COMP 2160 Programming Practices
Lab 5

Nov. 8th - 10st

Objectives

- Profiling using gprof.

Lab Requirements

Column 9 of *Programming Pearls* must be read prior to your lab. (This is column 8 in the first edition. The online pdf is missing pages 85 and 86.)

To use gprof you will need to compile and run your code on a Linux system, which you can get to (from the Mac lab) using `ssh aviary.cs.umanitoba.ca`.

The file `lab5.c` contains some functions for estimating pi to a specified number of decimal places. The number of decimal places of accuracy is entered as a command-line argument. You will compile and run the program with various values for accuracy, and analyze the program using gprof.

Exercise 1

Compile the program on aviary using `clang -lm -pg`. Run it by typing `./a.out 6`. The 6 is a command line argument specifying the accuracy in decimal places for the estimates of pi produced by the three functions. Examine the profile produced for the execution using **gprof**. You should notice that not enough time was used in execution to create a profile. Repeatedly run the program; each time increase the number of decimal places and examine the profile. You should notice that one function quickly dominates the running time. Which one is it? Write down the running time profile for this function, compared to the number of decimal places. Can you see a pattern? What is it?

Exercise 2

Make some changes to the program so that the function you identified in Exercise 1 is no longer called. Repeat the analysis for the other two functions. Can you see any patterns for these functions?