

- Getting information by shell commands:
  - + whoami – username
  - + id – user/group ID
  - + uname – OS name
  - + ps – running processes
  - + top – resource usage
  - + df – mounted file systems
  - + man – reference manual
  - + date – today date
  - + cp – copy file
  - + mv – change name/path
  - + rm – remove file
  - + touch – create empty file, update timestamp
  - + chmod – change/modify file permissions
  - + wc – get count of lines, words, chars in file
  - + grep – return lines
- Navigating and working with directories
  - + ls – list files and directories
  - + find – find files in dir tree
  - + pwd – get present working directory
  - + mkdir – make directory
  - + cd – change directory
  - + rmdir – remove
- Printing file and string contents:
  - + cat
  - + more – print file contents page-by-page
  - + head – print first N lines
  - + tail – print last N lines
  - + echo – print string or variable value
- Compression and archiving
  - + tar – archive set of files
  - + zip
  - + unzip

- Networking

Networking applications include the following:

- `hostname` – print hostname
- `ping` – send packets to URL and print response
- `ifconfig` – display or configure system network interfaces
- `curl` – display contents of file at a URL
- `wget` – download file from URL

Here are some common options that you can try with the `ls` command:

| Option          | Description  |
|-----------------|--|
| <code>-a</code> | list all files, including hidden files                                   |
| <code>-d</code> | list directories only, do not include files                              |
| <code>-h</code> | with <code>-l</code> and <code>-s</code> , print sizes like 1K, 234M, 2G |
| <code>-l</code> | include attributes like permissions, owner, size, and last-modified date |
| <code>-S</code> | sort by file size, largest first   |
| <code>-t</code> | sort by last-modified date, newest first                                 |
| <code>-r</code> | reverse the sort order   |

To get a long list of all files in `/etc`, including any hidden files, enter the following:

```
1  ls -la /etc
```

Here we combined the options `-l` and `-a` by using the shorter notation, `-la`.

- Listing dir contents :
  - + ls
  - + ls Downloads => list all contents in downloads
  - + ls -l => list longer and better format of contents
  - + pwd => current working dir
  - + cd
- Finding files:
  - + find . -name <file name>
  - + find . -iname <file name>
- Create dir:
  - + mkdir <dir name>
- Remove dir:
  - + rm <folder name>
  - + rm -r <folder name> : Delete folder with all it children
- Creating files:
  - + touch – Create empty file, update file date
- Copy files and directories
  - + cp
- Move files and directories
  - + mv <file path / dir path>
- Managing file permissions
  - + chmod – change file permissions
- Viewing file all at once
  - + cat – print entire file contents
  - + more - print file contents page-by-page
  - + head – print first 10 lines
  - + head -n N
  - + tail -> last 10 lines
  - + wc – count characters includes newline chars
  - + wc -l -> exclude newline char

- Sort views line-by-line

sort - Sort lines in a file

```
$ sort pets.txt
cat
cat
cat
cat
cat
dog
dog
```

```
$ sort -r pets.txt
dog
dog
cat
cat
cat
cat
cat
```

- Excluding repeated line
- + uniq -> filter repeated lines
- Extracting lines matching a pattern

grep (“global regular expression print”) – Return lines in file matching pattern

```
$ cat people.txt
Alan Turing
Bjarne Stroustrup
Charles Babbage
Dennis Ritchie
Erwin Schrodinger
Fred Hoyle
Guido Rossum
Henri Poincare
Ivan Pavlov
John Neumann
Ken Thompson
```

```
$ grep ch people.txt
Dennis Ritchie
Erwin Schrodinger

$ grep -i ch people.txt
Charles Babbage
Dennis Ritchie
Erwin Schrodinger
```

| Option          | Description  |
|-----------------|--|
| <code>-n</code> | Along with the matching lines, also print the line numbers |
| <code>-c</code> | Get the count of matching lines                            |
| <code>-i</code> | Ignore the case of the text while matching                 |
| <code>-v</code> | Print all lines which do not contain the pattern           |
| <code>-w</code> | Match only if the pattern matches whole words              |

- Extracting slices

`cut` – Extracts a section from each line

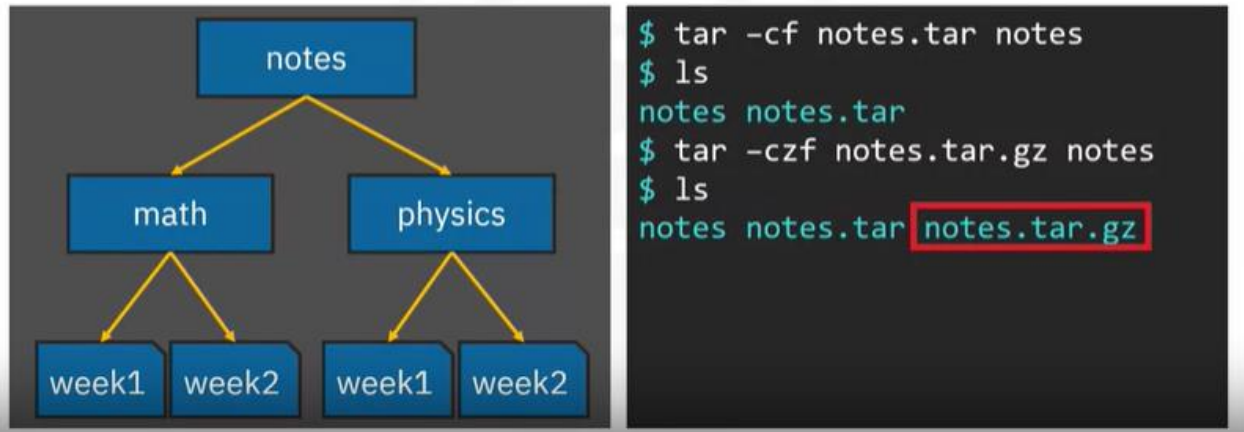
```
$ cat people.txt
Alan Turing
Bjarne Stroustrup
Charles Babbage
Dennis Ritchie
Erwin Schrodinger
Fred Hoyle
Guido Rossum
Henri Poincare
Ivan Pavlov
John Neumann
Ken Thompson
```

```
$ cut -c 2-9 people.txt
lan Turi
jarne St
harles B
ennis Ri
rwin Sch
red Hoyle
uido Ros
enri Poi
van Pavl
ohn Neum
en Thomp
```

- Merge lines from different files : `paste`
- Getting network in4:
  - + `ifconfig` -> configure the system network interfaces
- Testing server connections
  - + `ping` -> Send ICMP packets to URL and print response
- Web scraping with `curl`
  - + `curl` -> transfer data to and from URL(s)

- Download files from URL:  
+ wget <url>
- File archiving

**tar** (tape archiver) – Archive and extract files



The options used are as follows:

| Option | Description                    |
|--------|--------------------------------|
| -c     | Create new archive file        |
| -v     | Verbosely list files processed |
| -f     | Archive file name              |