SCIT-EIS-UOW
CSCI251/CSCI851 Autumn 2020

Laboratory Preliminaries

1 Part One: The environment

This is preliminary material that should ideally be read/completed before the first lab. If you don't, you will need to do it during the first lab. There is a file `LinuxHelp.pdf` with some of the useful Unix functions. If you are unsure what is going on, please ask for help at the start of the first lab or in a help session.

1. You should be keeping the code, and other answers. You don't need to submit this but it will be useful to have notes to refer back to and we may check progress as part of determining eligiblity for the mark. The mark is primarily based on being at the lab and working through the material, but it's recognised that people work at different rates and to different depths.

2. Linux based lab. You need to be connected to Ubuntu 18.04 on the lab computers or similar.

3. The files that you produce are local to the computers, not stored on a network. This means it's a good idea to bring (and not leave behind) storage or have online storage ready.

4. You can submit material to Moodle by the end of the week. This isn't mandatory or required to get the lab marks but it's helpful to gauge student engagement and progression. Upload code you have written and notes you have taken, not the lab pdf.

Here goes what you need to do to get started.

1. If the computer has a Windows login, restart it and choose Ubuntu from the boot option menu.

2. Login using your UOW username and password.

3. Once you are logged in, right click to open a terminal window. This is the primary environment you will be compiling and running programs in. You can use preferences like the font size.

4. The terminal will open in your home directory. You can use `pwd`, present working directory, to determine where you are at any particular time.

   ```
   $ pwd
   /home/staff/l/lukemc
   ```

   Note that $ is the default command prompt. When you see that, you can enter a command.

5. It's a good idea to organise the material for each week into a directory. If you are going to store things on a USB drive you can access it on the terminal through `/media/username`. You get there you need to know a little bit about moving around directories, the following should help.

```
$ cd ~                    This will take you to your home directory from anywhere.
$ mkdir W2                This is a directory for the first lab, in week 2.
$ cd W2                   Change into the directory just made.
```

6. The material for each week will be on Moodle. You can connect through the Firefox browser, which can be opened via the icon at the top left of the desktop.
7. You should download the material and put it into the lab directory you have just made for the week.
8. To move files around you can use the Files icon, the filing cabinet, on the left of the screen.
9. Within the terminal, look in a directory using `ls`, or `ls -la` for more detail.

```
$ ls
$ ls -la
```

10. With text files you can read them using something like `cat` or `less` or `more`.
11. Long timer, learn to use an Ubuntu editor. Likely `pico` or the Text Editor opened by double clicking on a file.

2 Part Two: Compilation

1. Open an editor to make a source file `Hello.cpp`. For example, if you are using pico, type

```
$ pico Hello.cpp
```

2. Type the following code into the editor. Please don't copy and paste. I expect you will make some mistakes in typing and it's helpful to learn how to move around.

```
#include <iostream>
using namespace std;

int main()
{
     cout << "Hello World!" << endl;
     return 0;
}
```

3. Compile `Hello.cpp` using the following instruction, remembering that this is in the terminal window with your location being wherever the file `Hello.cpp` is.

```
$ g++ Hello.cpp
```

4. The default name for the executable is `a.out`. Use the argument `-o name` to specify a new name.

```
$ g++ -o Hello Hello.cpp
```

5. You can run the executables using

```
$ ./a.out
$ ./Hello
```