Introduction to the Unix command line

Training lab book

Adapted From :

Free Electrons
http://free-electrons.com

Lab 1 – Basic file handling

Objective: getting familiar with basic file handling.

At the end of this lab, you will be able to

- Display the list of files in a directory, and see their contents.
- Perform simple operations: copying, renaming, removing, creating links.
- Modify access rights to files and directories
- Et even get rid of Microsoft!

Setup

Open terminal
Go to your home folder by typing *$cd* in command line
Unzip the steven_strogatz_on_the_elements_of_math.zip in the folder
if unzip is not present install using *$apt-get install unzip*

List of files

- Display the list of files. How many files and directories are there?
- Which is the hidden file?
- List the oldest files first, and the most recent last.
- Now, list the smallest files first, and the biggest last.

Accessing file contents

Display the contents of the finding_your_roots.txt file at once.

Now, display them with a tool which stops at the end of each page
and waits until you hit a key, to leave you time to read.

Display the last 20 lines of the from_first_to_infinity.txt file.

Searching through file contents

Look for word “numbers” in all the files.
Look for “percent” in all the files in the directory (included in the
subdirectory). Just displaying all the lines containing the word.
Without typing again the full command, now look for Money. But just displaying the files and not the lines

Again without typing again the command, look for the same word, whatever its case.

Making changes on file and directory names

Modify the name of the .rock_groups.txt file so that it is no longer hidden.
Get into the bonn/ directory. Check that you are in the right directory. Move the nature.txt file from the parent directory to the current directory.
Go back to the parent directory.
Get rid of Microsoft.txt once and for all.
Create an archives directory and copy all the files in the working directory into it, including the bonn subdirectory and all the files it contains.

Symbolic links

Create symbolic links making the files in the bonn/ directory appear in the current one too.
Once more, list the files in the current directory. Are links easy to identify?
Remove the bonn/nature.txt file and see the impact on the file list.

File access rights

Try to modify the bonn/castles.txt file.
Display the access rights of the various files and try to understand why you are not allowed to do it.
Once you understood, change these rights and remove this file.
Now, try to get into the safe directory. Modify access rights to be able to do it.
Once you're inside, your adventure is not over yet. As you are only interested in fortune, remove the o file which is also there. Good luck!

Lab 2 – Elaborate commands

Objective: get familiar with redirections, pipes and task control

At the end of these practical labs, you will be able to

- Redirect the output of a command to a file
- Implement pretty complex requests by cascading multiple Unix
- commands.

A first redirection

Use the history command to show all the commands that you already typed.
Now, save the output of this command in a new history.txt file.

Concatenating files

Concatenate all the files in the bonn/ directory into the bonn_power.txt file, still without leaving the current directory.
How many lines, words and characters are there in this new file?
Remove the bonn_power.txt file.

Using pipes

In only one command line, display again all the lines in the files in the bonn/ directory which contain the Bonn keyword (case insensitive).
Now, count the number of lines this represents, still in a single command line.
Modify this command to only count the lines containing both Bonn and Museum, still in a case insensitive way.
Improve once more the command to count only lines containing Bonn and Museum, but not Art.
You have just discovered all the power of Unix pipes! These pipes let you do exactly what you need to, from very simple basic commands.
That's all for the moment! Go on practicing commands introduced in the lectures, on files available your GNU / Linux system.

References :

1. https://help.ubuntu.com/community/UsingTheTerminal
2. t