Introduction to Scientific Computing
Meeting 6
Unix Commands

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Last meeting

- Learned some more Unix commands
  - Creating aliases and variables; **.bashrc**
  - Find matching text in files; **grep**
    - grep (global/regular expression/print) can also match patterns using regular expressions
  - Find files themselves whose names match a given pattern; **find**

Today's Objective

1. **More hands-on learning** with Unix commands
   - Creating aliases and variables; **.bashrc**
   - Find matching text in files; **grep**
     - grep (global/regular expression/print) can also match patterns using regular expressions
   - Find files themselves whose names match a given pattern; **find**
2. **Cut out columns** from a data file; **cut**

- **Why?**
  - Good basis for learning how to program.
  - Becoming more comfortable on command line
  - Becoming more efficient

Quick Demo of Some Commands

$ cat .bashrc

$ grep KENTUCKY test.txt # match KENTUCKY in test.txt
$ grep KENTUCKY -n test.txt # line number
$ grep kentucky -i test.txt # case insensitive
$ grep USGS test.txt | head
$ grep 2012-07-05 test.txt
$ grep 2012-07-* test.txt
$ grep "#" test.txt # finds header
invert match, meaning find everything but the header
$ grep "#" -v test.txt # prints too much
$ grep "#" -v test.txt | head # check that it worked

Quick Demo of Some Commands

$ find meeting-5-0 # finds everything with meeting-5-0 text

find file named test.txt in meeting-5-0

$ find meeting-5-0 -name test.txt

$ find meeting-5-0 -name *.txt # finds all text files in directory

$ find meeting-5-0 -name *dv.txt # finds all daily value files

Try Out Commands – page 1

make a alias for the list command that lists in long human-readable and time ordered format

$ *alias ls="ls –lht"*

create an environment variable called MYDATA for data directory in meeting-5-0

$ *export MYDATA=/c/Users/jlant/meeting-5-0/data*

$ echo $MYDATA

open another shell instance.

Does $MYDATA exist in the other shell instance? Why or why not?

No, because environment variable not in the .bashrc file.

Using data in meeting-5-0 directory to answer the following:

What was the discharge value 1 year ago to this day in test.txt

$ *grep 2013-04-30 test.txt*

Using data in meeting-5-0 directory to answer the following:

Remove header from test.txt file and create a new file called "test_without_header.txt"

$ *grep "#" -v test.txt*

Try Out Commands – page 2

Is there a file called test2_uv.txt in the meeting-5-0 directory? What is the path to the file from your home directory?

$ /c/Users/jlant/meeting-5-0/data/test-files/test2_uv.txt

From your home directory, find how many unit value files there are in the meeting-5-0 directory.

$ find meeting-5-0 –name *_uv.txt | wc -l

From your home directory, find how many total text files are there in meeting-5-0.

$ find meeting-5-0 –name *.txt | wc -l

Try Out Commands – page 3

How many instances does the number 25 occur in the data file called discharge-week1.txt in the meeting-5-0/data/sample-weekly-discharge directory?

$ *answer*

How many instances does the number 25 occur in all the data files in the meeting-5-0/data/sample-weekly-discharge directory?

$ *answer*

What is the smallest discharge in the data file called discharge-week1.txt in the meeting-5-0/data/sample-weekly-discharge directory?

$ *answer*

What are the 2 largest discharges in all the data files in the meeting-5-0/data/sample-weekly-discharge directory?

$ *answer*

What is the smallest discharge in all the data files in the meeting-5-0/data/sample-weekly-discharge directory?

$ *answer*

Next meeting

- Build a bash script and for loops