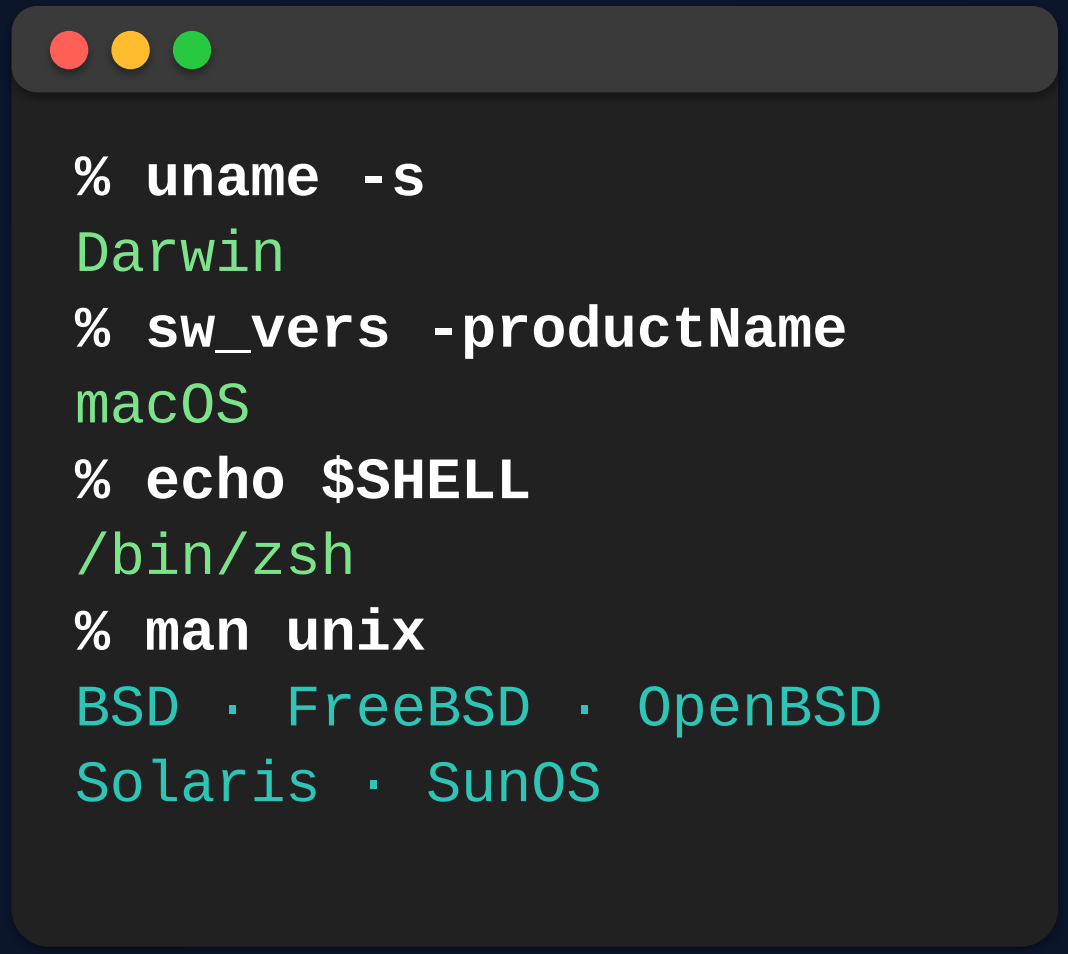



LESSON 3 OF 12

# macOS UNIX

## Darwin & BSD

### The macOS GUI, Running Applications & Built-in Utilities

Full Course · macOS 27 Golden Gate

# What You Will Learn in Lesson 3

- The desktop: menu bar, Dock, Finder, Spotlight, Control Center
- Finder power skills and hidden files
- System Settings: where the admin panels live
- Where apps live, and what an .app bundle really is
- Installing apps safely: App Store, .dmg, .pkg and Gatekeeper
- Opening, quitting and force-quitting apps from Terminal
- Utilities: Activity Monitor, Console, Disk Utility and automation

# A Tour of the Desktop

| Part | What it does | Shortcut |
|---|---|---|
| **Apple menu** | About This Mac, System Settings, Restart, Shut Down, Lock Screen | — |
| **Menu bar** | The active app's menus; status icons and Control Center on the right | — |
| **Dock** | Launch and switch apps; minimized windows; Trash | ⌥⌘D hide/show |
| **Finder** | The file manager; always running | ⌘N new window |
| **Spotlight** | Search files, apps, settings; launch anything | ⌘Space |
| **Mission Control** | See all windows and desktops (Spaces) | ^↑ |

# Finder Power Skills

- Go to any folder: Go → Go to Folder (⇧⌘G), type /etc or ~/Library
- Show hidden files: ⇧⌘. (Shift-Command-Period)
- Show the path bar: View → Show Path Bar (⌥⌘P)
- Quick Look: select a file and press Space
- Get Info (⌘I): size, permissions, 'Open with', kind (Apple silicon / Intel)
- Drag a folder from Finder into Terminal to paste its full path

# System Settings for Administrators

| Panel | Why an admin goes there |
| --- | --- |
| General → About / Software Update / Storage | Version, updates, disk usage |
| General → Login Items & Extensions | What starts at login; system extensions |
| General → Sharing | Computer name, File, Screen and Remote Login (SSH) sharing |
| Users & Groups | Create users, admin rights, login options (Lesson 8) |
| Network | Wi-Fi, Ethernet, DNS, firewall (Lesson 10) |
| Privacy & Security | App permissions, Gatekeeper 'Open Anyway', FileVault (Lesson 11) |

