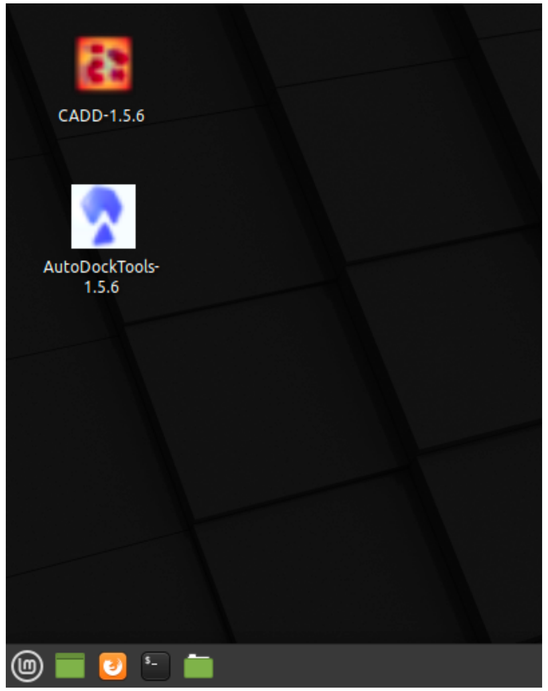
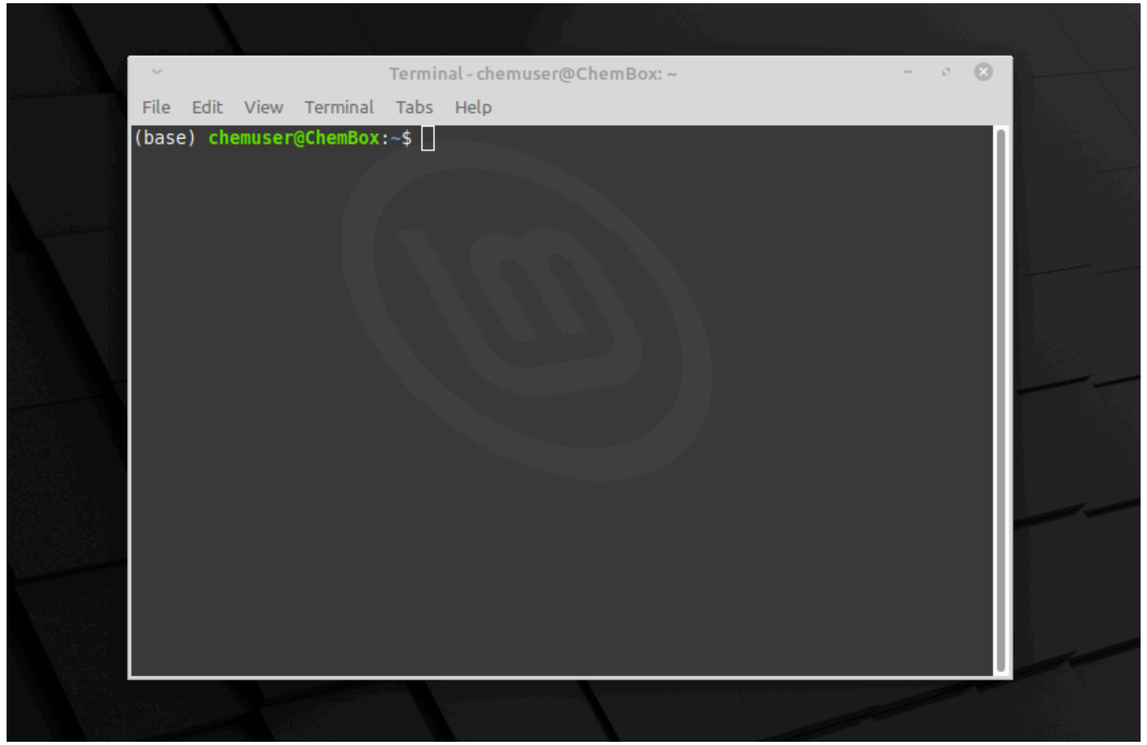
1.1.2 Tutorial: Linux terminal basics

- In this tutorial, you will learn how to navigate the Linux terminal
- The terminal is very similar to the terminal used in
  - UNIX - a predecessor
  - Mac OS X
- Useful for
  - accessing programs that run with a command line interface (CLI)
  - automation

Starting the terminal





- In the Linux Mint VM, click on the black box in the lower left-hand corner. This opens up a terminal window.

