Guided Tour (Version 2)

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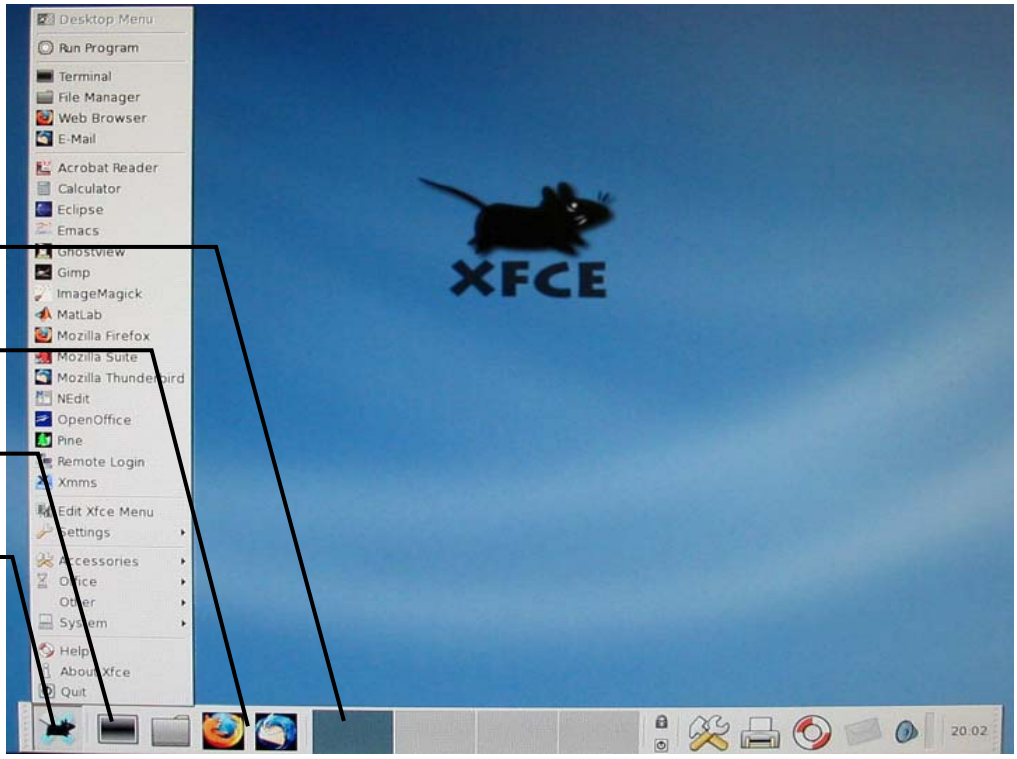
This document was inspired by the Guided Tour written by Professor H. Roumani. His version of the tour can be accessed at the following URL: http://www.cse.yorku.ca/~roumani/jbaYork/GuidedTour.pdf.

The *Xfce* (*Linux*) Desktop



Applications Menu

For a list of available applications, click the *Xfce* icon or right-click the desktop. An application can be started by selecting it from the menu. In addition to *Firefox* and *Thunderbird*, other applications include *NEdit* (a text editor with which to write programs), *Acrobat Reader* (to view and print PDF files), and *OpenOffice* (to create, edit, and print *Office* documents). You can also log-out by selecting `Quit` at the bottom of the menu and clicking `OK`.

Terminal

The terminal (also known as the console or the command-line) allows you to enter commands. You will use the terminal to compile, run, and submit your programs. It is the most versatile operating system component that you will use in computer science.

Starting Firefox and Thunderbird

The *Firefox* Internet browser and the *Thunderbird* email client can be started with a single click. *Firefox* is configured with department-specific bookmarks, while *Thunderbird* is configured to access your CSE mail account

Workspaces

The operating system's desktop is where you can arrange your application windows. With *Xfce*, you can arrange you windows across four (by default) virtual desktops (also known as workspaces). Although you can only work with one at a time, the applications on all workspaces remain running.

