- hostname- shows name of computer being used
- exit → command to log out of bash shell
- tty → shows terminal used for connection
- PS → kernel command shows processes kernel running
- who → other users logged into computer
- SSH → network protocol to allow secure
  login session to remote server
- uname → command shows kernel name
- man ls → online manual for ls
- cal → print calendar
- cat → concentenate + print 1 or more files
- ; → semicolon - multiple commands-1 line
- echo $TERM → terminal type
- type → shows location & command if in path
- whereis → looks in normal UNIX places
  for binaries, science + man pages

ls -l → permission of 1 or more files
ls → contents of directory
file → shows type of file
cd → change working directory
echo → displays a line of text
- write → to chat w/ another user
- mail -b mbox → read messages saved
  in local mail box
- ~m# → forward message # when in /bin/mail
  in/bin/mail - after quit message go to mbox
  file in users home directory
- pwd → unix command to print curr wkg dir
- xxd → hex dump of binary file
- ls -l (long listing) l (lower case L) in col 1
  denotes symbolic link files
- ls -l /boot/v* long listing of v files
  in boot directory
- ls -id - shows inode of directory rather
  than inodes of contents
  - current directory   2 hidden files
  - .. - parent directory   in every unix directory
- ls -i - shows inode numbers
- in long listing - d in first col denotes dir files
- tail or head - print first or last several lines

ls -l /etc/passwd → shows permission
                  owner +size of passwd
ls -R - recursively descend to subdirectories
file - command that will help tell if text file
ls -a include hidden files
* ? [] . expansion character
echo ../[SB]* . all files in parent dir
                starting w S or B

show only hidden directories
    file .*
    echo .*

    find $HOME -type f -name ".*"

date : cal : who : who am i : id : clear
    -$PATH
echo $SHELL → /bin/bash
uname → Linux
hostname → opus.cabrillo.edu
type- shows path

man -b   # whatis are similar
finger wngholi time on + read mail
echo #Home- $LOGNAME $SHELL
    $PS1 $PATH ------
- uname = Linux   kernel name

Directories where one can find commands
/bin   /sbin   /usr/bin   /usr/sbin
unix command
    input from command line   echo   clear
    interactive - KB   bc
    operating sys   finger
mail -b   read saved messages
R 49 0 read 4c
mail- no parameters - read unread mail
    x -will quit mail, messages revert
        to orig state
    p<message list> print messages
In read mode - ? will list arguments
    after screen full- rt/el next # then
    use h option
ls -a all files - even hidden
    -i inode number
    -d directory rather than contents
    -l long listing
    -F type directory/, program *, link @
            socket =
    -S sort by size
    -R Recursive (show subdirectories)
more
less - similar to more - loads faster, backward
head -2 file - first r lines   scroll
file - shows file type
type - shows path

File types in ls -i
    d directory   - regular   l symbolic line
    c spec char device files
    b special block device files

file *   will show you each file type

/root
/home - opus home
/home/cis90
/home/cis90/wngholi

send mail
    mail wngholi
        ctrl D to end

Read
    R to reply
    ~ m # to forward
chat - write - ctrl D to end
In Read ~V will get vi editor
    esc : q will get you out

mesg - enable or disable writes
    to your terminal

- Lowest lev Linux oper sys - Kernal
- PuTTy - prog - Allows windows to login r
  connect to remote computer using SSH
  SSH = Secure shell network protocol
- Linux - multi user
- Linux Torvalls - Linux
- Predominant oper Sys - windows
- Linux - free (GNU Licens)
- Photoshop - Proprietary
- Choices - public domain, open source
  free (GNU), Proprietary
- exit → command to log out of bash shell
- Firefox → is open source
- Linux servers bought by more people
  (higher revenue) than windows servers
- on ls command → exccutable commands
  (binary files or shell scripts) - they
  are shown in green. l option - x permission
  bits shown. F option - will have *
PATH → env var tel shell uses to
  determine directories to search
Filename + inode pairs = name + phone #
- absolute path starts with /
      - ./guest/Poems   is relative

cd .. → change to parent directory   dir
cd with no arguments - wkgdir → home
/bin/mail - type of file is regular
(not symlink, spec or dir)
  Note - "-" in first col denotes reg

Green or bright red - you can run
apropos - look up info in whatis data base
is green + x bit set (Rwx ck)
       they are executable
file command shows apropos
b is bash script + cat is binary code

  env   -shows all env variables
  set   show shell variables
  PS1 = '$PWD $'

  PS1 = "[\u@\h \W \$ "
           user host working dir
shell Live Parse, Prompt, Scarce
         Xecutik, nap Repeat

Read long files   more or less
  parts of filename - name, inode, data

Shell handles env variables

- free software - can see and modify - but
  must make it avail
- open source - some one else has
      proprietary rights

filename - Kept in data block -
     not in inode table
chat - write
mail goes to mbox

Unix orig developed - 1969 @ Bell Labs
Only 2 Linux Dist supported by all 4 top server vendors?
  Red Hat Enterprise + Novell SUSE
- Part of GNU/Linux that is both user interface
  + programming language → shell
- who command output - recognize remote terminal
  session user → under LINE column → pts terminal device
  or under COMMENT col either Hostname or IP address

- Ctrl-Alt-FY → Get to ttyY
- apropos ssh or man -k ssh - search whatis
       data base for SSH
- TERM = vt100 → change terminal type to vt100
- passwords stored in file → /etc/shadow
- bash program is a shell program (Born-again shell)
- Env variable for shell prompt → PS1
- with no redirection → console terminal device
- console KB → stdin; stdout + stderr → console screen
- user accounts stored in file → /etc/passwd
- shell program → prompts for command, locates
      command + executes it
- 3 standard IO streams loaded w/ prog:
      stdin, stdout, stderr
- 3 elements that make up a UNIX file
      filename, inode + data
- file names are stored in directories in Unix filing systems
- initial directory is home directory when you log in

command	options	arguments	redirection
prog	How operats	objects worked	output shown
ls	-l	/blake	> file
Hostname	-t	127.0.0.1	
opus.cabillo.edu	-S	opus	

'variables change'   "don't change"
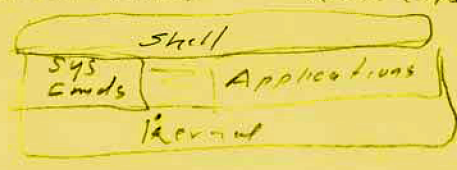
echo *   all non Hidden
echo *.*   period
echo ./.p*

Processing
  echo - command line   stdout
  head -1 letter   ch stdout
  bc . all command line

  ls   for name
  ls -l filename for inode
  cat filename data
       inode table is in data block

Unix files
3 elements
  name
  inode
  data