CS 242: Lab 2 Problems

Note: Use only command-line interface, not GUI. If there are any queries, ask any TA present during the lab. Open ssh-server needs to be installed on your desktop. It can be installed using sudo apt-get install openssh-server.

1. Read the Linux user administration tutorial (<http://jatinga.iitg.ernet.in/~asahu/cs241/User_Admin.pdf>). In the tutorial (page 5), there will be suggestion to use Korn Shell (/bin/ksh). This shell is not installed by default on Ubuntu. Please use the bash shell (/bin/bash), instead of /bin/ksh. The following questions are based on this tutorial:
   1. Create three user account on your system: cs242\_1, cs242\_2 and test\_account.
   2. For every user created, there will be an entry in the /etc/passwd file. Verify that there are entries with the users just created. You can read the ”Understanding fields in /etc/passwd” section of this tutorial: <https://www.cyberciti.biz/faq/understanding-etcpasswd-file-format/>
   3. After creation of users, create a group named cs242.
   4. Add cs242\_1 and cs242\_2 users to cs242 group.
   5. Now switch user to cs\_242\_1. You can use the following command: su – username
   6. You can find out which the user name of the current logged in user with the command: whoami
   7. What is the home directory for this user?
   8. Create a file named: test\_file.txt inside the home directory.
   9. Open a new terminal, switch user to cs242\_2.
   10. Try to edit the file created in point f. You can use a command line editor tool such as nano to edit the file. To open the file type: nano file\_path\_of\_the\_file\_that\_needs\_editing. The accepted answer of this (<https://askubuntu.com/questions/54221/how-to-edit-files-in-a-terminal-with-nano>) stack overflow post will provide necessary details to edit files with nano.
   11. Were you able to edit and save changes to the file? Why the cs242\_1 user is able to edit files of the cs242\_1 user?
   12. Now open a third terminal. Switch user to test\_account and repeat the point I. Is this user able to edit the file?
2. Read the ssh tutorial (<https://www.ssh.com/ssh/command/>) till “SSH client configuration file” section. The following questions are based on this tutorial:
   1. Share the username (test\_account), its password and your IP with one of your batchmate sitting next to you. You will also receive the similar details form the same batchmate.
   2. With the details received, login into the machine with the ssh command.
   3. After login, you can check the current logged in users to that machine using the users command or w command.
   4. Now be curious and find out what you can do with this access.
      1. Can you read the content of your batchmate's home directory?
      2. Can you modify the content in your batchmate’s home directory?
      3. Can you update or install new software in the system?
      4. Can you shut down or reboot the system?
      5. Can you monitor the system usage?
      6. Can you check the processes running on the system and kill the browser process?
   5. Now revoke your batchmate’s access by deleting the test\_account.
   6. Also delete the group and the user accounts created for this assignment.
   7. Check the /etc/passwd file, does it still contain the deleted user entries?
3. You can check when and who logged into your system using ssh, as well as failed login attempts using the following command: journalctl -u sshd -n 100. Where –n option indicated the number of latest logs to be displayed. The above command shoud work on latest version of Ubuntu. Otherwise, another way to check is by looking the content of /var/log/auth.log file.
4. Self-paced reading material for disk partitioning: <http://jatinga.iitg.ernet.in/~asahu/cs241/USB-Partitioning.pdf>. Be very careful in selection the correct device. A simple copy paste can wipe your existing partition, which can lead to OS reinstallation. You can also refer to <https://www.tldp.org/LDP/sag/html/partitions.html> for understanding what partitions are and why they are needed.
5. Linux package management reference: [https://www.linode.com/docs/tools-reference/linux-package-management/.](https://www.linode.com/docs/tools-reference/linux-package-management/. )  Read the package management concepts and debian and ubuntu package management sections.