

Workshop: Command Line 101

WOMEN WHO
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AKQA

INSTRUCTOR:



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DETAILS:



Tuesday, March 29th



5:30 - 8:30 PM



AKQA

1120 NW Couch

73% [=====]

62 kB/s

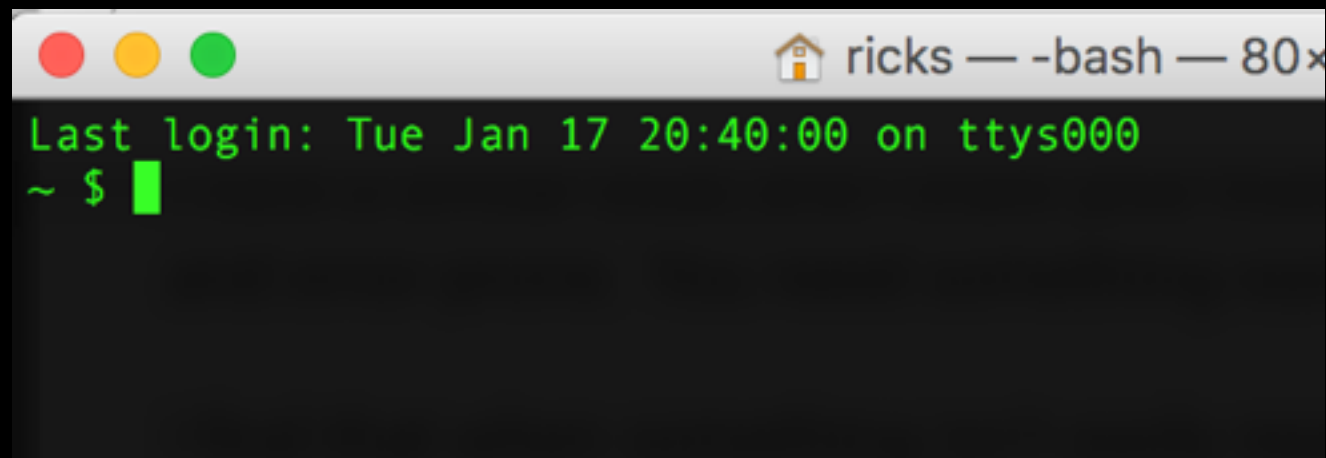
2.7
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Why learn Command Line?

- Increases productivity
- Some tools are only available via Command Line
- Remote server management

What is a Shell?

- A text-based command interpreter
- The most common shell (and default on OS X) is BASH
- For OS X, use a shell via the “Terminal” app



Prompt

- Usually shows your username and computer name.
- It can be customized.
- The blinking cursor shows that it's ready to take a command.

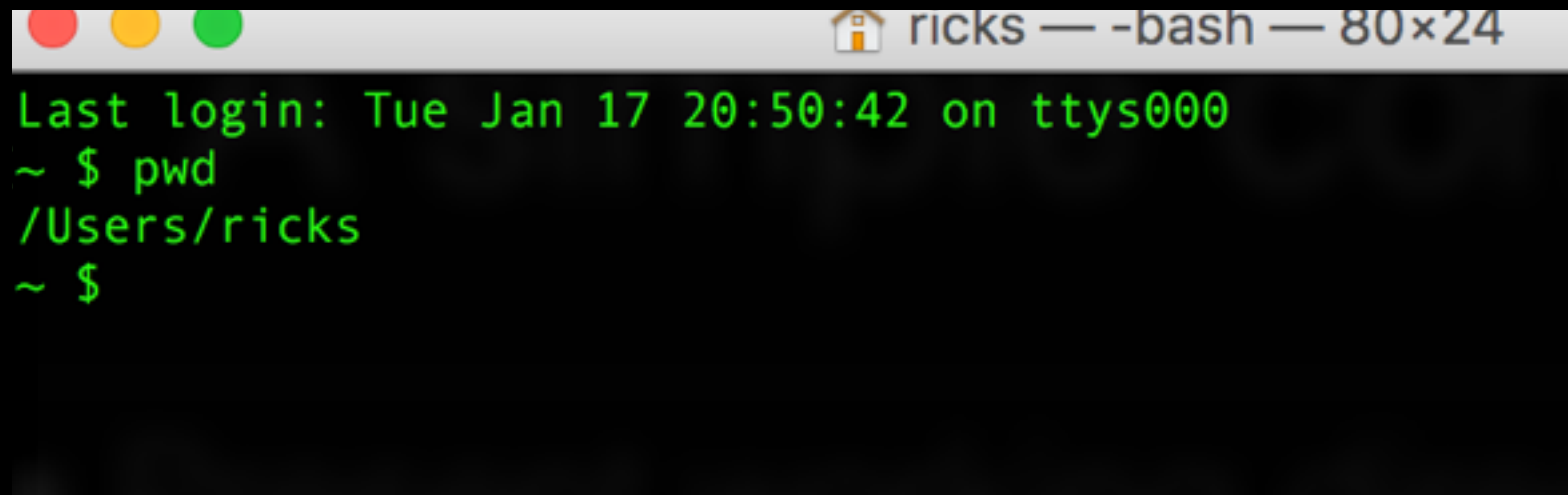
Command Structure

```
Last login: Tue Jan 17 20:40:00 on ttys000  
~ $ command -options target
```