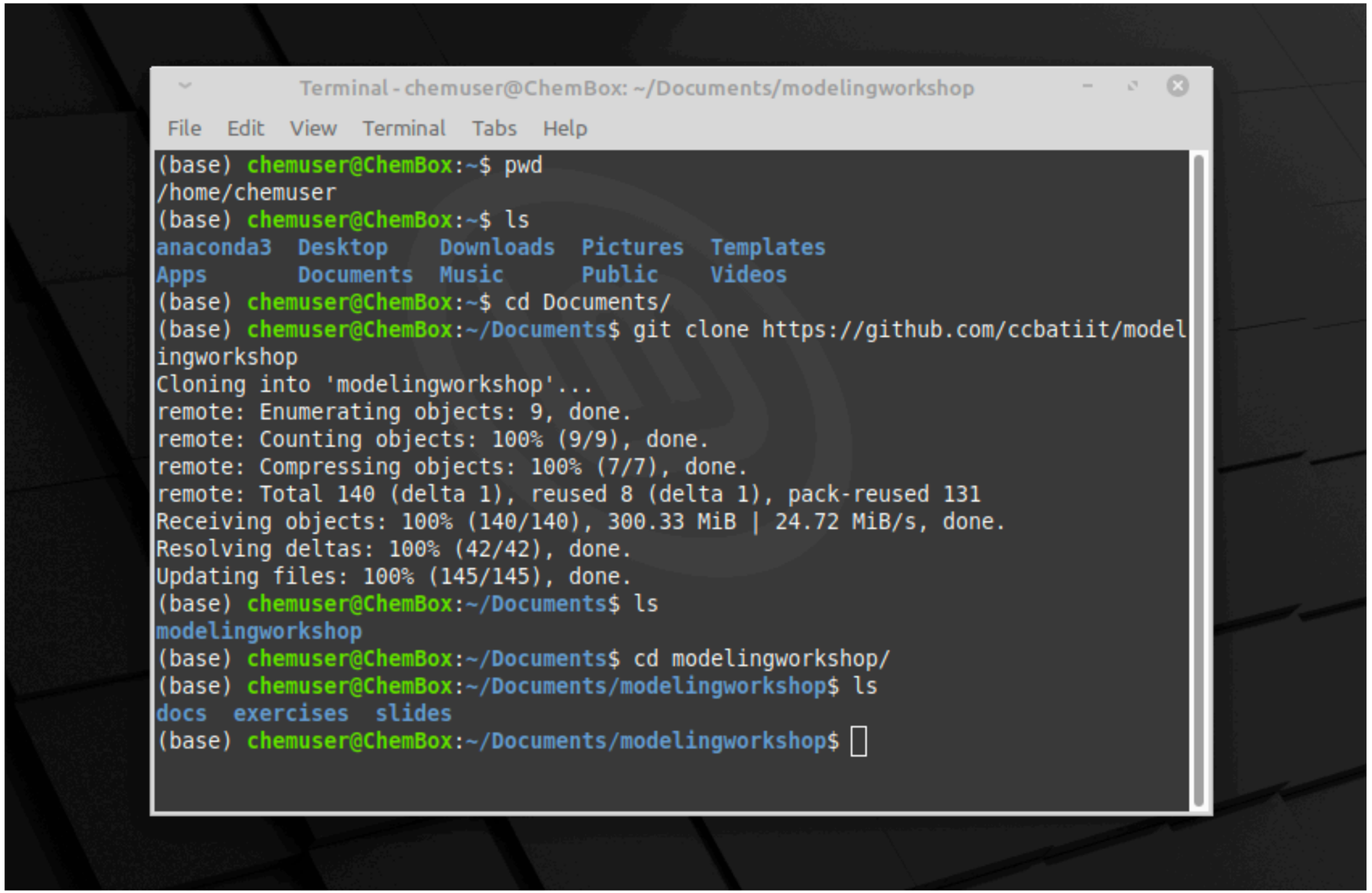
Command Line Interface (CLI)

- Computer software is usually either accessible by a
  - graphical user interface (GUI) or a
  - command line interface (CLI)
- A lot of scientific software is based on a CLI
  - it takes effort to create a GUI
  - a CLI is easier to automate
- Starting a program on the CLI looks like
  - path_to_program/program_name required_argument1 --argument1_name argument1_value
    - path_to_program can be ./ for the local directory or omitted if the program is in the $PATH variable
    - the number of required and optional arguments depends on the program

Basic LINUX commands

- Here are some basic commands
  - echo $SHELL - echo reports the value of a variable. $SHELL is the terminal interface you are using, and will affect the details of all other commands. bash is a popular shell.
  - File operations
    - ls – list files and directories
    - cp – copy files
    - rm – remove files and directories
    - mv – rename or move files and directories to another location
    - touch - changes access and modification times of a file; it can be used to create a file
  - Directory management
    - pwd – describes current directory
    - cd – change directory
    - mkdir – make new directory
    - rmdir – remove directory
- Also see
  - https://www.unixtutorial.org/basic-unix-commands
  - An Introduction to Linux (https://www.youtube.com/watch?v=IVquJh3DXUA). Work with the terminal starts at 3:35

Example: Cloning the workshop files



Exercise

- Create the directory, $HOME/modelingworkshop/linux/, where $HOME is your home directory
- Use `touch` to create a file, `temp.txt', in $HOME
- Move `temp.txt' to $HOME/modelingworkshop/linux/
- List the contents of $HOME/modelingworkshop/linux/