

# Introduction to the Use of Computers

## Shells

Friday 16th November 2012

This lab session is about the shell components of operating systems (or operating environments).

1. This part explores the command-line and graphical shells available on various operating systems.
  - (a) Log in to the Windows desktop, and start two shells: one graphical one (Explorer), viewing your **G:** drive; and one command-line shell by choosing **Run...** from the Windows Start menu, and typing **cmd.exe**. In the window for **cmd.exe**, change the 'current working directory' to the shared directory on **igor** by typing '**G:**' and hitting Return.
  - (b) Open a PuTTY or Secure Shell Client window, and log in to **igor** using your standard username and password; you should get another window, with a shell operating on **igor** itself.
  - (c) The command-line shells have a concept of a 'current working directory', which can be accessed by running the **pwd** command (on Unix) or **cd** (on Windows). Check that you understand what is printed, particularly in the context of shared filesystems.
  - (d) To view what is in the current directory, use **ls** on Unix and **dir** on Windows. Note that these display different levels of detail; you can turn more detail on for Unix with **ls -l**, and less on Windows with **dir /w**. Try these commands on your shared home directory. Some files are hidden by default; to see the extra files, use **ls -a** and **dir /aa**.
  - (e) To change the current working directory, use the **cd** command (in both command-line shells). To change the directory to a 'child', put its name after the **cd** command; try this with your **public\_html** directory in both shells, and list the new working directory's contents again. Check that the contents you see at the command-line agree with those that you see in Explorer.
  - (f) Create a text file, **lab06.txt**, by typing **cat >lab06-unix.txt** at the Unix shell, hitting return, then typing some text, and finally **Control-D** (twice if in the middle of a line, once if at the start). You can view your file on the web at <http://www.doc.gold.ac.uk/~maXXXyy/lab06-unix.txt>. Do the same with the Windows shell, using **copy con lab06-win.txt** to start and the **Control-Z** keystroke to end.
  - (g) To copy, move and delete files, the commands to use on Unix are **cp**, **mv** and **rm** (for 'remove'). Be careful when using them! They do not ask for confirmation before destroying data. Copy the Unix text file into the parent directory from the Unix shell; then rename (move) the original to a name of your choice before deleting it. The analogues in the Windows shell are **copy**, **move** and **del**; perform the same sequence of actions in the Windows shell.
  - (h) Lastly, the Unix commands to create and remove directories are **mkdir** and **rmdir**. Create a subdirectory of **public\_html** called **lab06-unix**, and copy the saved Unix text file into that directory. You should be able to see it at <http://www.doc.gold.ac.uk/~maXXXyy/lab06-unix/lab06-unix.txt>.

`//doc.gold.ac.uk/~xxxxxxx/lab06-unix/lab06-unix.txt`. Similarly, use the `md` command in the Windows shell to make `lab06-win.txt` accessible at `http://doc.gold.ac.uk/~xxxxxxx/lab06-win/lab06-win.txt`.

2. This part of the lab consists of questions to extend the material taught in lectures.
  - (a) Describe, in words, the stages of booting an operating system.
  - (b) What is a Master Boot Record?
  - (c) What are the possible advantages of a microkernel architecture? What disadvantages can such an architecture have?