Introduction to Linux
(Exercises)

Getting Help:

1. Verify that the manual pages have been installed on your system
2. Create new man pages for your system
3. In one line, get a description of the 'alias' command
4. Get help information about the 'df' command and scroll through it, up or down, at will
5. Display examples of how to use the 'sort' command
6. Using the information from the previous command, sort the output from 'compgen -c' in reverse order

System & Process Management:

1. List all processes running on the computer by all users
2. List processes in real time. Sort them in descending order by the amount of memory being used
3. Display the kernel and operating system version information
4. Show all active connections to the computer
5. Find out how long the system has been running
6. Run the 'cat' command in the background
7. Identify its process number and kill it
8. Open a web browser and terminate it using its process name
9. Display the sentence, 'This is a test', on the screen using a variable
10. Create a new file named 'test.txt' which has the line, 'This is a test'
11. List all files in the current directory and show the contents of the 'test.txt' file, using a single statement
12. Display a list of all commands you have run in the current session

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Managing Files and Folders:

1. Create two directories in your home directory named ‘tmp1’ and ‘tmp2’
2. Move to the tmp1 directory and create an empty file named ‘test1’
3. Without using an editor, add the statement, ‘This is a test’, three times to the file
4. Copy the ‘test1’ file to ‘test1.backup’ in the same directory
5. Copy the contents of the .bashrc file in your home directory to ‘test1’, without overwriting the previous content
6. Copy all lines in ‘test1’ that have the word ‘alias’ to a new file in the ‘tmp1’ directory called ‘test2’
7. Copy the file ‘test2’ to ‘test3’ in the same directory
8. Copy the last ten (10) lines of ‘test1’ to ‘file1’
9. Copy the first three lines of ‘test2’ to ‘file2’
10. Copy ‘file1’ and ‘file2’ to the ‘tmp2’ directory
11. Delete the original ‘file1’ and ‘file2’ files from ‘tmp1’
12. Modify the permissions for ‘file1’ and ‘file2’ in the ‘tmp2’ directory so they cannot be modified without root
13. Create a hard link between ‘test3’ in the ‘tmp1’ folder and a new file in the ‘tmp2’ folder with the same name
14. Add the line ‘This is another test’ to ‘test3’ in ‘tmp1’ and verify that the linked file in ‘tmp2’ is updated
15. Display the last 3 lines in ‘test3’
16. Compress and archive all files in your home directory to ~/backup.tar.gz, if the name begins with ‘test’
17. Verify the contents of backup.tar.gz without extracting the files
18. Copy all files in ‘tmp1’ to ‘tmp2’ if the name includes the word ‘backup’
19. Change your current working directory to the root folder (/)
20. Do a search for all files in your home directory with names that include the word ‘test’
21. From your home directory, create a new file (‘findtest’) that includes the command from the previous step
22. Make the new file from the previous step executable and test it

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Networking:

1. Run a command that displays the IP configuration of the local computer
2. Run a command that displays only your public Internet IP address
3. Create aliases for each of the first two commands and test them
4. Verify Internet connectivity between your computer and github.com
5. Save the IP address of github.com to a new file named /tmp/github.ip
6. List the IP routers between your computer and github.com
7. Create a secure shell connection to your computer and establish super user credentials
8. Add the IP address 8.8.8.8 as one of your DNS servers (**Note**: Always backup config files before modification)
9. Configure name resolution so that your first name can be used as your computer name
10. Create a list of all open port numbers on your computer and put them in a file named /tmp/openports
11. For each open port number below 100, find the name of the service it is used for
12. In the /etc directory, review the content of the 'hosts' file, then rename it to 'hosts.old'
13. Download the 'hosts' file from http://raw.githubusercontent.com/StevenBlack/hosts/master/
14. Review the content of the new 'hosts' file
15. Verify you still have Internet connectivity by using a web browser to connect to a website
16. Close the secure shell connection and verify you are in your previous session
17. Download the 'Linux_Command_Reference.pdf' file using the path, http://raw.githubusercontent.com/neiltucker/bootcamplq/main/, to your home directory
18. Verify the file downloaded successfully and you can view it from the GUI

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Managing Applications:

1. Update and upgrade the application packages on your system
2. List all packages installed on the system
3. Remove unnecessary library dependencies from the system
4. Install Apache web server on your system
5. Verify that the service is set to auto-start and verify that it is running
6. Test connectivity to the default website
7. Using the configuration files in /etc/apache2, locate the website files
8. Locate the DocumentRoot folder and modify the default website page with one that you create yourself
9. Test connectivity to the new website page
10. Disable the apache2 service
11. Create a user account named student2 and make sure it has a home folder and uses the bash shell
12. Assign a password of 'Password1' to student2
13. Test the login account of student2 and verify the home directory and shell settings
14. Attempt to elevate student2 to super user to verify the account does not have those privileges
15. Logout student2 to return to your original account
16. Run visudo to give student2 root privileges
17. Visudo opens /etc/sudoers file. Find the line for root. Add an identical line for student2. Save & exit
18. Login as student2
19. Verify that student2 is now able to use super user privileges