

## Practice Final

The following files are located in /home/jason/

### prime.sh

```
#!/bin/bash

n=$1

i=1
c=1

while [ $i -le $n ]; do
    i=$(expr $i + 1)
    r=$(expr $n % $i)
    if [ $r -eq 0 ]; then
        c=$(expr $c + 1)
    fi
done
if [ $c -eq 2 ]; then
    echo "Prime"
else
    echo "Not Prime"
fi
```

### greek-figures.txt

Hades  
Hercules  
Jason  
Medea  
Cassandra  
Hercules

### greek-figures-2.txt

Zeus  
Hercules  
Jason  
Medea  
Cassandra  
Hercules

### budget.csv

May, \$1000, food  
June, \$2000, vacation  
July, \$3000, party  
August, \$66, concert

**What is the Output of the following code given the above scripts and data files on the first page?**

1. `./prime.sh 42`
2. `wc -l budget.csv`
3. `paste greek-figures.txt greek-figures.txt`
4. `cut -d, -f2 budget.csv`
5. `sort greek-figures.txt | uniq`
6. `diff greek-figures-2.txt greek-figures.txt`
7. `ls *.txt`
8. `cat greek-figures.txt | grep Hercules`

**Write commands to complete the following tasks:**

1. List all of the processes running on the systems belonging to all users.
2. Find out how much free RAM is on the machine.
3. List all the files in `/home/jason`
4. List all the files in `/home/jason` that are text files starting with the letter X or Z
5. Create an empty text file named `being-and-nothingness.txt`.
6. Make the existing text file `hello-world.sh` empty without removing it from the filesystem.
7. Append the sentence "Long live the king!" to the end of the file named `royalty.txt`
8. Print out all of the lines in the file `Hamlet.txt` where `Ophelia` occurs.
9. Set the permissions of all csv files in `/home/jason` so that only the user can read and write to it but everyone can execute them.
10. Save the contents of the files `one.txt`, `two.txt`, and `three.txt` as one large file named `six.txt` that has the contents of all three files combined.

11. There is a process running on the machine that is taking up too much cpu. According to **top** its process id is 42. Write a command to make this process stop running.
12. Print out what directory you are currently in.
13. Remove all files that contain the word **crap**
- 14.. Check if you can connect to the server whose domain name is [www.bmcc.cuny.edu](http://www.bmcc.cuny.edu)
15. Print out the last few lines of the file located at `/var/log/httpd/access.log`
16. List all available partitions and drives on the machine.
17. Show how much hard drive space is left on each storage device
18. Make a directory named **my-masterpiece**.
19. Change the owner of the directory `/home/jason/my-masterpiece` to **medea**
20. Execute the file named **hello-world.py** using **python3**
21. Get documentation for using the **find** command

22. Paste two copies of the file `alien.txt` beside each other horizontally in standard output.
23. Remove the contents of the file `/var/log/httpd/access.log` without deleting the file.
24. Rename the file `zeus.json` to `hercules.json`
25. Log into another Linux machine as the root user with ip address 10.150.214.88 using `ssh`.
26. print "This sentence is false" to the terminal
27. List the current date.
28. Display a calendar with the current date.
29. Zip up the files `five.txt`, `ten.txt` and `fifteen.txt` into a file named `thirty.zip`
30. Print out the contents of the `PATH` variable to standard output.
31. Print information about your network interface (with your ip address) to standard output.
32. Download the file located at the url `cheat.sh/ls` using `curl`

33. Change your present directory to the root of the file system
34. Change your present directory to your home directory
35. Change your present directory to the parent directory of the directory you are currently in
36. Open the contents of the file that represents the current directory in **vi** or **emacs**.
37. Temporarily assume root privileges and list the files in the **/root** directory
38. Switch to the user **hades**
39. Reset the password of the user **oden**
40. Output the number of columns in your current terminal
41. Output the number of rows in your current terminal
42. Delete everything in the home directory of the user **jason**
43. Copy the file **unique.txt** to a new file named **common.txt**

44. Change all of the occurrences of the word *hello* in the file named `greetings.txt` so that they say *goodbye* instead.
45. Transmit the file `/home/jason/medusa-head.txt` from your local machine to the machine located over the network at 10.150.214.88
46. Sort the file `class-roster.csv` alphabetically
47. Determine who you are logged in as
48. Execute the script `destroy-all-humans.sh` and pass two it the names of two people to destroy
49. Start the X Window server
50. Write a line that could be added to the user `jason's` `.bashrc` file that would add a variable named `SOS` with the contents `Save me!` to your global variable space every time you start a new shell
51. List the names of all of the files in `/home/jason` including all of the hidden files
52. Install `emacs` on your machine using the package manager
53. find the location of all files on your entire file system named `waldo.txt`

54. mount the usb stick represented on the filesystem as `/dev/sdc1` to the location `/media/tardis`
55. store the sum of variables `a` and `b` in the variable `c`
56. Clear the terminal screen
57. Display the path to your bash shell interpreter
58. Change the password of the user `cassandra`
59. Save the contents of your path variable to a file named `fail-safe.txt`
60. Logout of your terminal
61. restart the computer
62. shutdown the computer immediately
63. Print out the history of all the commands used on the machine
64. Determine how long the machine has been running.



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65. Restart the process httpd using systemctl

66. Run the script memory-thief.sh in the background

67. Take input from the user and store it into a variable named info

68. Find the differences between the file winter-1.txt and winter-2.txt

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## Questions

1. Who invented Unix?
2. Who invented Linux?
3. What is the Unix Philosophy?
4. What is free and open-source software?
5. What is POSIX?
6. What is a binary file?
7. Name two graphical shells usable on Linux.

8. Name two terminal shells usable on Linux

9. What was unique about Unix at the time it was invented?

10. What is bash?

11. Why are we still using versions of an operating system that was created in the 1960's?

12. What are the three standard streams?

13. What is a kernel?

14. Where are log files stored?

15. Where are running processes represented on the file system?

16. Where is the root user's home folder
17. Where are non-root user's personal files kept?
18. Where are configuration files kept?
19. Where on the file system is external media mounted to?
20. Where on the file system are hardware devices represented?
21. Where on the file system are shared library files that multiple programs use kept?
22. Where are basic system binary programs that are used by all users stored?
23. Where are user binary programs stored that are used by all users?
24. What is your favorite text editor?
25. What are streams?
26. What are pipes?

### **Write a Script**

Write a script file named `swap-em.sh` that swaps the name of two files. For instance, if there is a file named `/home/sesame/bert.txt` with the contents “Be Quiet!” and a file named `/home/sesame/ernie.txt` with the contents “Hi guys!”, and a user types `./swap-em.sh bert.txt ernie.txt` the file `bert.txt` will be renamed `ernie.txt` and the file `ernie.txt` will be renamed `bert.txt`