cs3157 – Advanced Programming
Fall 2005, lab #8, 1 hour, 3.5 points
Nov 22, 2005

Released Online

Follow these step-by-step instructions. This lab must be submitted electronically (see instructions at the end of the lab) by Sunday Nov 27, 6 pm (*no extension*).

1. From your cs3157 directory, create a directory called lab8. cd to your lab8 directory and put all your files in there.
2. Remember if you find yourself getting stuck, ask for help.

The point of this lab is to make sure you have covered some fundamental components of the course. One of the goals of 3157 is to teach the tools which you will find useful and necessary in many advanced computer science courses.

One of the results of today's lab will be a text file, with a write-up of your experiences, and results of specific trail to get things correct. Please clearly document your working environment (clic lab (which machine)), remote (detailed). If you run into any configuration problems please document them.

As a reminder, you can remotely access any linux machine in clic by using the appropriate name.clic.cs.columbia.edu. In addition, to ssh/putty into a linux machine, try compute.cs.columbia.edu and to ssh/putty into a sun machine, try cluster.cs.columbia.edu.

Step 1 (.5 points) VNC

VNC is one (of many) ways of accessing a remote system, and running things locally. In this part of the lab, you will make sure you can start a vnc session, and remote access it. If you don't have a clic account, please download and use the vnc client (vncviewer) on your own machine.

1. log into a clic machine running linux.
2. try to cd into the **.vnc** directory.
   if it exists skip to step 3
   a. type:
      `vncserver`
      this will start the vncserver, for first time use, it will ask you for a password (choose a good one) in addition, it will tell you which port it is running on. For example cairo.clic.cs.columbia.edu:3, means it is running on port 3
   b. now kill the session you started by typing:
      `vncserver –kill :3`
   c. now cd to **.vnc** directory
3. edit a file called **xstartup**
   make sure it looks like:
   ```
   unset SESSION_MANAGER
   exec /etc/X11/xinit/xinitrc
   ```
4. now start a vncserver session by typing in
   vncserver

5. You can now access this session from any machine on the internet. By downloading a vnc client for your own operating system.
6. on any clic machine, start a terminal and type
   vncviewer

You can now access your vncserver, try to play around and then close the session, and then reconnection. Surprise everything is the same. As long as no one reboots the machine, your session is alive.

Please write up 2 paragraphs on some of the advantages and disadvantages of running vnc. In addition please include any problems you might have had.

Step 2 (.5 point) make sure webthumb works.

I want you to prove that you can run **webthumb** from homework 2. Please choose a completely random (appropriate) website and generate a snapshot picture as a 400 by 400 jpg named step2.jpg. if you are not in the clic lab, a hint: use a vnc session to access a linux machine (and be sure to delete the .webthumb directory if you have problems).

Please note: the webthumb script tries to be smart, by only loading mozilla once into memory, and using the .webthumb directory to keep track of this. In case something goes wrong, make sure you don't have a process running in the background. You can check it with the 'ps' command (ps –au username) (replace it with your own username).

Provide a write-up of your experiences and problems you might have run into.

Step 3 (1 point) c practice debugging.

You will now need to master debugging a c program using gdb. There are many tutorials on the internet, here is one: http://users.actcom.co.il/~choo/lupg/tutorials/debugging/debugging-with-gdb.html
Feel free to find another.

I want you to document how you used it on your program and your experiences (positive and negative). The write up should be longer than just:
I debugged and it was good.

Please include a detailed description (3-5 paragraphs) of what program you decided to use, how you launched it. Some of the commands you tried, and some problems/issues you faced. Also if you learned anything from this ☺

Extra credit: include a log session of your session using gdb.

Extra Credit2: find a visual IDE for c , and compare your experiences with gdb.
if you don't own visual studio or equivalent, you can try (http://www.bloodshed.net/dev/devcpp.html) (I haven't used it, but looks ok).

Step 4 (1 point) Getting c to run external process

There are a few mechanisms to have your c/cpp program run external commands.

One way is to create a copy of your own process and replace it with the command you would like to run. See http://www.cs.cf.ac.uk/Dave/C/section2_22_22.html or

http://www.csl.mtu.edu/cs4411.ck/www/NOTES/process/fork/create.html for more information on using fork/exec.

Another way is to use the system command in stdlib.h.

Read up on both methods, and write a paragraph or more on the advantages and differences between the two methods.

Also please make sure you have completed Lab 6 and 7.

Good luck and enjoy your Thanksgiving weekend!

Submit your lab.

Submit your lab assignment:
unix$ ~cs3157/bin/submit-lab 8