Lab 05

First Semester 2014 Sharat

CS 251: Lab 05: Shell Scripting and a bit of Linux

- Handed out: 24/08 Due: 26/08 Tuesday 11pm
- Please write (only if true) the honor code. If you used any source (person or thing) explicitly state it. You can find the honor code on the web page.

Overview

In this lab we will learn about using the Bash shell, and try to gain a better general understanding of Linux via those scripts.

Pre-tasks

1. Refine your Box2D design and prepare a LaTeX report of your design of the Box2D. Have sections to explain why, when and what you are doing. Make sure you have one page of text. Figure out who is going to do what part of your project (within a group). Remember, for your final grade on Box2D, we will need all intermediate versions of your work.

   Show your LaTeX file output to your TA.

2. Also to do before coming to lab is to place your submission for Lab 04 on the web. Link your Lab 03 HTML page to Lab 04 HTML page (any way you like). What will you put in the Lab 04 HTML page? Whatever you submitted to Moodle but in an unpacked form (i.e., non-zip, non tgz form).

The Tasks

Notes:

- Make the paths inside the script relative assuming that scripts will be stored in the scripts folder of your submission and will be run from the root of the base code folder.
- Comment your code liberally. We have the freedom to ask a question on any part of your code to make sure you know what you are doing.

1. Write a bash script `rename.sh` to rename files of the form `ddmmyyyyANY.jpg` in a given directory to `yyyy-mm-dd-ANY.jpg` Your script should take the directory name as argument; if no argument is given, it must print the usage of this script and exit with exit value 1. If the given argument does not correspond to a directory, the script must exit with exit value 2.

   - Here, 'dd', 'mm', 'yyyy' correspond to the two digit date, two digit month, and four digit year. Only consider files with `dd` in the range 01–31, `mm` in the range 01-12, and years in the range 2013–2015.

- `ANY` corresponds to any string. The string may be empty. The string may contain spaces.

2. Write a script `string.sh` to accept a word in the English language from the command line and reverse the characters in the word.

3. Given a path, write a script named `findimages.sh` that

   - Prints the number of files that are present in the directory corresponding to the path. Sub-directories are not to be considered. Note that numbers have to be printed, not the name.
   - Also prints, subsequently, the names of all image files in the given path. Only names are printed, without the path. Image files are those files that end in `.jpg`. Note that files in the current directory as well all sub-directories **should** be considered.

4. Write a script `ip_address.sh` to print the IP address of your system. Hint: Learn about `ifconfig`

5. This script `papers.sh` takes as argument a `csv` file containing information about research papers accepted for publication in a particular conference. The `csv` file has the following format:

   paper-id,author-name,author-affiliation

   A paper has a unique paper-id, and can have authors from multiple institutions involved. The file has one line per author, in the case of multi-author papers. Example file `papers-example1.csv` has been provided.

   The script should count the number of papers with at least one author with an affiliation from IIT Bombay indicated by `IITB`. The affiliation field is case insensitive. You can assume that the string `IITB` does not appear as part of any author's name.

6. Write a script called `hello.sh`. The script should run as soon as you start a bash session in a terminal. It should result in something like

   ```
   Good Afternoon, Priyanka. Aap ka din shubh ho! It is Sun Aug 24 16:52:43
   ```

   That is, one of the following messages being printed on the terminal: `Good Morning` or `Good Afternoon` according to system time, followed by your name, and the message

   ```
   Aap ka din shubh ho! It is Day, Date, and Time.
   ```

   Morning ends at 11:59:59 and afternoon ends at 16:59:59. (You are supposed to be playing after 5pm).

7. Write script called `oldFile.sh`, so that it will take a directory as input and move all files and directories more than 7 days old to a new directory named `OLD` within the given directory. Consider the current directory only, i.e., without the hierarchical structure.

Files To Submit

The folder and its compressed version should both be named `lab05_groupXY_final`. Example: folder `lab05_group07_final` and the related `tar.gz` `lab05_group07_final.tar.gz`. This should contain all the scripts and the readme.txt file (containing the individual percentages and honor code).

How We Will Grade You

Points will be assigned for each task. However, the time you take for each task might be different and we will take that into account. We are not putting the exact distribution of points, because we believe that all of this is important. But we will give partial marks to approximate solutions.