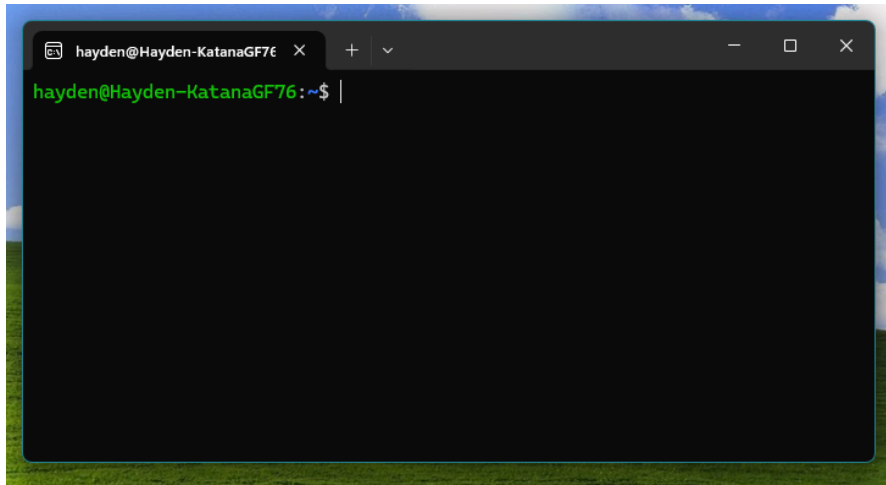


# Intro to WSL



When you launch Ubuntu (WSL) from the Start Menu in Windows, a black window pops up. You should see your username and a blinking cursor. But what exactly are we looking at? Let's break it down and define some key terms before we move forward. Be sure to come back and check this doc if you're ever confused about wording.

## Terminal

The **terminal** is the black window you type commands into. Think of it as a chat window between you and your computer. It's a simple command-line interface (CLI) that lets you interact with something called a shell. But what's a shell?

## Shell

The **shell** is the program that reads the commands you type into the terminal. You write a command, hit Enter, and the shell interprets it and translates your words into instructions the system can understand. There are many types of shells. You might have heard of PowerShell on Windows. On Linux, the most common one is Bash. But what's Bash?

## Bash

**Bash** is a type of shell that understands Linux commands like `ls`, `cd`, and `mkdir`. It's the default shell that comes bundled with most Linux distributions, including Ubuntu. When you type a command, Bash processes it and passes the request to the Linux kernel. But what's the kernel?

## Kernel

The **kernel** (Linux) is the core of the operating system (Ubuntu). You don't talk to the kernel directly. You talk to the shell (Bash), the shell talks to the kernel, the kernel talks to your hardware (memory, CPU, keyboard, hard drive, etc.)

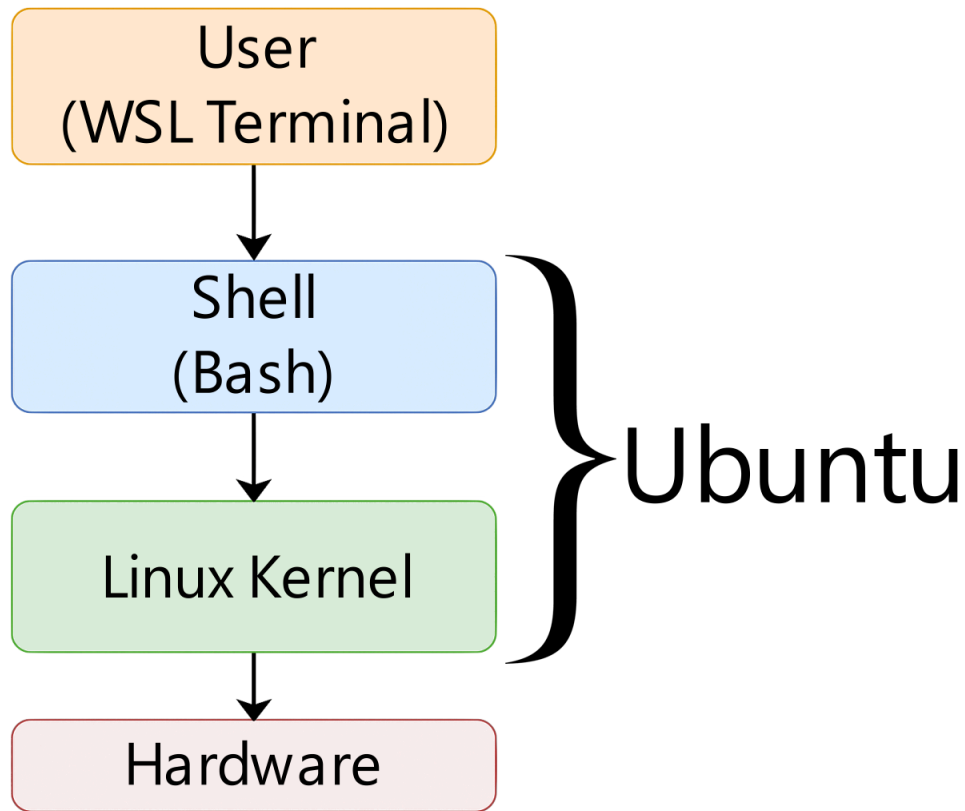
When most people say "Linux," they're usually talking about a Linux distribution, which is a complete OS that bundles the Linux kernel with all the other tools, programs, and user interfaces you actually interact with. But remember, Linux is really just the kernel, not the full OS. The distro we're using is Ubuntu. But what's Ubuntu?

## Ubuntu

**Ubuntu** is one of those Linux distributions, and the one we're using for this course. It includes the Linux kernel plus all the extra stuff that makes it usable. When you install WSL, Ubuntu is the distro that comes with it by default. But what's WSL?

## WSL

**Windows Subsystem for Linux** (or WSL) is the program you installed earlier and it's what you'll be using for Unit 1. When you run WSL you're running Ubuntu *inside* of Windows. It lets you use a real Linux environment without the need for a dual-boot setup.



This is a super simplified diagram of what's going on when you use WSL. Under the hood, WSL runs a real Linux kernel inside of a lightweight virtual machine. You're using Ubuntu's userspace (which includes Bash, apt, and other tools) while the kernel operates separately in the background. This gives you full Linux compatibility without leaving Windows.

Later on we'll actually set up Linux within a virtual machine, but for now WSL is a great place to practice simple commands.