Lab - Treasure Hunt

This quiz is designed as a puzzle to be solved using the material we have covered in this class. Answer all the questions below and put them together (see last step) to reveal some famous words of wisdom. Enjoy!

Get the file `ncfmp.tgz` and untar and unzip it in your directory space as follows (this was covered in part 2 of the lecture).

```
tar -xzf ncfmp.tgz
```

There are (at least) three ways to get the file. 1) If you are using the VCL then you can just copy it from /opt/courses/LinuxIntro/ncfmp.tgz to your desired location. 2) Download from `http://its2.unc.edu/divisions/rc/training/scientific` using your favorite browser (and onto a linux system). 3) Use wget, namely

`wget http://its2.unc.edu/divisions/rc/training/scientific/Introduction_to_Linux/ncfmp.tgz`

Do the following exercises:

0. Under the top `ncfmp` directory, create a directory called `answers`. You will be copying files to this directory throughout this exercise.

1. For all the Linux commands discussed in this class there is a very useful command you can use to get extensive help on using any given command. We have emphasized using this command during this lecture. What is the name of this command? Find a directory in the `ncfmp` directory with the same name as this command. Go to that directory and copy the file you find there to your `ncfmp/answers` directory.

2. What file(s) do you find in the `ncfmp/HBL/runs` directory?

    (b) Which one has been modified most recently? Go into that directory.

    (c) One of the files there is *not* a directory. Copy that file to your `ncfmp/answers` directory.

3. What is the biggest file in the `ncfmp/dem` directory? Copy just the last line of that file to your answers directory into a file you create called quiz.ans. (Hint: you can do this on a single command line using the Linux command tail and a redirect).

4. How do you list files such that file types are distinguished by the font color? Hint this is an option to a particular command.

    (b) Find the file under the `ncfmp` directory which has the same name as the option above. Move this file to your answers directory.

5. Go to the `ncfmp/ww3/ftn` directory. List all the files that end with the .f extension (hint: see using wild cards). Now copy (just) these files to the answers directory.

6. Go to the `ncfmp/ww3` directory. To see all the files under this directory you could issue the command:

```
find . -name "*"
```

If you wanted to count the files, you could pipe this output into the word count program, wc, like so

```
find . -name "*" | wc -l
```

How many files do you count? Now remove the test directory and all of it's contents (you can do this with one command). How many files are left? Find a file with this number under the top `ncfmp` directory and copy it to your answers directory. Note, the file name is spelled out, for example 7 would be seven.

7. Finally, to put all this together and to see the answer to this puzzle, go to your answers directory. You should have 12 files there. To arrange these in the proper order and to get a nicely formatted output we will use a little Linux magic (in the tradition of Arthur C. Clarke, magic is defined as something more advanced than the level of this course :). Issue the following command and read the output:

```
cat * | sort -n | tr -d '\n' | tr -d '[:digit:]' | tr '%' '\n' | tr -s ' '
```

This simply concatenates all the files together (cat) then sorts (sort) them using a numeric key that I put in the text, and then does a series of character translations (tr) to make the output pretty by 1) removing new lines between the files, 2) removing the numbers used for sorting, 3) inserting new lines wherever I put a '%' character and finally 4) squeezing any extra spaces down to a single space.

A note on the solution ... of course by "man", Shaw means "human being" or "person". :)

We hope you've enjoyed the course and this little puzzle!

Happy Linux-ing from the UNC Resarch Computing Team!