Bash for Bioinformatics

(MBIO 4030 T10)

Abdullah Zubaer; Hausner Lab, University of Manitoba, zubaera@myumanitoba.ca

More commands for future

- `wc`
- `sort`
- `echo`
- `cut`
- `sed`
- `awk`

Installing programs

- What does it mean by installing a program in computer?
- Package manager

  Mac: Homebrew, Macport etc.

  Debian/Ubuntu: Aptitude

  ```
  apt install package-name
  apt remove package-name
  ```

  Note: You need to use “sudo” for installing program.

Packaging system

- Debian/Ubuntu: deb
  - deb package

```
dpkg -i package.deb
dpkg -r package.deb
```

Note: You need to use “sudo” for installing program.

Installing programs from source

- Download the source code
  - Deal with zip files
    - tar

      ```
      tar -zxvf file-name.tar.gz
      ```
    - gz
    - bz
    - bz2

  - Get into the source code directory

    ```
    ./configure
    make
    make install
    ```

File permission

- Change mode of a regular file to executable file

```
chmod +x file-name
```

- Run an executable file

```
./file-name
```

sudo

- superuser do
- Holds the administrative/root authorization

Running an installed program

- e.g., gedit, evince, libreoffice

```
program-name file-name
```

Overview

- File system navigation: **pwd, ls, cd**
- Path: ***/*, ~, ., ..**
- File manipulation: **cp, mv, rm, mkdir, rmdir, touch**
- Access file: **less, head, tail, cat**
- Data access/manipulation: **wc, cat, grep**
- Special commands: **>, >>, ***
- Text editor: **nano**
- Others: **date, cal, sudo, ‘Tab’ completion, installing a program, running a program, reading manual (man)**

Manual for commands

- You can use ‘man’ command to know the detail about a command usage and options

```
man command-name
```

Using options

- ls

```
ls -l
ls -a
```

- head

```
head -n 3 file-name
```

- tail

```
tail -n 3 file-name
```

- grep

```
grep -c pattern file-name
```

Access a server

- Secure shell

  `ssh username@serveraddress`

Shell Scripting

- A set of command in a file
- Can be made executable

```
#!/bin/bash
date
echo “This is my first shell script”
```

Finger exercise 10

- Make a directory in your home folder
- Make 10 text files in that directory
- Download a few (may be 3) html files
- Move them to the directory you created
- Make another directory in your home folder
- Move the text files from the first directory the second directory

Finger exercise 11

- Write first 5 lines and last 11 lines of the manual page of the command “`ls`” into a text file