To switch between workspaces, you can click on the thumbnail images. Alternatively, you can scroll the mouse wheel on an empty portion of the desktop. Even if you do not use the extra workspaces, make sure that you do not accidentally switch to them as you work.

Focusing with the Mouse

With *Windows*, you indicate the active window by clicking within it. The window remains active until you minimize it or select another window. However, with *Xfce*, the active window is the one that contains the mouse pointer. If you move your mouse pointer to another window, the new window becomes the active one.

For example, if you want to type a command in a terminal, you must first position your mouse within its window. If, as you type, your mouse pointer moves outside of the terminal window, the terminal will not receive your keystrokes.

Simple Commands

Command: `pwd` **Example**: `pwd`
Description: Displays the current directory (a.k.a. working directory). The same output can be seen a terminal window's title bar.

Command: `man command` **Example**: `man submit`
Description: Displays the user manual for the passed command. The user manual details the type and number of arguments required by the command, and lists all the available command options. To scroll through the user manual, press the spacebar. To exit the user manual, simply press the Q-key.

Command: `mkdir dirName` **Example**: `mkdir eChecks`
Description: Creates a subdirectory with the passed name in the current directory. The example creates a subdirectory called "eChecks".

Command: `cd dirName` **Example 1**: `cd` **Example 2**: `cd ..` **Example 3**: `cd mail`
Description: Without any argument (Example 1), this command changes the working directory to your home directory (equivalent to the "My Documents" folder in *Windows*). With the argument "`..`" (Example 2), this command changes the working directory to the parent directory. If you provide the name of a subdirectory as an argument (Example 3), this command changes the working directory to be that subdirectory (e.g., the subdirectory called "mail").

Command: `ls dirName` **Example 1**: `ls` **Example 2**: `ls mail` **Example 3**: `ls *.txt`
Description: Lists the contents of the directory specified by the argument. Without any arguments (Example 1), this command lists the visible contents of the working directory. If the argument is a directory name (Example 2), this command lists the visible contents of that directory (e.g., the subdirectory called "mail"). Example 3 lists all files in the current directory that have a ".txt" extension. You can use the "*" wildcard to search for files that match a pattern. There are many options for this command, such as "`-a`" to show hidden files and "`-l`" to show file and directory details. Enter the command `man ls` for further details.

Command: `rm fileOrDir` **Example 1**: `rm First.java` **Example 2**: `rm –r eChecks`
Description: Removes the file or directory indicated by the argument. The first example deletes the file "First.java". The second example (note the "-r" option) removes directory called "eChecks" and all of its contents. **Use this command with caution!**

Command: `cp orgnl cpy` **Example**: `cp First.java First_backup.java`
Description: Copies the file *orgnl* to the location *cpy*. The example creates a copy of "First.java", called "First_backup.java".

Command: `mv old new` **Example**: `mv First.java Second.java`
Description: Moves the file *old* to the location *new*. This command can also be used to rename files. The example renames "First.java" to "Second.java".

Command: `script log` **Example**: `script A1_log.txt`
Description: Records the commands and output generated at the terminal until `exit` is entered. The record is written to a file, whose name is passed as an argument.

Auto-Completion and Command History

You do not have to type entire filenames or directory paths. Type the first couple of characters, followed by the TAB key. The operating system will complete the rest of the name or path. If there are multiple matches, the operating system will complete only the common portion. You will have to type additional characters to identify the desired file or directory.

To repeat a command at a terminal, you can use the up- and down-arrow keys to cycle through commands you previously entered. This can be very beneficial during labs and lab tests, as you will repeatedly compile and run your program to test it.

