CS375 Practical Class 1 — Ornamental Gardens

Getting Started

1. Log in to `platon` as usual.
2. Focus on an `xterm` window (start a new one if necessary).
3. Type

   ```
   ssh tartan
   ```

   to connect to `tartan`. You might be asked for a password — use your normal one.
4. Type

   ```
   export PATH=$PATH:/usr/local/pasfc/bin
   ```

5. Create a directory in your home directory for CS375 work, and move into it:

   ```
   mkdir CS375
   cd CS375
   ```

6. Copy the Pascal-FC test program to your CS375 directory:

   ```
   cp /CS/ftp/pub/CS375/test.pfc .
   ```

7. Run the program:

   ```
   pfc test.pfc
   ```

   You should see some messages about compilation (the `pfc` command compiles and runs a Pascal-FC program) followed by:

   ```
   This is a test program for Pascal-FC.
             1
             2
             3
             4
             5
             6
             7
             8
             9
            10
   Finished.


   Program terminated normally


   Type r and RETURN to rerun
   ```

   If you type `r` followed by `RETURN`, the program will be run again. If you type `q` followed by `RETURN`, you will get back to the Unix prompt.

Concurrent Processes

Pascal-FC processes, enclosed by `cobegin` and `coend`, are supposed to be executed concurrently. However, Pascal-FC is running on a single machine (`tartan`) which can only do one thing at a time. Therefore the Pascal-FC system simulates concurrency by running each process for a random amount of time, then stopping it and moving on to the next process.

(Unix switches between processes in a similar way, but does not simply run processes for random times. Note that all the Pascal-FC processes are running within a single Unix process.)

The program `parallel.pfc` runs two processes concurrently. One prints the numbers from `1` to `10`, while the other prints the letters from `a` to `j`.

1. Copy `parallel.pfc` into your CS375 directory:

   ```
   cp /CS/ftp/pub/CS375/parallel.pfc .
   ```

2. Run the program:

   ```
   pfc parallel.pfc
   ```

   Rerun it a few times. What do you notice?

The Ornamental Gardens

1. The program `gardens1.pfc` is the ornamental gardens program which we discussed in the lecture. Copy it to your CS375 directory:

   ```
   cp /CS/ftp/pub/CS375/gardens1.pfc .
   ```

2. Recall that the program has two concurrent processes, each of which increments the global variable 20 times. The final value of the variable is printed.

   Run the program:

   ```
   pfc gardens1.pfc
   ```

   Rerun it a few times. What do you notice? Can you explain it?