Signal3 Demonstration

Files

The files for this demonstration can be found in the rlogin cluster in the directory

`/web/courses/cs3214/spring2014/butta/examples/signal-demo/signal3`

The files are `esh-sys-utils.c esh-sys-utils.h main.c, Makefile rngs.c rngs.h.`

The `Makefile` will create an executable named `quad3`. This program computes the integral (the area under the curve) of a simple function using a Monte Carlo random sampling technique.

Purpose

The purposes of this demonstration are

- to see the signature of a signal handler
- to see how to associate a signal handler with a particular signal
- to see the effect of a signal handler being executed in response to a signal arriving
- to see how to arrange for a time-based signal to be delivered by the system kernel to an executing process
- to see that signals to a process can come from the system kernel itself

Part 1: Steps

1. Run the makefile to create the executable program `quad3`.
2. At the shell prompt execute the `quad3` program.
3. Observe the output that is produced.
4. When you have seen several outputs send the `SIGINT` signal to the program by entering a cntl-c (simultaneously pressing the “control” and “c” keys).

Questions

Examine the code in main.c. Based on your observations, answer these questions.

1. What is the signature of a signal handler?
2. What is the purpose of the function `esh_signal_sethandler` in this case?
3. What does the call `alarm(1)` do?
4. Why does the signal handler also call `alarm(1)`? What happens if you remove this call from the signal handler (but not from the main program). Edit the code to find out.
5. What is the meaning of the first line of output produced by the signal handler each time it is executed?