# Where Apps Live: The .app Bundle

```
/Applications            # apps for all users
/System/Applications     # Apple's built-in apps (read-only system volume)
~/Applications           # apps for one user only

% ls /Applications/Safari.app/Contents
Info.plist  MacOS  Resources  _CodeSignature  ...

% ls /System/Applications/Calculator.app/Contents/MacOS
Calculator                    # the real executable

% plutil -p /System/Applications/Calculator.app/Contents/Info.plist | head
```

# Installing Apps Safely

- App Store: reviewed, sandboxed, updates automatically
- .dmg disk image: open it, drag the app to Applications, eject
- .pkg installer: runs scripts and can install anywhere (needs admin)
- Homebrew casks: brew install --cask <app>  (Lesson 5)
- Gatekeeper checks the developer signature and Apple notarization
- Blocked app? System Settings → Privacy & Security → Open Anyway

# Control Apps From Terminal

```
% open -a Safari                          # launch an app by name
% open -a TextEdit notes.txt              # open a file with a chosen app
% open .                                  # open this folder in Finder
% open https://www.MyWebUniversity.com # default browser
% open -R /etc/hosts                      # reveal a file in Finder

% osascript -e 'quit app "Safari"'      # ask an app to quit nicely
% killall Safari                         # force it to quit
% mdfind -name .app | head               # find apps with Spotlight
```

# When an App Misbehaves

- Force Quit window: ⌥⌘Esc
- Activity Monitor: select the process → Stop (✕) → Quit or Force Quit
- Terminal: pkill -x Safari  or  kill <PID>  (Lesson 9)
- Remove login items you don't need: General → Login Items
- Safe Mode (Apple silicon): hold power → select disk → hold Shift → Continue in Safe Mode
- Read the crash report in Console → Crash Reports

# The Built-in Utilities (/Applications/Utilities)

| Utility | What it is for |
|---|---|
| Activity Monitor | CPU, memory, energy, disk and network per process |
| Console | System logs, crash reports, live log streaming |
| Disk Utility | Volumes, First Aid, erase, disk images (Lesson 11) |
| Terminal | The UNIX shell (Lesson 4) |
| System Information | Full hardware and software report (system_profiler) |
| Script Editor | AppleScript and JavaScript for Automation |
| Screenshot · Migration Assistant · Audio MIDI Setup | Capture screen · move users and data · audio devices |

# Reading Activity Monitor Like an Admin

- CPU tab: % CPU per process; 'Kind' shows Apple silicon or Intel
- Memory tab: watch Memory Pressure (green, yellow, red), not 'free' memory
- Energy tab: apps that drain the battery or prevent sleep
- Disk and Network tabs: who reads, writes and sends the most
- Double-click a process: open files, ports, parent process
- Same data in Terminal: top, ps, lsof, vm_stat (Lesson 9)

# Automation: Shortcuts, AppleScript and say

```
% shortcuts list                            # Shortcuts you have created
% shortcuts run "Resize Image"              # run one from Terminal

% osascript -e 'display notification "Backup done" with title "MWU"'
% osascript -e 'tell app "Finder" to get name of every disk'

% say "Your build has finished"
% defaults read com.apple.dock orientation   # read an app's setting
```

# The Desktop on Other UNIX Systems

| System | Default desktop | How you get a GUI |
|---|---|---|
| **macOS** | Aqua (built in) | Always there; WindowServer draws it |
| **FreeBSD** | None (console) | pkg install xorg + KDE Plasma, GNOME or Xfce |
| **OpenBSD** | X11 included (Xenocara) | Install the X sets; cwm or fvwm, or pkg_add a desktop |
| **Solaris 11.4** | GNOME (optional) | pkg install solaris-desktop |

# Lab: GUI Meets UNIX

```
% open -a "Activity Monitor"
% open /System/Applications/Utilities
% ls /System/Applications/Calculator.app/Contents
% plutil -p /System/Applications/Calculator.app/Contents/Info.plist | grep -i version

# Show hidden files in every Finder window, then undo it:
% defaults write com.apple.finder AppleShowAllFiles -bool true;  killall Finder
% defaults delete com.apple.finder AppleShowAllFiles;            killall Finder
```

# Summary & Homework

- Menu bar, Dock, Finder, Spotlight (⌘Space), Mission Control
- Finder: ⇧⌘G, ⇧⌘., path bar, Quick Look, drag to Terminal
- An .app is a bundle (a folder); Gatekeeper checks signatures
- open, osascript, killall, mdfind, shortcuts, defaults
- Homework: open every utility once; do the lab; learn 5 shortcuts
- Next: Lesson 4 — Terminal, zsh & the macOS File System

# Thank You! 🙏

Free videos & PDFs: www.MyWebUniversity.com

Slides for this lesson: MyWebUniversity.com/presentations

**YouTube: @MyWebUniversity · @MyWebUniversity-Dari**

Wahidullah Lutfy — Founder and Director of IT of MyWebUniversity, and CS teacher

Book: The Direct Path to Linux Ubuntu (Amazon · Barnes & Noble)

**Learn it, then pass it on.**