

# Introduction to Linux

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# About Me

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# Scope

- Basic history of Linux and open-source software
- Explanation of the Linux ecosystem
- How to run Linux from your Windows computer
- Common Linux commands
- Common terminology

# Source Code

- When a developer writes a program, it needs to be *compiled* before a computer can understand it
- The compilation process converts *source code* (C++, Python, Java, etc.) into *machine code*
- After a program has been compiled, it cannot be easily reversed or modified
- Companies charge money for software by keeping the source code private
- Some software is *open-source*, meaning anyone can view or modify its code

# Open- vs. Closed-Source Software

## Open-Source

- Software is maintained by a community
- Source code is public
- Free
- Program or code can be modified and reused

## Closed-Source

- Software is maintained by a company
- Source code is private
- Could cost money
- Program cannot be modified except by the developer

# What is Linux?

- Linux is a family of open-source operating systems that all share the same kernel
- The Linux kernel was created by Linus Torvalds in 1991
- Users paired the Linux kernel with an existing open-source OS called GNU
- GNU and Linux combine to make a fully functional OS called “GNU/Linux”, or simply “Linux”

# Why Should I Use Linux?

- Linux is the *de facto* operating system for programming
- Many tools for computer science professionals run exclusively on Linux
- Your employer will likely use it
- It's free

# Distributions

- There are a myriad of different versions of Linux, called *distributions* or *distros*
- Each distribution is tailored to a specific purpose and curated by a *maintainer*
- In practice, the difference between each distro are the programs that come preinstalled
- The distro we're working with today is Debian, one designed for simplicity and reliability



# Windows Subsystem for Linux (WSL)

- The Windows Subsystem for Linux (or WSL) is a tool released by Microsoft that lets you run a bare-bones version of Linux on a Windows PC
- The most popular Linux distributions are available on the Microsoft Store and can be installed like any other app
- Debian, Ubuntu, openSUSE, Kali, Fedora, etc.

# What If I Want a Full Linux Installation?

- Most Linux distros are installed from a USB drive called a *live USB*
- After burning an ISO file to a USB drive, you simply plug it in and restart your computer
- This is outside the scope of this presentation, but there are many tutorials



# Linux Terminology

- open-source: software whose source code is public
- closed-source: software whose source code is private
- distribution (distro): A version of Linux, tailored and distributed by a maintainer
- terminal/shell: A program that provides a text-based way of performing tasks; a command-line interface
- root/superuser: The most privileged user on a Linux system; the admin account
- live USB: a USB drive containing a Linux installation

# TL;DR

- Linux is an open-source family of operating systems used mostly by programmers
- It uses a command-line interface more frequently than a GUI, which makes programming easier
- There are a bunch of versions of Linux called *distros* that are made for different purposes
- You can install command-line versions of Linux from the Microsoft Store or run/install a distro from a *Live USB*

# Thanks for Listening!

Any Questions?

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