Tutorial: Introduction to Linux/Unix and the HPC environment at NYU

Before we start

Session 1: Everything is somewhere - hosts, networks and filesystems

Session 2: The computer as a nut - using Unix commands
### Session 2

#### Using the Unix command line

Learning to speak - using the language of the shell

- Pathname expansion
- Variable expansion
- Lists
- Preventing expansion
- Pipeline s and redirection
- Subshells

#### The environment

**Shortcuts**

- Editing text files
  - Vim
  - Emacs

**Writing scripts**

- File permissions and Access Control
- Lists

### Summary

- Exercise
- Cheat sheet
- Good tutorials on the web

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### Some useful references

There are some good tutorials for the Linux and the shell at LinuxCommand.org. And a good quick reference at FreeEngineer.
Summary

The computer is like a nut. The shell is the outside layer and it provides an interface for interacting with the programs and commands - the meat of the operating system.

Through the command line, the shell provides a language for expressing what it is you want to do. By joining simple programs together in a few simple ways, you can perform an astonishing range of tasks. Moreover, these tasks can be scripted.

The shell is full of shortcuts - tab-completion, aliases, history, variables, wildcards. As you build up a repertoire of commands and shortcuts you will find that by working in the shell you can be far more productive that a GUI can allow.

But you don't need to be an advanced user to use the shell - just a few basic commands will get you a long way. Some key commands to remember are:

- `man` - show the manual for something
- `less` - display something one page at a time
- `which` - find where a command comes from

Exercise

Now that you have met the shell, if you have an account on NYU HPC, setup your workstation for SSH tunneling. This will be useful for Tutorial 2.

Once you have an SSH tunnel you might want to skip back to Moving files to and from the HPC clusters

Next: Session 3: Preparing and running jobs