# ACM40660 Practical 8

**ICHEC**

**July 25, 2019**

# 1 Overview

This week we shall concentrate on recursive functions.

# 2 Exercises

- Write a function that returns the Greatest Common Divisor (GCD) of a pair of integers passed as arguments. The GCD of two or more non-zero integers, is the largest positive integer that divides the numbers without a remainder. For example, the GCD of 8 and 12 is 4. A convenient way to find the GCD of two integers is to use the euclidian algorithm:

GCD(a, b)
**while** $b \neq 0$ **do**
   temp=b
   b=a mod b
   a=temp
**end while**
**return** a

$$\gcd(a,b) = \begin{cases} a & \text{if } b = 0 \\ \gcd(b, a \bmod b) & \text{if } b \neq 0 \end{cases}$$

1. Use the pseudo code to construct an iterative function.
2. Construct a recursive function to do the same, using the formula below the pseudo code.