

# A Guide to Linux

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# Purpose and Problem Statement

- Problem

- Guides are often unclear
- Walkthroughs suffer from copy paste overuse
- Linux is way superior in many ways to Windows or Mac OS

- Purpose

- Provide a "Guided Walkthrough of Linux"
- Find a way to lessen the learning curve to CLI in specifically Linux
- Make people learn the basics of reading Manual pages (man pages)
- Have an almost teacher and independent student environment
- Initially, this was supposed to be a NETLab for grep

# Backgroud

- Linux experience
  - Been using Linux since December of 2021 so about three years
  - Actively been learning how to use CLI tools since the beginning
- Research for this project
  - I did research on pretty much every command in the list and many others
  - Most of what is included was found in each tools respective man pages
  - One of the most interesting things I found that I did not include was 'cd -' which takes you back to your previous directory
    - <https://man7.org/linux/man-pages/man1/cd.1p.html>

# Project tools

There are many tools used in this project. Most are included by default in most Linux distributions, here are some exceptions:

- tree
- neofetch
- sl
- cmatrix
- vim
- cowsay
- fortune

# Project Requirements

- Complete Guide as far as basics are concerned
- How to deploy the project

# Implementation

- Lots of writing
- Editing the guide
- Having a complete guide to deploy existing exercises

# Implementation

Starting point:

```
$ cowsay "I love man pages"
$ cowsay -l
$ fortune
```

Fig 1. given commands

```
user@hostname:~$ fortune
Your heart is pure, and your mind clear, and your soul devout.
user@hostname:~$ cowsay -l
Cow files in /usr/share/cowsay/cows:
apt bud-frogs bunny calvin cheese cock cower daemon default dragon
dragon-and-cow duck elephant elephant-in-snake eyes flaming-sheep fox
ghostbusters gnu hellokitty kangaroo kiss koala kosh luke-koala
mech-and-cow milk moofasa moose pony pony-smaller ren sheep skeleton
snowman stegosaurus stimpys suse three-eyes turkey turtle tux unipony
unipony-smaller vader vader-koala www
user@hostname:~$ cowsay "I love man pages"

-----
< I love man pages >
-----
      /\
      (oo)\_____
      (__) \       )\/\
           ||----w |
           ||     ||

user@hostname:~$
```

Fig 2. what the commands look like

# Implementation 2

Goal for the project:

```
user@hostname:~$ fortune /usr/share/games/fortunes/riddles | cowsay -f vader
-----
/ Q: What do Winnie the Pooh and John the \
| Baptist have in common? A: The same   |
\ middle name.                          /
-----
      ^-^
     !oYo!
    /./=\.\
   ##      )\ \
   ||-----w||
   ||         ||
      Cowth Vader
```

Fig 3. End point



# Implementation 3

## Exercise 777 meaning

Starting with `0 = ---` being correct, show on a piece of scratch paper or another device that you can make all eight combinations of permissions with the following key:

1 = x

2 = w

4 = r

0 = ---

1 = ---

2 = ---

3 = ---

4 = ---

5 = ---

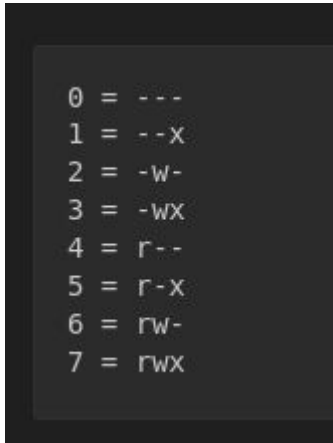
6 = ---

7 = ---

Fig 4. Chown 777 problem

# Implementation 4

Answer key:



0	=	- - -
1	=	- - x
2	=	- w -
3	=	- w x
4	=	r - -
5	=	r - x
6	=	r w -
7	=	r w x

Fig 5. Answer key to chown 777

# Repository

Repository link:

<https://github.com/ATM2100/GuidedWalkThroughOfLinux>

# Test Plan

- Phase one
  - Have experience Linux users go through the guide
  - Check fairness of questions
  - Check quality of questions
- Phase two
  - Have less experienced Linux users of various interest levels go through the guide
  - Get feedback

# Results

- Everyone learned something about Linux
  - The experienced Linux users usually were impressed with the chown problem
  - Newer users showed symptoms of learning the CLI
  - Each person liked different sections
- Feedback was positive
  - Everyone who looked at the guide liked it
  - Every tester left with a better understanding of CLI than before
  - Content was generally accepted
- The Bad
  - I forgot to tell testers about the cheat sheet
  - There were some badly worded sections that were confusing for new users but made it past the first round of editing

# Challenges Overcome

- **Myself**
  - Nothing in this project individually is difficult
    - writing
    - editing
    - coming up with exercises
    - deployment
  - Time management
  - Actually writing the guide
    - This has been a brain project for years now

# Future Plans

- Finish the guide with people who haven't finished
- Make a proper vim guide or probably NeoVim
- Make a Complete networking section
- Make a guide to how to set up a desktop from the CLI