# 4ITRC2 Operating System Lab

# Lab Assignment 1

# Aim: To install and study Ubuntu OS

# To perform: Install VMware or Virtual Box and Ubuntu over Windows OS

# To Submit: Study of Ubuntu OS

# Study of Ubuntu OS

## 1. Introduction

Ubuntu is a popular Linux-based operating system developed and maintained by Canonical Ltd. It is based on Debian and is widely known for its user-friendly interface, stability, and security. Ubuntu follows an open-source model, allowing users to freely use, modify, and distribute the software.

### Brief History

1. Linux Origins: Linux was created by Linus Torvalds in 1991 as a free and open-source operating system kernel.
2. Ubuntu's Introduction: Ubuntu was first released in 2004 by Canonical Ltd., led by Mark Shuttleworth.
3. Ubuntu Versions: New versions release every six months, with long-term support (LTS) every two years.
4. Community and Support: Ubuntu has a vast global community, offering online support forums and enterprise services.

## 2. Features of Ubuntu

* 1. Open Source & Free
  2. Security & Stability
  3. User-Friendly Interface (GNOME)
  4. Software Package Management (APT, Snap Store)
  5. Customization & Flexibility
  6. Performance & Efficiency
  7. Support for Developers (Python, Docker, Git)
  8. Multiple Flavors (Kubuntu, Lubuntu, Ubuntu Server)
  9. Live USB Functionality
  10. Compatibility with Cloud Computing (AWS, Google Cloud, Azure)

## 3. Difference between Ubuntu and Windows OS

|  |  |  |
| --- | --- | --- |
| Feature | Ubuntu | Windows |
| License | Open-source & Free | Proprietary & Paid |
| Security | More secure, fewer viruses | Frequent malware & viruses |
| User Interface | GNOME, customizable | Windows UI, less customizable |
| System Resource Usage | Lightweight, runs on older hardware | Heavy, requires more resources |
| Software Management | APT, Snap Store | Microsoft Store, EXE installers |
| Gaming Support | Limited, but improving (Steam, Proton) | Strong gaming support |
| Command-Line Interface | Terminal with Bash shell | Command Prompt & PowerShell |

## 4. Installing Ubuntu using VMware or VirtualBox

### Step 1: Download Required Software

* 1. Download VMware Workstation Player or Oracle VirtualBox.
  2. Download the latest Ubuntu ISO file from the official Ubuntu website.

### Step 2: Create a Virtual Machine

* 1. Open VMware or VirtualBox and select 'Create a New Virtual Machine'.
  2. Allocate the required RAM (at least 2GB, preferably 4GB or more).
  3. Create a virtual hard disk (minimum 20GB recommended).

### Step 3: Install Ubuntu

* 1. Select the Ubuntu ISO file as the bootable disk and start the virtual machine.
  2. Choose 'Install Ubuntu' and follow the setup process.
  3. Create a user account and complete the installation.

### Step 4: Post-Installation Setup

* 1. Install updates and necessary software using APT.
  2. Enable guest additions or VMware Tools to improve performance.

## Conclusion

Ubuntu is a powerful and secure alternative to Windows, offering a free, open-source, and customizable computing environment. It is particularly popular among developers and system administrators due to its stability and efficiency.