**1. Install and Configure DNS Server:**

To install DNS sever using BIND first we have to update package repository:

Изображение выглядит как текст, снимок экрана, программное обеспечение, Значок на компьютере

Автоматически созданное описание

Then we have to install BIND DNS server by running:

Изображение выглядит как текст, снимок экрана, программное обеспечение, Значок на компьютере

Автоматически созданное описание

Then we have to create custom zone, to create zone we have to open the BIND config in text editor, I will use nano as text editor, and here we should add the following config to create our custom zone

Изображение выглядит как текст, программное обеспечение, Мультимедийное программное обеспечение, компьютер

Автоматически созданное описание

To create custom zone file we have use specified file path from configuration, and add the following content to the zone file

Изображение выглядит как текст, программное обеспечение, Мультимедийное программное обеспечение, Значок на компьютере

Автоматически созданное описание

The we have to save and close the file

Now we have to configure DNS forwarding. We have to open the BIND options file and add the following configuration to forward other DNS requests to 8.8.8.8 and 1.1.1.1

Изображение выглядит как текст, программное обеспечение, Мультимедийное программное обеспечение, Значок на компьютере

Автоматически созданное описание

The save and close file.

Then we have to update DNS settings, we need to open the resolv.conf file for editing and add the following line at the top to include our DNS server

Изображение выглядит как текст, снимок экрана, программное обеспечение, Мультимедийное программное обеспечение

Автоматически созданное описание

Save and close the file

Then we need to restart the BIND DNS server to the changes to take effectИзображение выглядит как текст, снимок экрана, программное обеспечение, компьютер

Автоматически созданное описание

*Alternatively, we can use a GUI tool like NetworkManager to update DNS settings on our system*

*If you have a GUI environment, open the network settings or NetworkManager settings.*

*Locate the DNS configuration section and add your DNS server's IP address (usually 127.0.0.1 or the IP of your server).*

*Save the settings.*

And we need to verify DNS configuration. To verify that the DNS server is working, we can use the ‘dig’ and ‘host’ commands

Изображение выглядит как текст, снимок экрана, программное обеспечение, Мультимедийное программное обеспечение

Автоматически созданное описание

**2. Install Git and Perform Basic Configuration:**

- Why is Git so widely used?

Git is widely used for several reasons:

**Distributed Version Control:** Git is a distributed version control system, which means that each user has a complete copy of the repository. This allows for easy collaboration among multiple users, even in a decentralized manner. Each user can work independently, make changes, and later synchronize those changes with others.

**Speed and Performance:** Git is designed to be fast and efficient, even with large projects and repositories. It uses advanced algorithms and data structures to optimize operations such as committing, branching, merging, and searching through the history. This speed and performance make Git suitable for projects of any size.

**Branching and Merging**: Git provides powerful branching and merging capabilities. Branching allows users to create separate lines of development, enabling them to work on different features or experiment with ideas without affecting the main codebase. Merging allows the integration of changes from one branch into another, making it easy to combine and consolidate work.

**Flexibility:** Git is not limited to a specific type of project or file format. It can be used for any kind of project, whether it's a small personal project, a large software development effort, or even managing configurations and documents. Git's flexibility makes it adaptable to various workflows and use cases.

**Strong Community and Ecosystem:** Git has a vast and active user community, contributing to its popularity. This means there are abundant resources, documentation, tutorials, and support available. Additionally, Git has a rich ecosystem with a wide range of third-party tools, integrations, and services that enhance its functionality and integration with other development tools.

**Open Source**: Git is an open-source tool, developed and maintained by a community of contributors. This fosters transparency, innovation, and continuous improvement. The open-source nature of Git encourages collaboration and ensures that the tool remains accessible to users worldwide.

**Integration and Compatibility:** Git integrates well with other development tools and platforms. It has become a standard version control system in the software development industry and is supported by popular code hosting platforms like GitHub, GitLab, and Bitbucket. Git's compatibility and integration with various tools make it a preferred choice for many developers and organizations.

Overall, Git's distributed nature, speed, branching capabilities, flexibility, strong community, and compatibility contribute to its widespread adoption and popularity among developers.

To install Git on linux using the package manager we need to open terminal and run the following command

Изображение выглядит как текст, снимок экрана, программное обеспечение, Мультимедийное программное обеспечение

Автоматически созданное описание

After installing we can configure our name and email using the following commands Изображение выглядит как текст, снимок экрана, программное обеспечение, Мультимедийное программное обеспечение

Автоматически созданное описание

The **--global** flag sets these values globally for all Git repositories on your system. If we want to set different values for a specific repository, we can omit the **--global** flag and run the commands within the repository directory.

Git aliases allow us to create shortcuts for commonly used Git commands. We can set up aliases by editing the global Git configuration file using the following command:

**git config --global –edit**

This will open the configuration file in a text editor. We need to add the following lines to create aliases:

**[alias]**

st = status

co = checkout

ci = commit

br = branch

hist = log --pretty=format:'%h %ad | %s%d [%an]' --graph --date=short

These aliases define shortcuts for commands like **status**, **checkout**, **commit**, **branch**, and **log**.

Изображение выглядит как текст, программное обеспечение, Мультимедийное программное обеспечение, Значок на компьютере

Автоматически созданное описание

By default, git pull uses the merge strategy when incorporating remote changes. If we prefer to use rebase instead, we can set it as the default strategy using the following command:

**Изображение выглядит как текст, снимок экрана, программное обеспечение, Мультимедийное программное обеспечение

Автоматически созданное описание**

This will make git pull perform a rebase instead of a merge by default. If we want to temporarily override this behavior and use merge, we can use the **--no-rebase** option: **git pull --no-rebase**.

To create a local Git repository named “step\_project\_2”, we need to navigate to the desired directory in the terminal and run the following command

Изображение выглядит как текст, снимок экрана, программное обеспечение, компьютер

Автоматически созданное описание

Now we created local git repository in desktop