

The terminal





Agenda

- GUI vs CLI?
- What is the Terminal?
- Built-in and third-party utilities





Learning outcomes

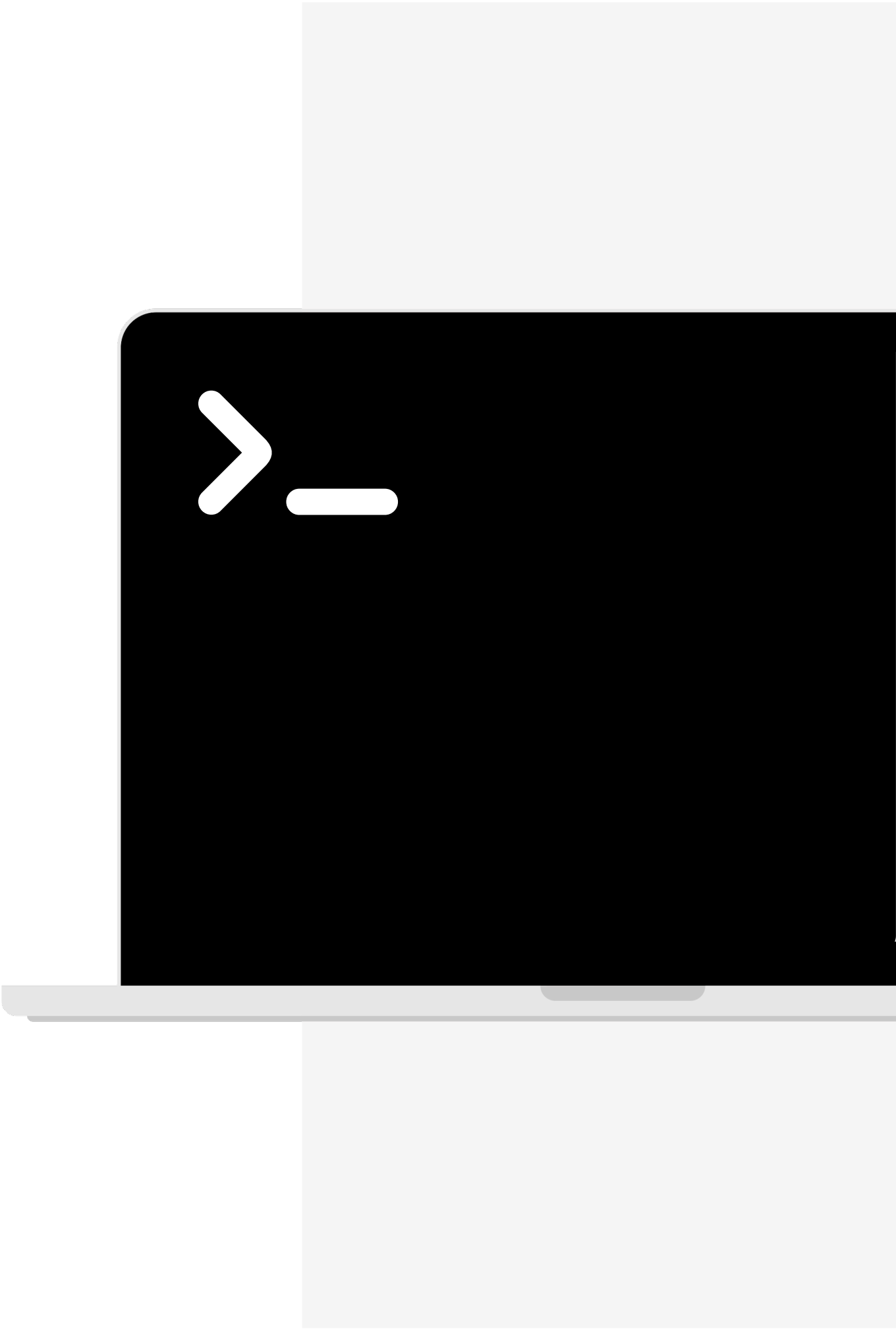
Skills you will acquire:

1. Understand what is the terminal
2. Outline the parts of the terminal
3. Interact with the computer through the terminal
4. Know the different shells you can use



GUI vs CLI?

Interacting with your computer





Interacting with your computer

There are two ways to interact with your computer:

- **Graphical User Interfaces (GUIs)**
- **Command Line Interface (CLI)**



Graphical User Interface (GUI)

Is a visual way for users to interact with a computer system. Instead of typing text commands, users can click on icons, buttons, and menus to perform actions.

