



Become a **DevOps Expert**

Greymatter Employability Program

INTRODUCTION

MALhub DevOps Program

- **Introduction to DevOps**
- **Introduction to Linux**
- **Basics of Linux**
- **Bash Scripting**
- **Server Management in Linux**
- **Basics of Networking**

→ Introduction to DevOps

- What is DevOps?
 - Goals of DevOps
 - Benefits of DevOps
 - DevOps Tools
-

What's DevOps?

- DevOps can be simply explain as the intersection between developer and operation team.
- DevOps is a software methodology that emphasizes collaboration, communication, and integrate between software developers and IT operations professionals.
- DevOps is a culture of experimentation and continuous improvement, and promoting a mindset of shared responsibility for the success of the software development process.
- DevOps is the combination of cultural philosophies, practices, and tools that increase an organization's ability to deliver applications and services at high velocity; evolving and improving products at a faster pace than organizations to better serve their customers and compete more effectively in the market.

Goals of DevOps

-
- **Faster time-to-market**
 - **Increased efficiency**
 - **Improved collaboration**
 - **Greater reliability**
 - **Better scalability**
 - **Enhanced security**
-

Benefits of DevOps

-
- DevOps enables organizations to release new features and updates more quickly, allowing them to respond more rapidly to changing customer and business needs.
 - Using automation and streamlining the software development process, DevOps can help organizations reduce errors, optimize resource utilization, and improve overall efficiency.
 - DevOps fosters collaboration and communication between development and operations teams, breaking down silos and promoting a shared sense of responsibility for the success of the software development process.
 - DevOps promotes continuous testing and feedback allowing organizations to identify and address issues more quickly, and to improve software quality over time.
 - DevOps promotes use of infrastructure as code and cloud computing, enabling organizations to rapidly scale their software and infrastructure as needed.
 - It promotes the use of automation and tools to enforce security policies and ensure compliance, helping to reduce the risk of security breaches and data loss.
-

DevOps Tools

- **Configuration management tools:** These tools automate the process of configuring and managing servers, networks, and applications. Examples include Ansible, Chef, and Puppet.
- **Continuous Integration/Continuous Deployment (CI/CD) tools:** These tools automate the process of building, testing, and deploying software changes. Examples include Jenkins, GitLab, and Travis CI.
- **Containerization tools:** These tools allow developers to package applications and their dependencies into lightweight, portable containers. Examples include Docker, Kubernetes, and OpenShift.
- **Infrastructure as Code (IaC) tools:** These tools enable the creation and management of infrastructure using code, making it easier to automate and scale infrastructure. Examples include Terraform, CloudFormation, and Pulumi.
- **Monitoring and Logging tools:** These tools provide real-time visibility into the performance and health of applications and infrastructure. Examples include Prometheus, Grafana, and ELK stack (Elasticsearch, Logstash, and Kibana).
- **Collaboration and Communication tools:** These tools facilitate communication and collaboration between team members, both within and across teams. Examples include Slack, Microsoft Teams, and Jira.

INTRODUCTION TO LINUX

- History of Linux
- Linux Graphical User Interface(GUI)
- Linux Terminal
- Linux

Brief History of Linux

Linux is an open-source operating system based on Unix OS. It was created by Linus Torvalds, a student at the University of Helsinki, in 1991. Torvalds started working on Linux as a hobby and originally released it under the General Public Licence (GNU).

The name “Linux” is a combination of his first name “Linus” and “Unix”(the OS on which Linux was modeled). Linux was initially created as a terminal emulator and a file system, but it quickly evolved into a full-fledged OS.

There are many different distros(distributions) of Linux, each with its own set of features and tools. Some of the most popular Linux distros include Debian, Ubuntu, Fedora, and CentOS.

One of the key features of Linux is its open-source nature. This means that the source code for Linux is freely available to anyone who wants to view, modify, or distribute it. This has led to a vibrant and active community of developers and users who are constantly working to improve and refine Linux.

It is widely used in enterprise settings, where it powers many of the world's largest servers and data centers. Overall, Linux had a significant impact on the world of technology, and it continues to play a key role in shaping the future of computing.

Linux Graphical User Interface(GUI)

—
Linux offers a variety of graphical user interface (GUI) options, allowing users to interact with the OS through a GUI rather than using command-line interfaces.

Some of the most popular Linux GUIs include:

➤ GNOME

➤

Linux Terminal

In Linux, the terminal(command-line interface (CLI) or shell) is a text-based interface that allows users to interact with the OS by typing commands. While the terminal can be intimidating for new users, it is a powerful tool that allows for greater control and flexibility than graphical user interfaces.

The Linux terminal also allows for the use of scripting language such as Bash and Perl, which can automate tasks and make working with terminal more efficient.

Overall, the Linux terminal is a powerful tool that allows for greater control and flexibility over the operating system. While it can be intimidating at first, it is worth learning for anyone who wants to work with Linux on a deeper level.

Here are some basics commands that can be used in Linux terminal:

- ls: Lists the files and folders in the current directory
- cd: Change the current directory
- mkdir: Creates a new directory
- rm: Removes a file
- cp: Copies a file or directory
- mv: MOves file or directory
- cat: Displays the contents of a file
- echo: Displays text on the screen
- chmod: Change the permissions of a file or directory
- sudo: Runs a command with superuser privilege
- pwd: Check current directory

Basics of Linux

Some basic concepts and commands to get started with Linux:

- File System Hierarchy: Linux has a hierarchical file system, with the root directory ("/") as the top-level directory. Other important directories include "/home" (for user files), "/bin" (for system binaries), and "/etc" (for configuration files).
- Users and Permissions: Linux is a multi-user operating system, which means that multiple users can have their own accounts and files on the system. Users can be granted different levels of permissions to access and modify files and directories using the `chmod` command.
- Command-line Interface: The Linux terminal is a text-based interface that allows users to interact with the operating system using commands. Some common commands include `ls` (to list files and directories), `cd` (to change directories), and `mkdir` (to create a new directory).



- **Package Management:** Linux uses package management systems such as apt or yum to install, update, and remove software packages. These systems make it easy to install and manage software on the system.
- **Text Editors:** Linux offers a variety of text editors for creating and editing files in the terminal, including nano, vi, and emacs. Learning how to use a text editor is essential for working with configuration files and scripting.
- **File Compression:** Linux supports a variety of file compression formats, including gzip and tar. Knowing how to compress and extract files is essential for working with compressed archives.
- **File Transfer:** Linux offers a variety of tools for transferring files between systems, including scp and rsync. These tools allow for secure and efficient file transfers over a network.

Q & A Session