CS 35L Software Construction Laboratory (Lab2-A)
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How to search package in apt?
    apt-cache search <package-name>

Linux file attributes: r w x s
    s: The set-user-ID-on-execution and set-group-ID-on-execution bits.
         This causes any persons or processes that run the file to have access
       to system resources as though they are the owner of the file
    -rw------- 1 root root 14024 Sep 9 2011 secret
    -rwsr-sr-s 1 root mail 12072 Sep 9 2011 test
         Any user in mail group can access file "secret" via test program, but no
       one rather the root can open secret directly.

Copy files from remote server
    command scp [[user@]host1:]file1 ... [[user@]host2:]file2
      eg: scp your_seas_username@lnxsrv.seas.ucla.edu:/usr/share/dict/words .

Command Redirection
    >: write stdout to a file (NOTE: this will overwrite an existing file)
    >>: append stdout to a file
    <: use contents of a file as stdin
    NOTE: stdout: standard output, (eg) printf("hello world\n");
          stdin: standard input
          http://en.wikipedia.org/wiki/Standard_streams

Command Pipeline
    command_1 | command_2 | command_3
    NOTE: redirect the output of the first tool to the input of the following one
          eg: ls | less, ls -l | grep Oct

Basic Regular Expression
      A regular expression, often called a pattern, is an expression that
    specifies a set of strings.
    http://en.wikipedia.org/wiki/Regular_expression
    .   Matches any single character
    [ ] Matches a single character that is contained within the brackets
         eg. [abc] [a-z] [a-zA-Z]
    *   Matches the preceding element zero or more times
         eg. ba* matches "b", "ba", "baa", etc
    ?   Matches the preceding element zero or one time
         eg. ba? matches "b" or "ba".
    +   Matches the preceding element one or more times
         eg. ba+ matches "ba", "baa", "baaa", and so on.

Console, Shell, and Terminal
    Console: pure CLI
    Shell: a program emulate the console
           widely used shells: sh, bash, csh, tcsh
    Terminal: a gui based wrapper of the shell

Shell Scripting
    The first line starting with #! (shebang line or hashbang line)

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      http://en.wikipedia.org/wiki/Shebang_(Unix)
      Tells the system which interpreter to interpret and execute the script.
      Makes shell scripts more like real excutable programs.
      eg. #! /bin/sh
          #! /usr/bin/python
     Variables
       In command line:  export A=23
       In scripts "export" can be omitted.
       Refer a variable: $A
       Variables hold string values.
       Quotation mark's function is to link two words as one.
       Output: "echo" or "printf"

Sample code 1:
# /bin/bash
sum=0
i=0
while (( $i <= 10 ))
do
    let sum=$sum+$i
    let i=$i+1
    echo $sum
done

Sample code 2:
#! /bin/bash
VALID_PASSWORD=abcd1234
echo "Please enter the password:"
read PASSWORD
if [ $PASSWORD == $VALID_PASSWORD ]; then
        echo "You have access!"
else
        echo "ACCESS DENIED!"
fi

Sample code 3:
#! /bin/bash
for file in $(ls)
    do echo $file
    done
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