- Key features:
 - **Windows** – sections of the screen for different programs or tasks
 - **Icons** – small pictures representing files, apps, or functions
 - **Menus** – lists of options you can select from
 - **Pointers** – a mouse-controlled arrow to select and interact with items
- Examples: macOS Finder, Microsoft Word, web browsers, etc



Command Line Interface (CLI)

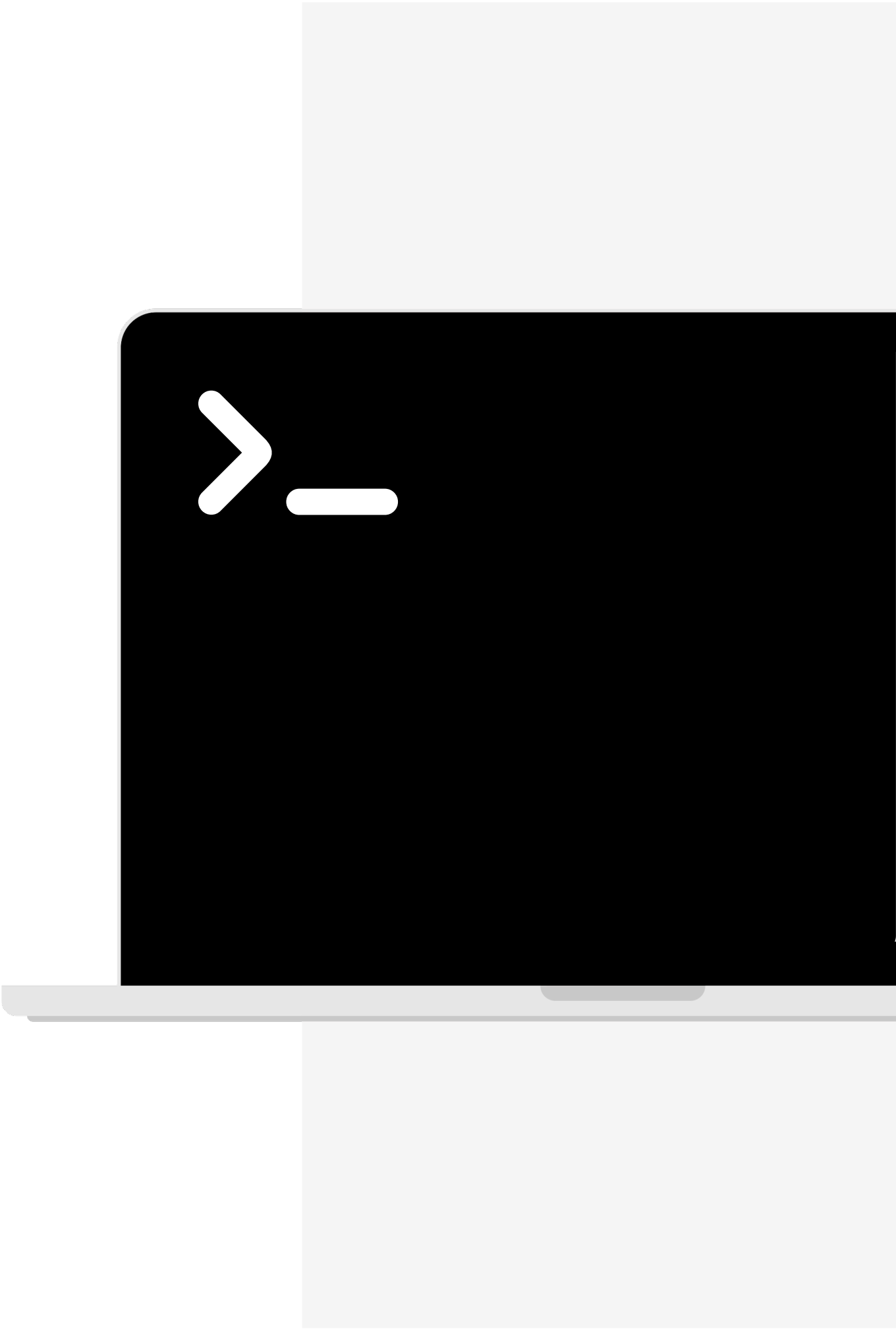
Is a text-based way to interact with a computer. Instead of clicking buttons or using menus (like in a GUI), you type commands into a terminal or console to perform tasks.

- Key features:
 - **Text input/output:** You type commands, and the computer responds with text.
 - **Shell:** The program that interprets your commands.
 - **Precise control:** Great for power users and developers who want more control or automation.
- Examples: powershell, bash, zsh, etc.



What is the terminal?

Shell and command line





What is the Terminal?

Is a program that runs a shell.

- The **shell** interprets and executes typed commands
- The **command line** is the part of the terminal where you type the commands

On macOS:

- **Shell** = zsh (or bash)
- **Terminal App** = runs the shell and is where the commands are typed.



Shell

Is the software that interprets and executes the commands. Most common shells are:

- Powershell
- Bash
- Zsh

The commands you can use depend on the shell you are using!!



