**Operating System**

**(4ITRC2)**

**IT IV Semester**

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**Study of Ubuntu OS**

**Introduction**

Linux is the Operating System Kernel which is open source and was created by Linus Torvalds in 1991. It is core component of many OS and hence responsible for allocating resources to hardware and communicating with software. Unlike Windows and macOS, Linux is not a single operating system but a family of OS distributions built around Linux Kernel. Some of the popular Linux Distributions are Ubuntu, Debian, Kali Linux etc. It is widely used in servers, cloud computing, cybersecurity due to its security, flexibility and efficiency.

Ubuntu is a popular Linux distribution developed by Canonical Ltd. It was first released in 2004 and it is based on Debian. Ubuntu is known for its user friendliness making it preferred choice for both beginners and advanced users. Ubuntu has multiple version including –

* Long Term Support
* Interim Releases

Some major Ubuntu versions include Ubuntu 16.04 (Xenial Xerus), Ubuntu 18.04 (Bionic Beaver), Ubuntu 20.04 (Focal Fossa), and Ubuntu 22.04 (Jammy Jellyfish).

**Features of Ubuntu**

Ubuntu offers several features that make it a reliable and efficient operating system:

*Open Source –* Free to use Modify and distribute.

*User friendly experience –* Uses the GNOME desktop environment for a best experience.

*Security and Stability –* Built in firewall and virus protection reduce vulnerabilities.

*Software Management –* Support package managers like APT and Snap for easy software installation.

*Regular updates –* LTS versions receive long-term security updates and improvements.

*Customizability –* Allow users to personalize desktop environments, themes, and workflows.

*Lightweight and Efficient –* Performs well even on older hardware with minimal system requirements.

*Multilingual support –* Available in multiple languages for global accessibility.

**Difference between Ubuntu and Windows OS**

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| Feature | Ubuntu | Windows OS |
| Cost | Free and open Source | Paid(except Windows 10/11) |
| Customization | Highly Customizable | Limited customization options |
| Security | More secure, less prone to malware. | Requires antivirus protection |
| User Interface | GNOME (by default) or other DEs | Proprietary Windows UI (Start Menu, Taskbar) |
| Software Availability | Limited proprietary software but has open source alternatives | Wide range of commercial and proprietary software |
| System Requirements | Runs efficiently on low-end hardware | Requires high system resources |
| Command – Line Usage | Extensive CLI support | GUI – focused but has PowerShell and CMD |
| File System | Uses ext4, XFS, and Btrfs | Uses NTFS and FAT32 |
| Community Support | Strong Community-driven support | Official Microsoft support and forums |

While Ubuntu is preferred by developers and security-conscious users, Windows remains dominant in gaming, business applications, and mainstream consumer use. The choice between the two depends on user needs and preferences.

Thank You