Lab Assignment 1

Name – Abhinav Bagri

Roll no. – 23I4102

* STUDY OF UBUNTU OPERATING SYSTEM

1. **INTRODUCTION:**

Linux is an open-source, Unix-like operating system kernel that serves as the foundation for various distributions (distros), including Ubuntu. Created by Linus Torvalds in 1991, Linux has become a key player in computing due to its flexibility, security, and community-driven development. Unlike proprietary operating systems, Linux is open-source, meaning anyone can modify and distribute it freely.

Ubuntu is one of the most popular Linux distributions, developed and maintained by Canonical Ltd. It was first released on October 20, 2004, as an easy-to-use alternative to other Linux distributions. Based on Debian, Ubuntu provides a user-friendly experience while maintaining the robustness and security of Linux.

Ubuntu follows a structured release cycle, with two major versions released every year. These releases fall into two categories:

* **Standard Releases**: Receive updates for nine months and are intended for users who want the latest features.
* **Long-Term Support (LTS) Releases**: Released every two years, LTS versions are supported for five years (or longer with extended support). These versions prioritize stability and security, making them ideal for enterprises and long-term users.

Over the years, Ubuntu has evolved significantly, with different editions tailored for specific use cases, such as:

* **Ubuntu Desktop**: Designed for personal computing with a graphical user interface (GUI).
* **Ubuntu Server**: Optimized for server environments and cloud computing.
* **Ubuntu Core**: A lightweight, secure version designed for Internet of Things (IoT) devices.

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With its continuous evolution, Ubuntu remains one of the leading operating systems, widely used for personal computing, enterprise solutions, cloud services, and software development.

1. **Features of Ubuntu:**

* **Free and Open-Source**: Ubuntu is freely available and allows users to modify and distribute it.
* **User-Friendly Interface**: It provides a graphical user interface (GUI) that is easy to use, especially with the GNOME desktop environment.
* **Security and Stability**: Ubuntu includes built-in security features like user permissions, firewall, and regular security updates.
* **Software Repository**: It offers a vast software repository through the APT package manager, making application installation easy.
* **Customization**: Ubuntu allows extensive customization, including themes, icons, and desktop environments.
* **Compatibility**: Supports various hardware architectures and runs on desktops, servers, and cloud platforms.
* **Community Support**: A large community provides forums, documentation, and troubleshooting support.

1. **Difference Between Ubuntu and Windows OS**

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| |  |  |  | | --- | --- | --- | | **Feature** | **Ubuntu OS** | **Windows OS** | | **Source Model** | Open-source | Proprietary | | **Cost** | Free | Paid (license required) | | **Security** | More secure, less prone to malware | Requires antivirus protection | | **Customization** | Highly customizable | Limited customization options | | **Software Installation** | Uses APT package manager and Snap | Uses .exe and Microsoft Store | | **Performance** | Lightweight and efficient | Heavier with more resource usage | | **User Interface** | GNOME (default), customizable | Fixed UI with limited customization | | **Support** | Community-driven support | Official Microsoft support | |

Overall, Ubuntu is a powerful, flexible, and secure operating system suitable for developers, businesses, and general users who prefer open-source solutions. Windows, on the other hand, is more widely used for its compatibility with a large variety of software and ease of use for general users.