

CPSC 313 Lab Manual

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In the CPSC 313 Lab we will be solving a number of increasingly more challenging system-programming machine problems. They will exercise our skills in making use of system resources and services, such as the file system, process control, process intercommunication, and networking and distributed computation. We will be using Linux for this lab. In the following, you find a list of FAQ's for this lab, which should address most of the issues you may encounter when getting started with the lab. (If you should notice something missing in this document, please let us know, and we will address it.)

CPSC 313 Lab FAQ:

1. Where can I find the course homepage?

The fact that you are reading this document means that you found the course home page for CPSC 313. The homepage has all relevant information for the course, such as contact information of instructor, TA(s), and peer teacher(s), links to slides and other information, and a link to the lab website. Follow this link to access information about lab assignments, resources, and other items.

2. Where are the hosts that I will use for the Lab assignments?

There are several Linux machines reserved for your use. One good example is `linux-new.cs.tamu.edu`, which runs a recent version of Ubuntu. The details of the particular Linux distribution should not matter. If you encounter problems with unavailable software or tools, please let us know immediately, and feel free to at least temporarily make use of other machines in the Department.

3. What is my user name and password for the Lab machines?

All students who register for courses in the CS Department are given a CS account. This account comes with a user name, and e-mail account, and a home directory with considerable amount of disk space reserved. Your e-mail account will be of the type `<xxx>@cs.tamu.edu`, where `<xxx>` is your user id.

Your user name and password to login to the Unix system will be the same as your email account.

Details about claiming your CS account can be found at https://wiki.cse.tamu.edu/index.php/Getting_Started_Guide.

4. I don't like this Linux business. Can I develop my code on my Windows machine?

No! The lab projects (and the entire course, in fact) is about programming against the POSIX/UNIX API. When you submit your code, the TA will compile and test it in a Linux environment. Code that has been written to use the Windows Win32 API will not work! If you want to develop and test your code locally on your own machine, you can install a virtual machine monitor, such as VirtualBox, and install Ubuntu on a local virtual machine.

Details about installing VirtualBox can be found at <https://wiki.cse.tamu.edu/index.php/VirtualBox>.

Details about using Ubuntu can be found at <https://wiki.cse.tamu.edu/index.php/Ubuntu>.

5. Can I at least edit my files from my Windows account?

Yes; your home directory on your Windows account is the same as on your UNIX account. If you are more comfortable, you can edit the source files in a Windows environment, using any of the development environments such as Visual Studio, Borland C/C++ Builder, Eclipse and others. Any changes to the files will be visible from your UNIX account, where you compile and run your program.

6. How do I compile and run my program on the UNIX machines?

The following link gets you to documentation that describes how to compile and run C and C++ programs in a UNIX environment:

https://wiki.cse.tamu.edu/index.php/Compiling_C_C%2B%2B_UNIX

It covers the simple case of a single source file and that of multiple source files that need to be compiled and linked together.

7. How do I turn in my labs?

Turn in your lab source code and other files using the submission system on ELEARNING. Each submission will typically consist of a Lab report, some source files and output files (e.g., executable files). When submitting, please add all files as attachments directly, instead of putting them in a zip file first.

Note that you cannot take back what you have turned in once the deadline is passed. Please try to avoid submitting your work by email.

8. I want to complete my assignments from home! How can I access the CS VPN from off-campus?

The following link has documentation on how to access CS resources from either off-campus or over wireless through VPN:

https://wiki.cse.tamu.edu/index.php?title=Category:Computer_Science_and_Engineering_VPN

It has documentation for various operating systems, such as Windows, Mac OS, Linux, and for dial-up users.

9. How can I access the UNIX lab machines remotely?

If you work on a Mac OS or any other UNIX based machine, you can easily access the lab machines through command line tools, such as ssh or sftp. For Windows machines you can use tools like PuTTY or F-Secure. Documentation for ssh clients can be found at

https://wiki.cse.tamu.edu/index.php/Logging_into_Unix_using_SSH_on_Mac

and for file transfer clients at

https://wiki.cse.tamu.edu/index.php/File_Transfer_Clients

10. How do I use a UNIX system?

A description of basic UNIX commands, which should at least get you started, can be found at https://wiki.cse.tamu.edu/index.php/Basic_UNIX_Commands.

11. UNIX has so many commands, functions, and system calls! Where can I find documentation?

The easiest way to access information about specific UNIX commands and calls is

through the man pages. You access this documentation through the “man” command. At a shell prompt, simply type “man gcc” to know more about the gcc compiler command. The same counts for system calls or library functions. For example, type “man signal” to learn more about the “signal” function in the Standard C library. Type “man man” to learn more about man pages.

There are many systems that support hypertext access to man pages. At the shell prompt, you can use the “info” command. (Type “info info” to learn more about it.) Alternatively, there are many resources on the Web, for example a hypertext version of the Linux man pages at <http://linux.die.net/>.