



# **Department of Computer Science & Information Technology**

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Lab Record Submission

of

**Linux Lab**

**Subject Code – CSIT-505**

**Submitted to:**

**Submitted by:**

# ACROPOLIS INSTITUTE OF TECHNOLOGY AND RESEARCH

**DEPARTMENT OF COMPUTER SCIENCE AND INFORMATION  
TECHNOLOGY**

Name ..... Enrollment No. ....

**Course Name .....** **Subject Code .....**

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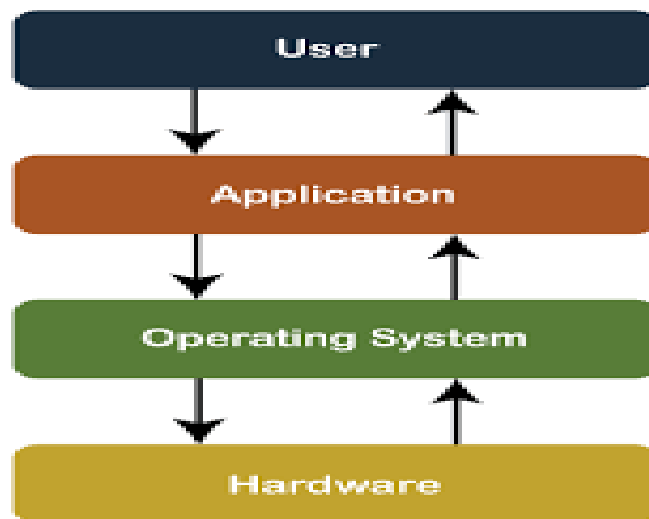
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# Experiment No. 1

## Introduction to OS

### Introduction to Operating System

Operating System lies in the category of system software. It basically manages all the resources of the computer. An operating system acts as an interface between the software and different parts of the computer or the computer hardware. The operating system is designed in such a way that it can manage the overall resources and operations of the computer. create, modify, and delete files, and by organizing these files into directories or folders. It also manages file permissions, which control access rights and ensure that only authorized users can perform certain actions on files. Additionally, the OS employs a file system, such as NTFS, FAT32, or ext4, to systematically organize and store files on storage devices.



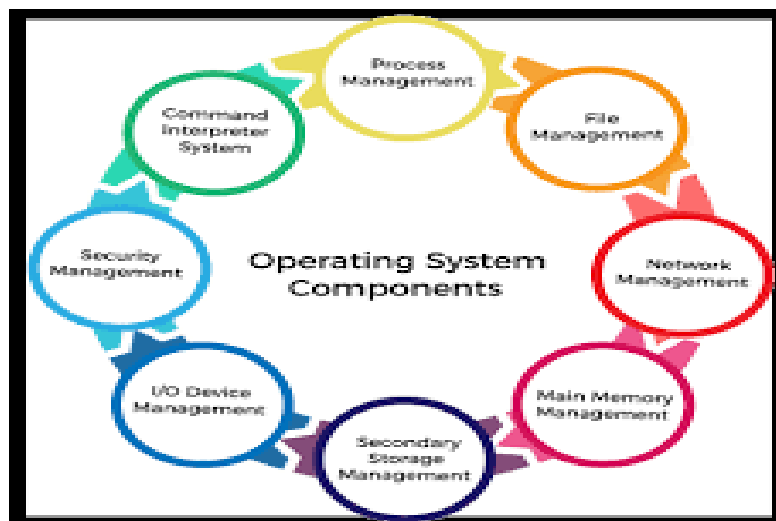
### Function of Operating System

Here are the key functions of an operating system relevant to a file experiment:

1. File Creation and Deletion: Allows you to create new files and remove existing ones.
2. File Organization: Structures files in directories or folders for easy access and management.
3. File Permissions: Controls access rights, specifying who can read, write, or execute files.
4. File System Management: Uses a file system (like NTFS, FAT32, or ext4) to organize and store files on storage devices.
5. File Access and Retrieval: Manages how files are accessed and retrieved from storage efficiently.

## Services provided by Operating System

- Program execution
- Input Output Operations
- Communication between Process
- File Management
- Memory Management
- Process Management
- Security and Privacy
- Resource Management
- User Interface
- Networking
- Error handling



## Need of Operating System

**OS as a platform for Application programs:** The operating system provides a platform, on top of which, other programs, called application programs can run .

**Managing Input-Output unit:** The operating system also allows the computer to manage its own resources such as memory, monitor, keyboard, printer, etc. Management of these resources is required for effective utilization.

**Multitasking:** The operating system manages memory and allows multiple programs to run in their own space and even communicate with each other through shared memory.

