Miami University
College of Engineering and Computing
Department of Computer Science and Software Engineering

CSE-278 Systems I Fall 2018

Lab 01

These first lab is a simple practice to familiarize yourself with the lab hardware and software, from different environments. Please read the section on Labs/Homeworks on the syllabus. Some of the last supplementary problems are more complicated, but are a good preparation for the following labs.

Normally you, will find the source and data files in

`/home/cse-278/WK01`

This time it has the files

```
lb01.pdf
ex-lab01.docx
fwunixref.pdf
ShellComands.pdf
```

The first one is the **.pdf* file that you are reading. This lab is important because it will show you how to access course materials from the host

`database.csi.miamioh.edu`

First you need to know that there is three ways to develop and run your C/C++/Java programs:

1. *Download files* from the server to your lab computer. And then use an IDE, to develop, compile and run your program.
2. *Run your IDE* on remote files. This is very similar to the first, but the IDE, will look for your source files, input and output remotely.
3. *Remote login* to the server. Using an editor to edit your program, compile and run. This requires some knowledge of Linux commands. For the most part, you can do most thing using a handful of them. *Become familiar with them.*

If you are comfortable using *JGrasp, Eclipse, NetBeans, VisualStudio* you may want to use methods 1,2. The last method is more flexible and you should learn it too. In upcoming labs, we are going to see both methods, with some emphasis on the last one. In directory `Documents` you will find handouts, as well as course information.

Work through the worksheet `ex-lab01.docx`, and submit it to grading by due date.

These exercises are about file transfer programs *for MS Windows*, that can be used as an *alternative* to the Linux/macOS as our *de facto* environment in the lab, it also gives you a taste of compiling with command lines and and a useful alternative to *scp*.

Bear in mind *these are not graded*, but you should work on them either in the lab, or at your own pace.

1. Login to your account using `puTTY`, using your host above and your userid. You may change your password using the command `passwd`. Navigate through directories in
   `database.csi.miamioh.edu`
   with `cd` and `ls`. If necessary, learn a few more commands by using either crib sheets in **.pdf* format.

2. Go to the lab directory and check that the files listed above are actually there. To see them (especially the pdf files) you need to transfer the files to your local computer. On a MSWindows environment, use the program *winSCP*. Many people like *winSCP*
   Alternatively, you may use *psftp* to transfer the file (*mput ** to upload, *mget ** to download to your local computer). Type `help` for other commands. Check the *.pdf in the local computer. *This step is very important as we will do this at every lab.* Download, `schedule.pdf` and `syllabus.pdf` which are in
   `/home/cse-278/Documents`
   Become familiar with the syllabus.

3. After login using *puTTY* (also accessible from *winSCP*), use *nano* or *vim* (highly recommended) to edit a very simple "Hello, world" program. Make sure you save the program with a *.java, .cpp, .c* suffix. Compile it and run it. For Java, issue the commands, [1]

   ```
   javac Hello.java
   java Hello
   ```

   For C++:

   ```
   g++ hello.cpp
   ./a.out
   ```

4. Another widely used program which has trascend time, is `ftp`, in its secure version `sftp`. From a Linux/macOS environment. Read the man pages first `man ftp`. Once the connection is establish and you get the prompt
   `sftp>` type `help` to get a number of unix-like commands. Pay particular attention to `mget` and `mput`, which can be use with metacharacters for file substitution, and allows to transfer many files at ones.

5. At this point, you can upload all the files in `/home/cse-278/WK01` to your local computer. You can do this from anywhere, as long as you have an internet conection, and the corresponding clients on your computer.

Starting with Linux is a little rough-going at the beginning. Please, do not hesitate to ask me... but first, try to crack the problem yourself!. You will learn much more.

[1] May not be available on the first weeks