Creating and Editing Text Files

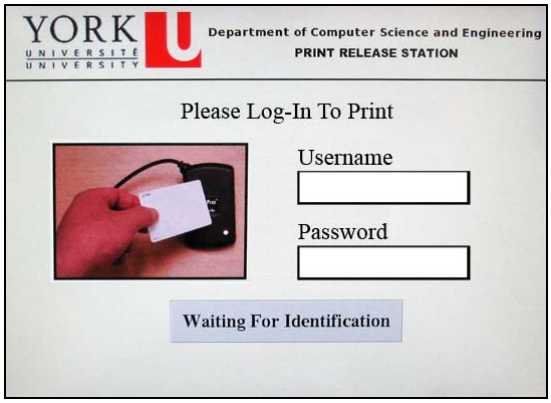
To create and edit your programs in 1020, I recommend you use a text editor called *NEdit*. Other text editors are installed on the system, such as *Pico*, *Emacs*, and *Vim*. However, *NEdit* is considered the most user-friendly. To start *NEdit*, you can select it from the applications menu, or enter `nedit &` at a terminal. Optionally, you can include a filename (e.g., `nedit First.java &`). If the file already exists, it will be opened automatically. If not, the file will be created.

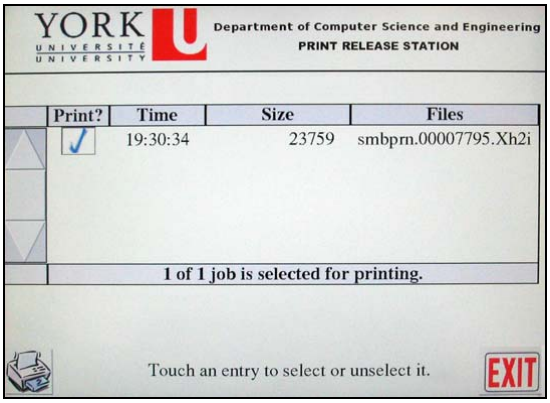
When testing a program, its content will be referenced by line number. Under the `Preferences` menu, click on `Default Settings`, and then select `Show Line Numbers`. This will show the line numbers along the left margin. Under the same `Default Settings` menu, select the option `Show Matching (..)` and set it to ON. This will help you avoid putting too many or too few parenthesises in your code. Again under the `Preference` menu, select `Save Defaults` and click OK. This will save your preferences.

Printing Files

Included in your course fee is a print quota of 500 pages. To display the number of pages remaining in your quota, enter the command `pquota` at a terminal.

Typically, you can print an open file by selecting `Print` from the `File` menu. After you send the file to be printed, go to any print station in room CSEB 1004 or 1006. Touch the screen to activate it. Enter your username and password using the attached keyboard. Ensure that the files you want printed are selected, and press the print icon in the bottom-left corner. To exit without printing, press the exit icon. If you experience any printing problems, contact the lab monitor.





Creating a Java Program

Before you can run a Java program, you need to write its code, compile it, and correct any syntax errors. If you have not yet done so, read the above section, "Creating and Editing Text Files". Create a new text file named `First.java` with the following content:

```
import java.util.Scanner;
import java.io.PrintStream;

public class First
{
     public static void main(String[] args)
     {
          Scanner input = new Scanner(System.in);
          PrintStream output = System.out;

          output.println("My name is ???");
     }
}
```

Replace "`???`" with your name. Save your program. Compile it by entering `javac First.java` at a terminal (note the "`c`" in "`javac`"). The compiler will identify the type and location of any syntax errors. Correct any errors in your code, save your changes, and recompile your code.

Enter `java First` at the terminal to run your program (*do not type* the "`.java`" extension). Your program should output "My name is", followed by your name.

Configuring *eCheck*

Your weekly lab assignments will take the form of "eChecks" – programs that are checked electronically. You will learn more about eChecks in the textbook. However, you must first configure the *eCheck* program that checks your code. Enter the command `java Options` at a terminal.

Uncheck "Work Offline". Enter your username, password, and the following URL:

```
http://www.cse.yorku.ca/~roumani/type/ec/ec.cgi
```

Double-check that you entered the URL correctly. When you are finished, click `Apply`.

