Operating Systems

Lab script #7: Signals in UNIX

Large Scale Distributed Systems
Universidade do Minho

1 Objective

To understand the concept of a *signal* in UNIX and use correctly the systems calls related to sending and catching signals.

2 System calls

```
#include <signal.h>
#include <sys/types.h>
typedef void (*sighandler_t)(int);

sighandler_t signal(int signum, sighandler_t handler);
int kill(pid_t pid, int sig);
unsigned int alarm(unsigned int seconds);
int pause(void);
```

3 Exercises

1. Using SIGINT, SIGQUIT, and SIGALRM, write a program that counts the time in seconds since it started and prints the time elapsed whenever the user presses Ctrl-C. If the user presses Ctrl- your program should indicate how many times the user has pressed Ctr-C and exit.
2. Using SIGCONT, SIGSTOP, and SIGCHLD, write a program that accepts through `argv[]` a list of commands (none of them has arguments) and runs the commands in a *round-robin* style, alternating commands n 1-second intervals.
3. Recall the solution to exercise 6 in the ”Process Management”Guide (Lab #2) and make sure that all the processes that perform the search stop as soon as one of them finds the desired value. Use SIGKILL.