Hit **enter** at the end to execute

A Simple Command - `pwd`

- Present working directory
- Execute from anywhere to see which directory you are in.

A screenshot of a macOS terminal window. The title bar at the top shows three colored window control buttons (red, yellow, green) on the left, a home icon followed by the text 'ricks — -bash — 80x24' in the center, and a close button on the right. The terminal content is as follows:

```
Last login: Tue Jan 17 20:50:42 on ttys000
~ $ pwd
/Users/ricks
~ $
```

man and help

- Man = manual
- example: `man pwd` or `help pwd`
- hit `q` to quit

File Paths

- A sequence of nested directories/folders.
- Each directory is separated by a /
- ~/Desktop or /Users/ricks/Desktop

Change Directory: `cd`

- Changes directories.
- Expects paths - default home directory
- example: `cd ~/Desktop` or `cd /Users/ricks/Desktop`
- go to previous directory with `cd ..`

Clear Terminal: `clear`

- Clears the terminal.
- Shortcut for mac bash `cmd + k`

Tab Completion

- Auto Completes or provides suggestions
- `cd /U <hit tab>` - Autocompletes
- `cd /Users/ricks/ <tab, tab>` - Provide suggestions

List Directories - ls

- `ls /Users/ricks/`
- Assumes present directory when no path is given

Optional Flags

- Show all hidden files: `ls -a`
- Flags can be combined: `ls -altr`
- `man` command will display all the options.

Make and Remove Directory

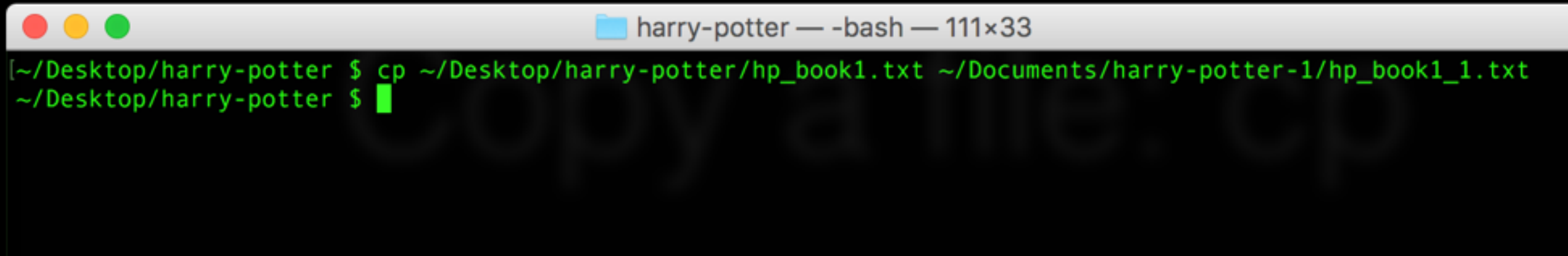
- `mkdir`
- `rmdir` - Non reversible. No trash option.

Exercise

- `cd` to home directory
- create a directory - `mkdir`
- `cd` into that directory
- create another directory
- save a file to that directory using your favorite text editor.
- delete both directories - `rmdir`

Copy a file: `cp`

- `cp <src> <dest>`
- Name of the destination file can be changed.

