Shell Review

Shell is a simple process:

- prompt
- input and parse command
- cause specified command to be executed
- repeat

Some user-friendly features:

- aliases, filename expansion, job numbers

Paths

Path: a list of directories to look up commands to be executed

- csh: `set path = ( a b c )`
- sh: `PATH=a:b:c`

```
$ echo $PATH
/local/bin:/usr/ucb:/bin:/usr/bin
```


I/O Redirection

- `command < file` input
- `command > file` output to new file
- `command >> file` append to file
- `command <<token` "here is the file"

```
$ wc -w <<EOF
This is the file
EOF
```


Subshells

- Parentheses group commands to be executed in a subshell
  - Work just like operator-precedence parentheses
  - ";" separates sequence of commands

```
(a;b;c) | sort
```

Temporary Files

- Common for shell scripts to use temporary files
  - put in `/tmp` (cleaned out periodically)
  - should have unique name (use $$, shell PID)
  - include script name in filename

  eg. `/tmp/myscript$$`

Some Other Shell Variables

- $* - expand to all params as a string
- $@ - expand to all params quoted

  if we run `$ prog file1 "file 2"`
  - `"$*"` expands to `"file1 file 2"`
  - `"$@"` expands to `"file1" "file 2"`

- $? - exit status of last command