

LAB 2 UNIX INTRODUCTION

The purpose of this lab exercise is to practice common UNIX commands and file management techniques. You will need to open up a UNIX terminal window and follow the directions below to complete this lab.

1. Build a new sub-directory for your website for class items

- Login to www.geo.utep.edu using X11 (Mac) and add a new directory (called "Computer_class") to your pub directory

```
% ssh unixusername@www.geo.utep.edu
% cd /pub/username
% ls          (you should see your current web stuff here)
% mkdir Computer_class
% ls          (you should now see your new directory also)
% exit
```

Note: everyone needs to practice doing this (above) on a Mac before class is over

- Now make an identical sub-directory on your `//geobase/GEO5215/username/Web` folder, which you will use to create your web items and directory structure then copy over to www.geo.utep.edu. Note that the directory structure must be set up identically as is on www.geo.utep.edu for all linked files to work!

```
% cd //geobase/GEO5215/username (PCs)
% cd /Volumes/GEO5215/username (Macs)
% ls    (you should see your current working web directory here)
% mkdir Computer_class
% ls    (you should now see your new directory also)
```

- Now go to the http://www.geo.utep.edu/pub/bkonter/geol_5215/temp and download-or-save the file `Unix_basics.pdf` to your userfolder

- Download-or-save the file to `/geobase/GEO5215/userfolder` to save to.
- Now back in your terminal window, type the following:

```
% pwd    (check which directory you are in)
```

```
% ls                (you should see your new *.pdf file here)
% mv Unix_basics.pdf Computer_class (move file to directory)
% ls                (Unix_basics.pdf should no longer be listed)
% cd Computer_class (change directories)
% ls                (now Unix_basics.pdf should be listed)
% pwd              (to double check which directory you are in)
```

- Now edit your personal webpage (using NVu) by adding a link to your new directory Computer_class
 - In NVu, open up your //geobase/GEO5215/**userfolder**/Web/index.html file
 - Add text somewhere on your webpage called “Computer Class” (or GEO5215, or something like this). Link this text to the /Computer_class/Unix_basics.pdf file.
 - Save your index.html file
- On the PCs, use FileZilla ftp program to copy your updated index.html file and the Unix_basics.pdf file over to the Computer_class directory on www.geo.utep.edu
- On the Macs, use the scp command to copy the contents of your /Web folder and your /Web/Computer_class folder to www.geo.utep.edu
 - In your /Web folder,

```
% pwd          (check to make sure that your are in /Web)
% scp index.html
                unixusername@www.geo.utep.edu:/pub/username/
% scp -r Computer_class
                unixusername@www.geo.utep.edu:
                /pub/username/Computer_class
```
- Now test your updated webpage and new link to the Unix_basics.pdf file
 - In your web browser, navigate to <http://www.geo.utep.edu/pub/username>
 - Click the refresh button and check you new link

2. Use UNIX commands to edit a file

- In your terminal window, make a new directory in your //geobase/GEO5215/userfolder called “Labs”, and a subdirectory inside Labs called “Lab2”

```
% pwd          (you'll probably be in Web/Computer_class)
% cd ../../
% ls
% mkdir Labs
% ls
% cd Labs
% mkdir Lab2
% ls
% cd Lab2
```
- Now go to the http://www.geo.utep.edu/pub/bkonter/geol_5215/temp and download/save the files “GEO5215_class.dat” and “other.dat” to your Lab2 folder
- Inspect the contents of the GEO5215_class.dat and other.dat

```
% ls          (make sure the files are there)
% head GEO5215_class.dat
% head other.dat
% tail GEO5215_class.dat
```

Q2.1 How do the listed file contents differ using the “more”, “head”, and “tail” commands?

- Lump (concatenate) GEO5215_class.dat and other.dat together and save this to a new file called GEO5215_class_v2.dat

```
% cat GEO5215_class.dat other.dat > GEO5215_class_v2.dat
% ls
% tail GEO5215_class_v2.dat
```

Q2.2 Describe what is new about GEO5215_class_v2.dat in comparison to GEO5215_class.dat

- Now sort the "...v2.dat" file alphabetically according to the first column

```
% sort -d -k1 GEO5215_class_v2.dat -o GEO5215_class_v3.dat
% head GEO5215_class_v3.dat
```

- Now enter the following commands, writing to a new file each time

```
% sort -d -k2 GEO5215_class_v2.dat -o GEO5215_class_v4.dat
% sort -n -k5 GEO5215_class_v2.dat -o GEO5215_class_v5.dat
```

Q2.3 What did each of these commands do?

- Now open the "...v5.dat" file in the Nedit text editor and enter one additional row of data. PC users, you'll need to copy the "v5.dat" file to your desktop, then open Nedit from there: "cp *v5.dat ~/Desktop" and "cd ~/Desktop" to get there.

- ```
% nedit GEO5215_class_v5.dat &
```
- edit the file: Enter a fictional name, degree of study, email, and 7-digit number. Make sure to use the “Tab” key to keep the columns aligned.
  - Save the file and close it. Note that you have saved it to the same name “...v5.dat”.

- Now sort the file again, but this time sort according to the 7-digit number, and in reverse the order. Make this new file “...v6.dat” For help, type:

```
% sort --help
```

Q2.4 Enter the sort command here that you used:

- Now you will use the grep command to grab specific contents of the file.

```
% grep MS GEO5215_class_v6.dat > GEO5215_class_MS.dat
% head *MS.dat
```

```
% grep PHD GEO5215_class_v6.dat > GEO5215_class_PHD.dat
% head *PHD.dat
```

Q2.5 What did you just do here?

Q2.6 What happens if you leave off the “ > GEO5215\_class\_xxx.dat” part?

- Now you will use the awk command to make a new file with specific columns only:

```
% awk '{print $1,$5}' GEO5215_class_v6.dat >
 GEO5215_class_v7.dat
% head *v7.dat
```

Q2.7 What did you just do here?

- Now you will use awk to perform a basic calculation on a column

```
% awk '{print $1,$5+100}' GEO5215_class_v6.dat >
 GEO5215_class_v8.dat
% head *v8.dat
```

Q2.8 What did you just do here?

- Now use awk to make a completely column with a calculated entry

```
% awk '{print $1,$5, $5-$5}' GEO5215_class_v6.dat >
 GEO5215_class_v9.dat
% head *v9.dat
```

Q2.9 What did you just do here?

- Last step: use sort, grep, & awk to make a file of first names of all MS candidates, their 7-digit number, and their email addresses. Order these according to their 7-digit number. Save the final file with the name "GEO5215\_class\_v10\_complete.dat"

Q2.10 Enter your commands for doing this here:

**!!! PC users: copy all versions of your files on your desktop to  
//geobase/GEO5215/username/Labs/Lab2 !!!!**

### 3. Use UNIX commands to edit a real earthquake data file

Get a table of recent southern California earthquakes off of the web at <http://www.data.scec.org/recenteqs/> and then click on "all earthquakes" under the Earthquake lists. Cut and past this table into a plain text file using the nedit command (open a new file, copy and paste according to the tricks you've learned). Use the UNIX sort command to sort this file in decreasing order of earthquake magnitude. The magnitude is in the 2<sup>nd</sup> column of this table. Then awk all of the magnitudes, the dates, the depths, and the City & State and send them to a new file (you give it a name). Then copy over this file to your /Web/Computer\_class folder on //geobase, and also transfer the files to your www.geo.utep.edu/pub/userfolder/Computer\_class, as you did in Step 1.