A terminal window titled "harry-potter — -bash — 111x33" with standard macOS window controls (red, yellow, green buttons). The terminal shows a command being executed: `cp ~/Desktop/harry-potter/hp_book1.txt ~/Documents/harry-potter-1/hp_book1_1.txt`. The prompt is `~/Desktop/harry-potter $`.

```
harry-potter — -bash — 111x33
~/Desktop/harry-potter $ cp ~/Desktop/harry-potter/hp_book1.txt ~/Documents/harry-potter-1/hp_book1_1.txt
~/Desktop/harry-potter $
```

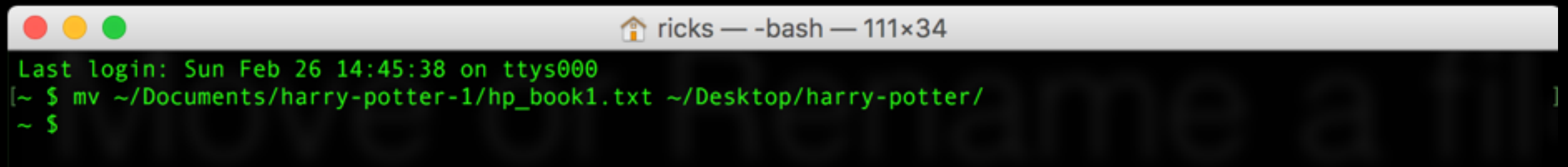

Copy a directory: `cp -r`

- `cp -r <src> <dest>`
- Name of the destination directory can be changed.

```
[~/Desktop/harry-potter $ cp -r ~/Desktop/harry-potter/ ~/Documents/harry-potter-1  
~/Desktop/harry-potter $ █
```

Move or Rename a file or directory: `mv`

- `mv <orig> <dest>`



```
rick's — -bash — 111x34
Last login: Sun Feb 26 14:45:38 on ttys000
[~ $ mv ~/Documents/harry-potter-1/hp_book1.txt ~/Desktop/harry-potter/
~ $
```

View a file: `cat`, `less`

- Show full content - `cat <file_name>`
- Page through the content, from top or bottom - `less <file_name>`
- use `/` with `less` to find a specific word.
- `q` to exit less

Create and Edit a file

- nano hello.txt
- Type Something
- Ctrl + x - Prompt to save or exit without saving

Exercise

- Create a directory
- `cd` to directory
- Create a file under that directory - hint `nano`
- Write some content to it
- `ls` to see new file
- See content by `cat/less`

Command Line Movements

- `ctrl + a` - beginning of the command
- `ctrl + e` - end of the command
- left and right `arrow`
- `tab` for auto completes
- `ctrl + c` - exit without completing the command
- Mac - `alt + click` to place cursor at a desire character

Pipe - |

- Redirects output of one command as the input to the next command
- `ls -ltr | less`

grep

- Searches for lines containing a pattern.
- `grep "Durs" hp_book1.txt`
- `cat hp_book1.txt | grep Dursley`
- `ps aux | grep "root"`

history

- `!!` - Execute last command
- `history` - list everything from the history
- Mac - use `up arrow` to see the last command

Exercise

- create a nested directory
- `cd` into the child directory and create a file under it
- Print the content of the file on the command line. Use `history` command for hints.
- Search for a word in the file. Hint - `pipe` and `grep`

Remote Shell Login - ssh

- Login into a remote box - for example a server hosting your application.
- Secured with key - `ssh -i <identity_file> <username>@<hostname>`
- type `exit` to close the session

Secure Copy - scp

- Copy file from local to remote and vice versa.
- Local to remote: `scp -i <identity_file>
<local_file_path> <username>@<hostname>:<path>`
- Remote to local: `scp -i <identity_file>
<username>@host:path <local_file_path>`

Exercise

- create a file
- `scp` that file to a remote server
- `ssh` to remote server
- open and edit that file - hint `nano`
- save and exit
- `scp` from remote to local

Topics to Research

- Shell scripts
- Customize your bash profile
- Symbolic links
- find
- awk
- sed

Upcoming Workshops

- Intermediate and Advanced Command Line workshops
- Github
- Git command line
- The Roots of Cybersecurity: A Brief Introduction to Binary Exploitation
- Contributing to Open Source

Questions & Comments?

