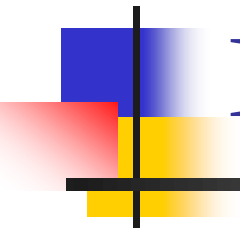
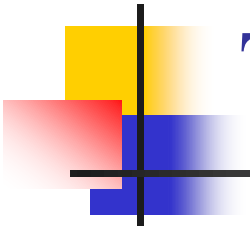
Lecture 01

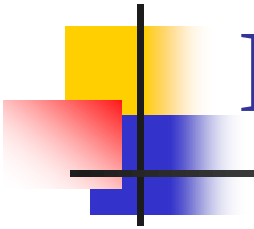


Basic UNIX Administration



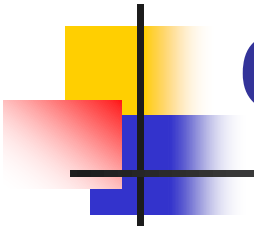
Today's Goal and Content

- Goal:
  - make you not afraid of UNIX/Linux
- Content
  - login and manage your account
  - using graphical user interface (GUI)
  - The shell
  - Frequently used shell commands



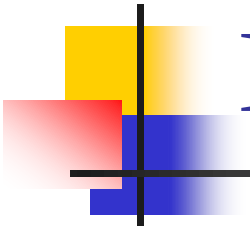
Materials coming from

- Mark G. Sobel, *A Practical Guide to Linux*, Addison Wesley



Getting started

- turn-on the computer and login
  - text mode or GUI (graphical user interface)
    - X-windows system
  - selecting windows manager
    - GNome
    - KDE
  - find the file manager and lookup what's in your home directory



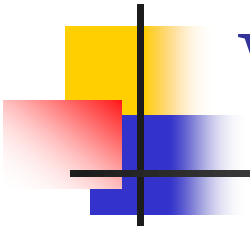
Do it now!

- create your own personal account
- please “man useradd”
- Lazy guy’s approach: find out account management tool from GUI
- Why don’t use root?

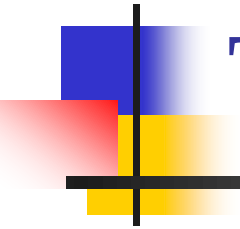
File managers on Fedora

- konqueror (my favorite!)
- Dolphine
- Nautilus

Browse the directory tree on X-Window

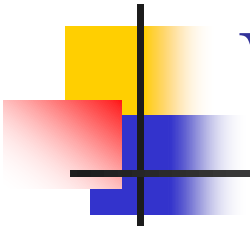


- most of things looks like WinXP
  - actually, M$ copied the ideas from UNIX
- differences:
  - directory separated by slash instead of backslash (\)
  - everything is under a root directory (/)
  - hidden files with names started with “.”
  - special directory: . and ..



The Shell

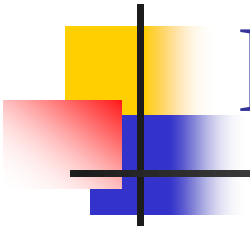
the command interpreter on UNIX



What is a “shell”?

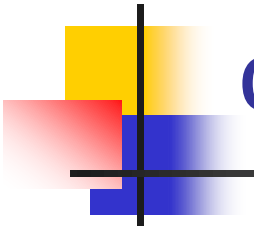
- Find the terminal button on your GUI and press it!
- a command interpreter to let you
  - type in your commands
  - perform your required task
  - and display the result on the terminal
- Analogy on WinXP:
  - try execute “command”

First UNIX command you should learn



- man
  - "man *command"* to look for how to use certain command
    - Example: "man gcc"
  - man –k *keyword*
    - Example: "man –k compiler" to search for compilers installed on your system
- info
  - Example: "info gcc" for detailed manual of gcc compiler

