Faysal Aziz

Ubuntu Unleashed

From Zero to Mastery in 3 Days

FA-0447

Software Development · DevOps, Cloud & Infrastructure

Introduction

Welcome to Your Digital Renaissance

In a world where technology moves at light speed, where artificial intelligence reshapes industries overnight, and where the cloud has become our new frontier, there exists a quiet revolution that has been powering innovation for over two decades. **Ubuntu Linux** isn't just an operating system—it's a philosophy, a movement, and your gateway to computational mastery.

Ubuntu means "humanity toward others" in the Zulu language. Today, it means something more: **your liberation from digital limitations.**

The Challenge

Right now, millions of developers, engineers, and digital creators are building tomorrow's world on Ubuntu. They're training AI models, orchestrating cloud infrastructures, securing critical systems, and crafting elegant code. They speak the language of terminals and containers, of kernels and distributions. They hold the keys to the digital kingdom.

Where do you stand in this landscape?

Perhaps you're staring at a Windows desktop, wondering what lies beyond the familiar icons. Maybe you're a developer curious about the platform that powers everything from smartphones to supercomputers. Or you could be an IT professional ready to embrace the system that runs 96.3% of the world's top million web servers.

The Promise

In just 72 hours, you will be transformed.

From that first tentative ls command to deploying containerized applications with GPU acceleration, you'll traverse a learning curve that typically takes months. You'll witness the elegant simplicity of a system designed by and for human creativity. You'll discover why companies like Google, Netflix, and Tesla trust Ubuntu with their most critical workloads.

But this isn't just about learning commands or installing software. This is about **joining a global community of creators who choose freedom over lock-in, transparency over opacity, and collaboration over competition.**

Learning outcomes

By the end of this course, students will be able to:

- Confidently navigate and customize Ubuntu on desktop and server.
- Install and manage software using both GUI (App Center) and CLI (apt/snap).
- Work fluently in the Linux terminal with files, processes, permissions, and users.
- Manage storage, networking, and services.
- Switch between different desktop environments (GNOME, KDE, XFCE, MATE, Cinnamon, Budgie, LXQt).
- Run Ubuntu on Windows with WSL2, including GUI apps and GPU acceleration.
- Develop with Python, Go, and Rust 2024 Edition; use Git and VS Code.
- Deploy containers with Docker/Podman, understand containerd 2.0 changes.
- Secure systems with AppArmor 4, CET Shadow Stack, TPM-backed disk encryption, and firewalls.
- Compare Ubuntu 24.04.3 LTS and 25.04 features (HDR, Papers PDF, devpacks, confidential computing).

Prerequisites

- No prior Linux experience required.
- A PC/VM where Ubuntu 24.04.3 can be installed (optional 25.04 VM).
- (Optional) Windows 11 machine for WSL2 labs.

  (Strongly Recommended) SSH Ability:
  - Terminal or Console.
  - Access to Port 22
  - Access to Open IPs (for remote labs)

- Choice of IDEs: Recommended: VS Code

Training outline

1. Absolute Zero to Confident User

What is Linux & Ubuntu?

- Open-source philosophy & Ubuntu history.
- Difference between LTS and interim releases (24.04 vs 25.04).
- Ubuntu flavors (GNOME, KDE, XFCE, MATE, Budgie, Cinnamon, LXQt).

Installing Ubuntu

- Bootable USB, VM, or dual-boot.
- The Flutter installer: minimal vs full install.
- Creating user accounts, choosing encryption.
- First login and tour of the GNOME desktop (24.04 GNOME 46 vs 25.04 GNOME 48 differences).

The Ubuntu Desktop

- Activities overview, workspaces, app grid.
- File manager (Nautilus/Papers in 25.04).
- Settings: Wi-Fi, Bluetooth, sound, display, accessibility.
- Quick settings and tiling features.

Installing & Removing Software

- Ubuntu App Center and Firmware Updater.
- Installing with apt and snap.
- Updating & upgrading safely.
- Exercise: Install Firefox, VLC, and remove them.

First Steps with the Terminal

- Basic commands: pwd, ls, cd, cp, mv, rm.
- Creating folders, editing files (nano/vim basics).

- User accounts and sudo.
- Permissions (chmod, chown).
- Exercise: Create a new user with sudo privileges.

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2. Beginner → Power User

File System & Storage

- Understanding /home, /etc, /usr, /var.
- Mounting USB drives.
- Compression tools (tar, zip).
- ZFS vs ext4 overview.

Networking Basics

- Checking connectivity (ping, curl, wget).
- Viewing IP info (ip addr).
- Editing Netplan configs.
- Exercise: Connect to another system with SSH.

Customization & Fun

- GNOME Extensions, theming, fonts, icons.
- Installing KDE Plasma, XFCE, Cinnamon, etc.
- Switching display managers.
- Exercise: Switch to KDE and compare it with GNOME.

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3. Power User → Advanced

WSL2 & Ubuntu on Windows

- Installing Ubuntu on Windows Store.
- systemd on WSL2, .wslconfig tuning.
- Running GUI apps (WSLg).
- CUDA GPU acceleration in WSL2.
- Exercise: Run VS Code and a Python script in WSL2.

System Administration Essentials

- Processes (ps, top, kill, systemctl).
- Services and systemd basics.
- Logs (journalctl).
- Exercise: Create a systemd service.

User & Group Management

- Adding/removing users.
- sudo vs su.
- Groups and permissions in practice.

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4. Advanced Mastery

Developer Tools on Ubuntu

- Python, Go, Java, Rust 2024 Edition (Rust 1.85).
- Rust 2024 features: async closures, stricter unsafe, Shadow Stack safety, style editions.
- Git & VS Code.
- Exercise: Write a Rust CLI app and package it.

Containers & Cloud

- Docker, Podman, containerd 2.0, runc.
- Running nginx in a container.
- MicroK8s overview.
- Exercise: Deploy a containerized web app.

Security & Hardening

- AppArmor 4 profiles.
- TPM-backed full disk encryption.
- CET Shadow Stack.
- Firewall with UFW.
- Backups with Deja Dup.
- Exercise: Enable the firewall and test blocked traffic.

Ubuntu 24.x vs 25.x Deep Comparison

- Ubuntu 24.04.3 LTS: stability, HWE 6.14 kernel, 5-year support.
- Ubuntu 25.04: GNOME 48, HDR, Papers, Battery Health, devpacks, confidential computing.
- When to use LTS vs interim releases.
- Exercise: Create a comparison chart and present upgrade recommendations.

Capstone Project

Students pick one:

- **Custom Desktop:** Build a themed Ubuntu with extensions and apps.
- **Dev Box:** Configure a Rust + Python dev environment.
- **WSL2 Powerhouse:** Set up GPU-accelerated ML in WSL2.
- **Mini Server:** Deploy a web service in a container with firewall enabled.

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5. Wrap-Up

After 3 days, students will have gone from **zero Linux experience** to being able to **comfortably use, configure, secure, and even develop on Ubuntu 24.x**, with the confidence to explore 25.x innovations.

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