Submitting eChecks

Each eCheck exercise is given a three-character code (e.g., 03A). You can check an eCheck exercise by entering the following command at a terminal (replace "03A" with the particular code):

```
java eCheck 03A
```

Your eCheck program will be tested with various inputs. **If your program passes all the tests, your code will be automatically submitted and a mark indicating your completion will be recorded.** If your program does not pass all the tests, output will indicate the given input, the expected output, and how your program's output differed from the expected one. Examine how your program's output is different, make the necessary changes to your program, and check the exercise again. You can check and revise your program as many times as you want before the eCheck's deadline. **Nothing is submitted until your program passes all tests.**

Submitting Assignments

Not all exercises in computer science courses are eChecks. You will be required to submit assignments and lab tests. To do so, you will use the `submit` command, which has the following structure:

```
submit course testName yourFile1 yourFile2 ... yourFileN
```

For example:

```
submit 1020 LT1 MyProgram.java readme.txt
```

It is recommended that you submit your files early and often. Newer files overwrite those with the same name. For more information, enter the command `man submit` at a terminal.

Assignment One

Your first assignment will test your ability to follow written instructions and to apply the information presented in this document. This assignment assumes that you have configured *eCheck*, and created, compiled, and run `First.java` as outline in the above sections "Configuring *eCheck*" and "Creating a Java Program**"**, respectively. If you have not done so, please complete these tasks before proceeding.

Before you begin this assignment, ensure you can spend at least 20 minutes on it. This assignment is a relatively short one, but it must be completed in one sitting. Before starting, read all the instructions and re-read this document to address any questions you might have. **Use only one terminal window.** If you accidentally close the terminal window, if your computer crashes, or if you would like to re-submit the assignment, see the section below called "Starting Over".

Follow these instructions in-order:

1. Log-in to a workstation in CSEB 1004 or 1006.
2. Open a terminal window.
3. Go to your home directory by entering the appropriate command at the terminal you just opened.
4. Enter the command `script asgn1_log.txt` (i.e., type the command, then press ENTER).
5. Enter the command `pwd`

6. Make a copy of the file `First.java` called `Check01A.java` by entering a command at the terminal.
7. Make a subdirectory called `asgn1` in your home directory by entering a command at the terminal.
8. Move the file `Check01A.java` (source) to the `asgn1/` (destination) subdirectory by entering a command at the terminal.
9. Change the current directory to `asgn1/`
10. Open the file `Check01A.java` in a text editor.

11. Modify your program so that it only outputs one line: "My Account Number is ???". Replace "???" with your username. Remember to save your changes.
12. Compile the program `Check01A.java` at the terminal.
13. List the contents of your working directory by entering a command at the terminal. Check that there exists a file called `Check01A.class`

14. Run *eCheck* to test your program. Do so by entering `java eCheck 01A` at the terminal.
15. *eCheck* will indicate an error with your output. However, it will also tell you what your program produced and what it expects as the correct answer. Make the appropriate modification to your code, save the change, and run *eCheck* again with the previous command.
16. Repeat step 15 until *eCheck* states that your program "passed all tests".
17. Enter the command `exit` to stop the script command.

18. Return to your home directory. List its contents. Check that you have a file called `asgn1_log.txt` If you wish, you can view its contents by opening it in a text editor. Make sure that the file is not empty, but **do not make any changes** to the file.
19. Enter the following command to submit the file: `submit 1020 A1 asgn1_log.txt`

Congratulations, you have just finished your first assignment!

Starting Over

If your computer crashed, or you accidentally closed the terminal window, you might have to start Assignment One from the beginning. If so, follow these instructions:

1. Enter `cd` at a terminal.
2. Then, enter `rm –r asgn1` at the same terminal. For each file, enter `y` to confirm its deletion.
3. Repeat the section, "Assignment One".