Category of frequently used shell commands

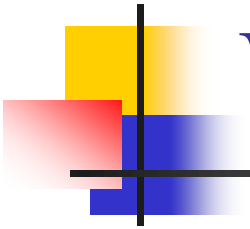


- files and directories maintenance
- system status
- managing your account

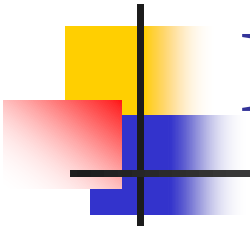
Commands for file maintenance

- ls: list the directory content
- cd: change dir
- mkdir: create a new directory
- cp: copy files
- mv: change the name of a file
- cat: dump the content of a file
- less: dump the content of a file page by page
- more: dump the content of a file page by page
- rm: remove a file
- touch: modify file access time (create if file not exists)

What's in your home directory



- command ls
  - list all file names in your directory
- command *ls -l*
  - list all files with detailed attributes
  - pathname
  - file permissions
    - *chmod*
  - hidden files: *ls -a*
  - special directory
    - . : current working directory
    - .. : parent directory



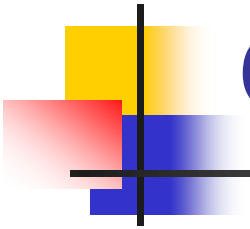
In-Class Exercise

- Q: How to remove whole directory?

- Ask “man”, don’t ask me!

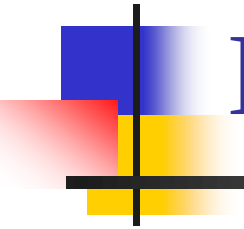
See the configuration and status of your computer

- *uname*: system identification
- *top* : top list of running programs
- *df* : list your disk file system
- files in /proc
- files in /etc
  - /etc/fstab
  - /etc/hosts
  - …
- networking:/sbin/ifconfig, /sbin/ifup, /sbin/ifdown, /sbin/iwconfig



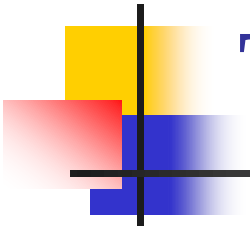
Catch the run-away process

- *ps*
  - ps aux: see all processes
  - ps gux: see all your own processes
- *kill*
  - send a signal



More on the shell

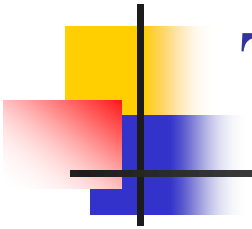
the environment settings



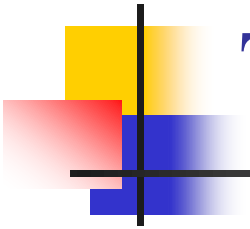
The Shell

- user command interface
- shells you can choose (by *chsh*)
  - bash
  - tcsh
  - sh
  - csh

The Shell (cont'd)

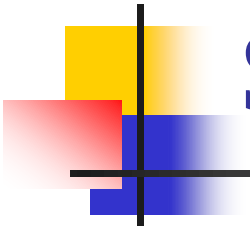


- built-in commands
  - *cd*
  - *alias*
- executable programs: some where in the file system
  - binary program
    - *ls*
    - *gcc*
  - shell scripts
- try "which ls"



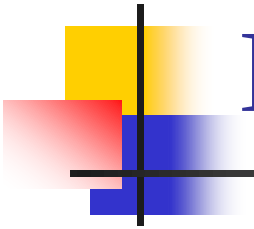
The Shell (cont'd)

- environment variables
  - string variables that can be read by application programs
- to see and setup environment variables
  - *set*
  - *export*
  - *echo*
- PATH: to look for executable program
  - Example: make you find the program "demo" automatically



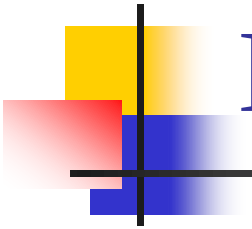
Setup your environment

- for bash
  - .bashrc
  - .bash_profile
- for tcsh
  - .tcshrc



In-Class Exercise

- modify “.bashrc” such that
  - the shell automatically executes a program in your current working directory



Next Lecture

- Write your first program on UNIX

- Do it before the class:
  - please “man” the following commands:
    - gcc
    - ld
    - as
    - gdb
    - ddd