CSE 1030 Lab 1 – Basic Use of the Command Line

PLEASE NOTE – this lab will not be graded and does not count towards your final grade. However, all of these techniques are considered testable in a labtest.

Machines in the PRISM lab use Linux, a variant of the UNIX family of operating systems. UNIX systems are known for their heavy use of the "command line", meaning the commands that can be entered at a prompt in the terminal window.

In this lab, we will go through some of the common commands that you can use. We will also review how to write, compile, and run a Java program from the command line.

Navigating the File System Hierarchy

Here we will review some basic tools for navigating the file system on the command line.

- Log in to a PRISM machine and open a terminal, if one is not open already.

  You should see something like this, called the "prompt":

  ```
  jun01 1 %
  ```

- You start out in your "home directory". Type "pwd" at the prompt and press enter. Write down the result here:

  The "pwd" command, short for "print working directory", will tell you the current folder, i.e., where you are in the file system right now.

  On unix, nested folders are separated by the "/" character. Thus, e.g., /cse/home/myfolder represents the "myfolder" directory, within the "home" directory, within the "cse" directory.

- Now let's figure out what files are already in your home directory. Type "ls" at the prompt and press enter.

  "ls" is short for "list", and lists all files in the working directory. You might not have much in there right now.

- Now let's try creating a new folder. Type "mkdir cse1030" at the prompt and press enter (make sure cse is lower case); "mkdir" is short for "make directory", and

creates a new folder with the given name. Then enter "ls" – you should see the new directory in the listing.

- Let's navigate to the new directory. Type "cd cse1030" at the prompt and press enter; "cd" is short for "change directory". Then type "pwd" and write the result below.

- List the files in the new directory. You should see nothing, as this is a new directory!

- Now let's navigate to the directory we just came from. Type "cd .." and press enter (that's cd, followed by a space, followed by two periods in a row). This is a special command that goes "up" to the next higher directory in the folder hierarchy. Type "pwd" to figure out where you are and write the result here:

- Another trick if you get lost: if you type just "cd" and press enter, it changes to your "home" directory, i.e., the starting directory when you start the terminal.

- Now, from your home directory, type "cd CSE1030" and press enter. What happens, and why?

- A couple more useful commands for you:

    - "cp" – copies files
    - "mv" – moves files from one place to another
    - "rm" – deletes files

- Note that "cp" and "rm" only work on regular files, not directories.

- Another hint: The tilde (~) refers to your home directory. If you want to directly access your cse1030 directory from anywhere, you can type: cd ~/cse1030

Entering, compiling, and executing a simple Java program

- Change to your cse1030 directory. You will need to enter the following simple Java program:

```
public class Lab1
{
     public static void main(String[] args)
     {
          System.out.println("This is Lab 1")
     }
}
```

  You need a text editor – there are lots available, but two good examples are jedit (with a window) and nano (which just runs in the terminal).

  There is a deliberate error in this file. LEAVE THE ERROR IN. What error is it?

- When you save this file, use the filename "Lab1.java". Why?

- Now let's compile this file. At the command prompt, type:

  javac –cp . Lab1.java

  - javac is the name of the java compiler
  - the "-cp ." is an option that tells javac to look in the current directory for any additional source files that it needs (not needed in this case, but good to get in the habit of doing this).
  - Lab1.java is the file you want to compile

- What is the output?

- Correct the error and compile again. What happens this time?

- Now type "ls". You should see a file: Lab1.class – this is the compiled output of your java program.

- To run the java program, type:

  java –cp . Lab1

  - java is the name of the "Java Virtual Machine" – the program that executes the "class" file
  - the "-cp ." has the same meaning as for the compiler (again not needed here, but a good habit)
  - Lab1 is the class file – extension is not needed, it will automatically look for "Lab1.class".

- What do you see on the screen?

Submitting your files

- We will now review how to submit your files. Verify your current directory with "pwd" – if it is not your cse1030 directory, then change to that directory.

- To submit, execute the command:

  ```
  submit 1030 lab1 Lab1.java
  ```

  The correct form of the command will normally be given to you. Submit commands are of the form:

  submit (course number) (assignment name) (file to submit)

  If the result is something other than "All files submitted successfully", ask the TA for assistance.