CSCI 161: Introduction to Programming I
Lab 1a: Programming Environment: Linux and Eclipse

Goals
- to become acquainted with the Linux/Gnome environment

Overview
For this lab, you will login to a workstation running Linux/Gnome with your personal account. You will arrange your screen so that you have a terminal window as shown below. You will create a folder for storing your work for this course. These steps are detailed below. Each step is summarized in bold and then described in more detail.

In the second part of this lab, you will type in a Java program and learn to use the Eclipse Integrated Development Environment (IDE). Finally, you will create a small Java program and submit it to your instructor for grading.

How to Use the Linux/Gnome Environment

Log in: You should see a login panel asking for your user id. Use your University ID and password for logging in.

Open Terminal: Although overall this is a graphical interface, you can interact with the system by typing commands. (If you connect to the lab machines over the Internet, you will use a similar terminal interface with typed commands.)

Once you get through the login process, you should see a display like the one at the top of the next page (Figure 1). Along the top is a task bar (similar to the task bar that’s at the bottom of a Windows®-based computer). At the left end of this task bar is the word “Activities”, and at the right end is your name (along with a couple of icons). If you click on “Activities”, a toolbar will appear along the left side of the display, containing buttons to launch several important tools (see Figure 2).
Figure 1 – the standard Linux desktop in our lab.

Figure 2 – the toolbar (left) and profile menu (right).
Click the Terminal icon, which is the top-most icon in the left toolbar. This opens up a new Terminal window like the one shown in Figure 3 below.

![Figure 3 – The Terminal Window](image)

You will type **commands** into this window. If you wish to adjust its size, drag the lower right corner. Many of the mouse gestures work the same under Linux as in Microsoft Windows. However, the main purpose of the terminal window is to allow you to type text commands that perform actions in a Linux system, rather than doing things with a mouse. Notice the **prompt message** that is displayed in the Terminal: “liffick@boole:~$”, followed by the **prompt** symbol (a black rectangle, which should actually be blinking). This basically shows that the terminal is ready for you to type in a command.

The next several steps of this lab will all be done within this terminal window.

**Create and Open 161 Directory:** In the terminal, type **mkdir 161** (with a space between the “mkdir” and the “161”). This will create a new directory (folder) named ‘161’ in your home directory (/home/students/<userid>). Now type **ls** (for ‘list directory contents’…this is the letter L followed by the letter S, both in lower case) and you will see your new directory in the list.

You will create and modify your programs for this class in your 161 directory.
Move to 161 Directory in Terminal: The current directory is displayed as part of your terminal prompt,

```
userid@machine:<working directory> $
```

The terminal starts at your home directory every time you start a terminal session or log in. You can tell you’re in your home directory when the prompt has a ‘~’ (tilde) as the working directory (between the colon and the dollar sign).

In order to work with your files for this class in the terminal, you must make sure that the terminal’s working directory is 161. Do this by typing `cd 161` (for ‘change directory’) at the prompt. You can check what the current working directory is by typing `pwd` or looking at your prompt. The output of `pwd` should be ‘/home/students/<userid>/161’. Notice the ‘161’ on the end. (Note: if it doesn’t say 161 at the end, you aren’t in the right directory!)

Initializing Eclipse: We will be using the Eclipse integrated development environment (IDE) in this class. To open Eclipse, you can type `eclipse &` (with a space between) in the terminal window. The & (ampersand) instructs the operating system (in this case, Linux) to run Eclipse in the background, leaving the terminal free for new commands. Alternatively, you could click on the Eclipse icon in the tool bar/launcher panel (if it isn’t still showing, click on the “Applications” button at the top left of the screen).

Eclipse will display a window asking for your workspace directory (see Figure 4 below). Delete the word ‘workspace’ and replace it with ‘161’. The workspace directory should now be ‘/home/students/<userid>/161’. Click on the box below that which asks if you want to use this as your default workspace directory, so that this window is not displayed each time that you open Eclipse.
The first time you use Eclipse, it typically starts up with its Welcome window displayed (see the Figure 5 below). Each of the icons in this window give you an introduction to some part of the Eclipse system, except the one on the far right that looks like a downward-turning arrow.
That Workbench icon in the upper right of the window will launch the Workbench, or you can just close the Welcome tab in the upper left. Feel free to explore Eclipse by accessing the Overview, Samples, or Tutorials…these are good ways to enhance your knowledge about the environment you’ll be working in. However, be aware that there are many parts of Eclipse that we won’t be using this semester (or at all, since they are meant for professional use).

Go ahead and click on the Workbench icon. Your window should now look like Figure 6 below. There are the usual toolbar and menus across the top, and three panes within the window labeled Project Explorer, Outline, and Task, and a fourth currently unlabeled pane (the largest one visible). You can safely close the Outline pane…we won’t be using it this semester, and closing it gets it out of your way and leaves more room for the Project Explorer pane.
Figure 6 – The Eclipse Platform

End of Lab 1, Part I.