Shell

Shells like bash and Zsh can also be used as scripting languages to write short programs to:

- Automate tasks
- Move through directories
- Configure settings



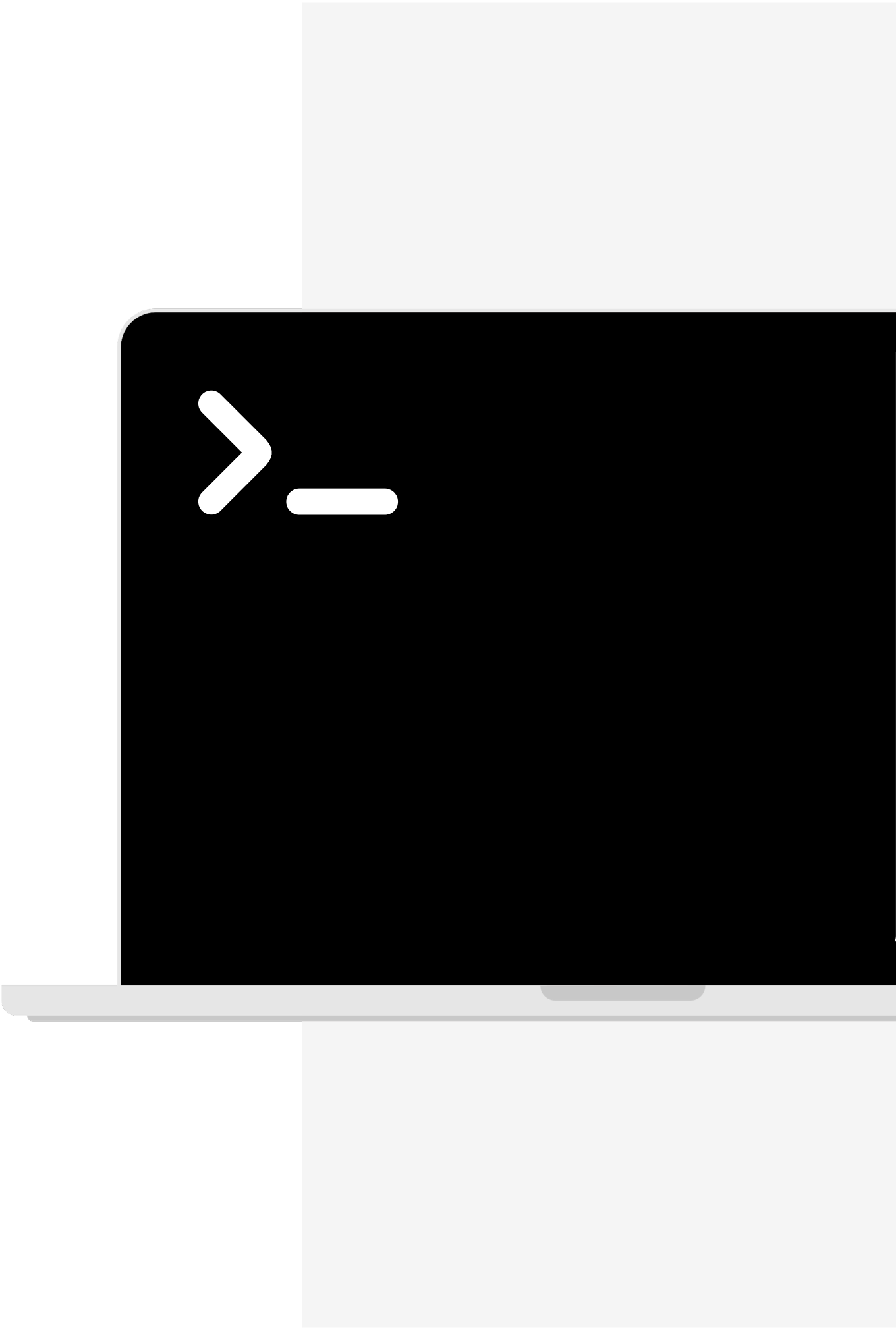
Commands

- pwd - print working directory
- ls - list (you can add the flag -l and -a or both together)
- cd - change directory (use ../ to travel backward and /foldername to travel forward)
- mkdir - create a folder
- touch - create a file
- rm - remove empty directories (use the -rf flag to remove directories with content)
- cp - copy a file or folder
- echo - write into a file
- cat - print the content of a file into the terminal



Utilities

Built-in and third-party





Built-In Utilities

macOS includes powerful command-line tools from Unix:

- **File Management:** ls, cp, mv, rm, etc
- **Text Processing:** grep, sed, awk
- **Viewing Files:** cat, less, head, tail
- **Text Editors:** nano and vi
- **Networking:** curl
- **Version Control:** git



Installing Additional Utilities

Homebrew is a popular package manager for macOS that simplifies the process of:

- Installing or updating utilities and languages
- Finding new tools



Lesson completed