

# CS 246 Tutorial 1

## Topics

- Getting your terminal set up
- Text Editors
- Basic commands
- Output redirection and piping

## Getting your terminal set up

### Install Xming

- This allows the use of X applications like xpdf which allows you to view pdfs
- To view a pdf, type the command “xpdf filename”

### Mac , Cygwin, or Linux :

1. Open the terminal
2. Enter the command:  
`ssh -Y your-username@linux.student.cs.uwaterloo.ca`  
(IMPORTANT: The -Y flag enables X11 forwarding and use of X applications)  
(Your username is your quest username)
3. Enter your quest password
  - If it does not work, follow this link to reset your password:  
<http://www.student.cs.uwaterloo.ca/password>

### PuTTY

1. Open PuTTY
2. In the Host Name field enter “linux.student.cs.uwaterloo.ca”
3. In the sidebar under SSH, click X11
4. Click the box that says “Enable X11 forwarding” This will allow you to use X Applications.
5. Press “Open”
6. Enter your Quest username and password. (It does not look like anything is happening when you type your password, but it is still retrieving the characters)

## Text Editors

Three main options:

- **Vim**
  - Some learning curve
  - Can accomplish tasks quickly
- **Emacs**
  - Very steep learning curve
  - If you learn it well, can accomplish tasks very quickly
- **Pico/nano**
  - Very simple
  - Cannot accomplish as much or as quickly as in vim or emacs.

### **Vim**

- Enter the command *vim file.txt* to create or start editing a file.
- By default you are in command mode
- Keystrokes will activate a command
  - **h,j,k,l** – navigate
  - **x** – delete the highlighted character
  - **r** followed by another character – replace the highlighted character with the one specified.
  - **o** – open a line below the current line
  - **O** – open a line above the current line
  - **i** – start inserting text (enter insertion mode)
  - **Esc** – escape back to normal mode (if in insertion mode)
  - **:w file.txt** – save the file to given filename(write)
    - By default saves to the name specified when you opened the file.
  - **:wq** – write and quit
  - **:q** – quit
- Use vimtutor to learn everything yourself.
  - Enter the command *vimtutor* on the command line (not in vim)

## Basic Commands

**cd** : changes current directory

**ls** : Views (non-hidden) files within the current directory

**head, tail:** outputs the first/last ten lines of a given file

Flags:

**ls -a:** View list of all (including hidden, ., and .. files) in current directory

**ls -l:** View list of files in long form

**head -5:** outputs the first 5 lines of a given file. Can be generalized for any number

**head -n -5:** outputs all but the last 5 lines.

**tail -5:** outputs the last 5 lines of a given file.

**tail +5:** starts printing at the 5<sup>th</sup> line of a given file.

We can combine flags

E.g. **ls -al:** view list of all non-hidden files in long form

(This is the same as `ls -a -l`)

**cd - :** Returns you to the previous current directory

## **Output Redirection and Piping**

**Example:** What if we want to output a range of lines from a given file (e.g. lines 5-10)

**Idea:** Take the first ten lines from the file, then take everything but the first 5 lines from those ten.

**Solution:**

`head -10 file.txt | tail +5`

*`head -10 file.txt | tail +5 > output.txt`*

redirects the standard output to the file output.txt (it does not show up on the screen) – if the file does not exist, creates the file. Be careful not to overwrite important files this way by accident.

*`head -10 file.txt | tail +5 >> output.txt`*

appends the standard output to the file output.txt (it does not show up on the screen) – if the file does not exist, creates the file.

