: 12345
GCD is: 5
root@19507a54709f:/usr/src#
```

Not Correct Conditions:

```
x86_64-linux-gnu-gnatlink-10 task1_luka.ali
root@8a8da05af334:/usr/src# ./task1_luka
Enter first number: -9
Enter second number: -3

raised SYSTEM.ASSERTIONS.ASSERT_FAILURE : failed precondition from task1_luka.adb:8
root@8a8da05af334:/usr/src# gnatmake -gnata task1_luka.adb
gnatmake: "task1_luka" up to date.
root@8a8da05af334:/usr/src# ./task1_luka
Enter first number: 2147483649

raised ADA.IO_EXCEPTIONS.DATA_ERROR : a-tiinio.adb:86 instantiated at a-inteio.ads:18
root@8a8da05af334:/usr/src#
```

task1_luka.adb

```
with Ada.Text_IO; use Ada.Text_IO;
with Ada.Integer_Text_IO; use Ada.Integer_Text_IO;

procedure Task1_Luka is

  function GCD (A, B : Integer) return Integer
  with
    Pre  => ((A > 0 and B > 0) and (A <= 2147483647 and B <= 2147483647)),
    Post => (GCD'Result <= A and GCD'Result <= B)
  is
    X : Integer := A;
    Y : Integer := B;

  begin
    while Y /= 0 loop
      declare
        Temp : Integer := X mod Y;
      begin
        X := Y;
        Y := Temp;
      end;
    end loop;
    return X;
  end GCD;

  A, B : Integer;
begin
  Put("Enter first number: ");
  Get(A);
  Put("Enter second number: ");
  Get(B);
  Put_Line("GCD is: " & Integer'Image(GCD(A, B)));
end Task1_Luka;
```