ELEC 377 – Operating Systems

Lab 4 Tutorial

Useful tidbits...

- tr command, translates characters in input to output, also knows printf sequences..
  ◊ only reads from stdin and writes to stdout
  -- use redirection to use files
  ◊ tr '[a-zA-Z]' '[n-za-mN-ZA-M]' < infile > outfile
  rot13 cypher used on internet (advance chars 13 spots)
  ◊ tr '\r' 'x' *convert newlines into x characters*
- $$ - variable containing process id of shell
  - useful for temporary files
  grep 'pattern' > /tmp/$$.temp1
  sed 's/pattern/replacement' < /tmp/$$.temp1
  rm /tmp/$$.temp1

awk - report language

- too complex to go into here in detail.

◊ processes line at a time

◊ can do arithmetic, special formatting

◊ examples: add up the numbers in a particular column of a text file

◊ calculate statistics of patterns in a file

◊ often used for quick formatting in a shell script

◊ $1, $2 refer to columns in the input

awk ‘{ printf “fmt”, $1, $2, $3 }‘ *takes column input without formatting and prints formatted*

printf

- Yes “printf” does work here as well.
- E.g:
  - fn=John
  - ln=Doe
  - Printf “Firstname = %s; Lastname = %s\n”, $fn, $ln
- You can use escaped characters and alignment specification … just like in C (E.g. “%-5s” to left align a string and display over 5 columns)

Find

- Find (recursively) all files matching a certain pattern.
- Has a huge man page
- E.g. find path –name pattern

lab4 - first program

- iterate over all process directories
  - ♢ for statement with a file glob
- other commands include basename, stat, sed, tr and awk.
- for formatting the columns, use echo and pipe to awk...

lab4 - second program

- Find all .c files
  -Grep for main/init_module, etc.
  -Have variables to count occurrences
  -Use grep to get line numbers, etc.