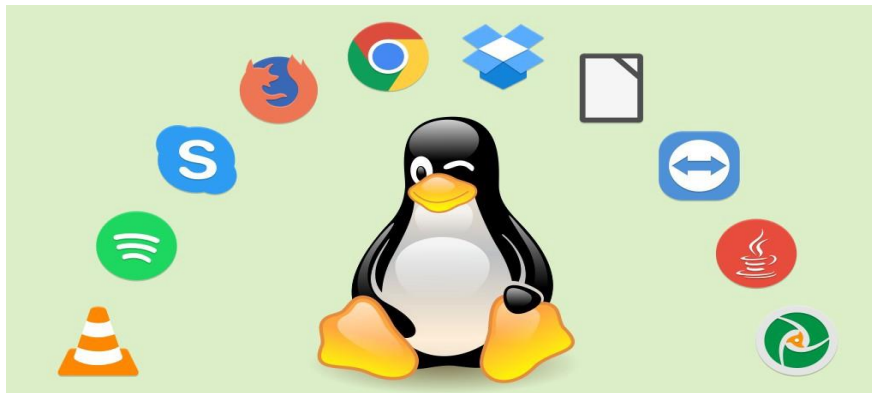
**Controls memory:** It helps in controlling the computer's main memory. Additionally, it allows and deallocates memory to all tasks and applications.

**Provides Security:** It helps to maintain the system and applications safe through the authorization process. Thus, the OS provides security to the system.

## Introduction : Linux

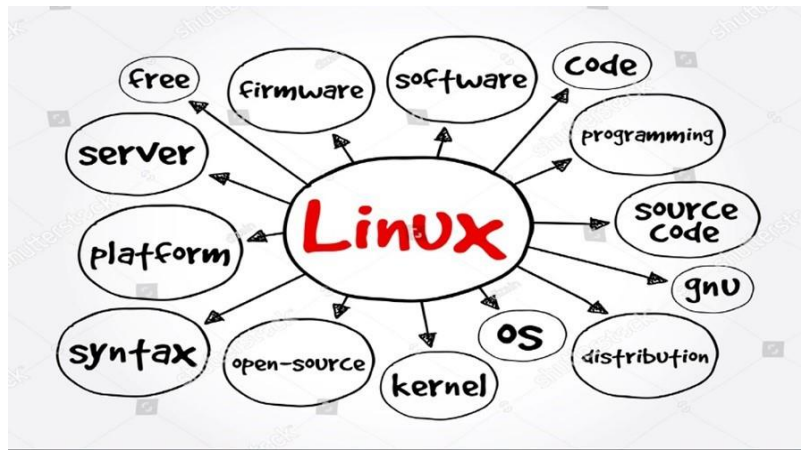
Linux is a free and open-source family of operating systems that is resilient and flexible. In 1991, an individual by the name as Linus Torvalds constructed it. The system's source code is accessible to everyone for anyone to look at and change, making it cool that anyone can see how the system works

The Linux Operating System is a type of operating system that is similar to Unix, and it is built upon the Linux Kernel. The Linux Kernel is like the brain of the operating system because it manages how the computer interacts with its hardware and resources.



## History of Linux

A popular open-source operating system is Linux. It was initially created by Linus Torvalds in 1991. At the time, Torvalds was a computer science student at the University of Helsinki, Finland and began working on the Linux project as a personal endeavour. The name Linux is a combination of his first name, Linus, and Unix, the operating system that inspired his projects. At the time, most operating systems were proprietary and expensive. Torvalds wanted to create an operating system that was freely available to anyone who wanted to use the operating system. He originally released Linux as free software under the GNU General Public License. This meant that anyone could use, modify, and redistribute his source code.



## Need of Linux

Linux operating system is widely used for several compelling reasons:

- 1. Open Source:** Linux is open source, meaning its source code is freely available for anyone to view, modify, and distribute. This fosters innovation and customization.
- 2. Stability and Reliability:** Known for its stability and reliability, Linux is often used in environments where uptime is critical, such as servers and embedded systems.
- 3. Security:** Linux is designed with robust security features and has a strong community of developers who quickly address vulnerabilities and provide patches.
- 4. Cost-Effective:** Linux is free to use, reducing costs associated with licensing fees compared to proprietary operating systems.
- 5. Flexibility and Customization:** Linux can be tailored to suit specific needs, from lightweight distributions for older hardware to powerful configurations for advanced users and servers.
- 6. Performance:** Linux typically has a smaller footprint and can be optimized for performance, making it suitable for a wide range of hardware.
- 7. Community Support:** A vibrant community of users and developers provides extensive support and resources, including forums, documentation, and user guides.
- 8. Compatibility:** Linux supports a wide range of hardware architectures and offers compatibility with various software applications, including many open-source

## Distributions of Linux

Linux distribution is an operating system that is made up of a collection of software based on Linux kernel or you can say distribution contains the Linux kernel and supporting libraries and software. And you can get Linux-based operating system by downloading one of the Linux distributions and these distributions are available for

different types of devices like embedded devices, personal computers, etc. Around 600 + Linux Distributions are available and some of the popular Linux distributions are:

- MX Linux
- Manjaro
- Linux Mint
- elementary
- Ubuntu
- Debian
- Solus
- Fedora
- openSUSE



## Services and Applications of Linux

Here are some key services and applications of the Linux operating system:

Security  
File management  
Monitoring  
Networking  
Backup management  
Community support  
Linux change-over  
Linux engineers  
Performance  
Scalability

