

# Deep Dive in Git & GitHub for DevOps Engineers

Day 9 : 90Days of DevOps Challenge

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Shivraj Salunkhe · Apr 1, 2023 · 📖 4 min read

## What is Git and why is it important?

Git is a version control system that allows developers to manage and track changes to their code over time. It was created by Linus Torvalds in 2005 and has since become the most widely used version control system in the world.

**Git is important for several reasons:**

1. **Collaboration:** Git enables developers to work together on the same codebase, making it easy to track changes and merge code changes from different developers.
2. **Versioning:** Git allows developers to easily manage different versions of their code, making it simple to revert to an earlier version if necessary.

3. **Branching:** Git makes it easy to create different branches of code, allowing developers to work on multiple features or experiments at the same time.
4. **Backup:** Git provides a centralized location for code, which makes it easy to backup and restore code in case of a disaster or data loss.

**Overall,** Git is an essential tool for any developer who wants to effectively manage their code and collaborate with others on a project.

## What is difference Between Main Branch and Master Branch?

1. The terms "**main branch**" and "**master branch**" are often used interchangeably to refer to the primary branch in a Git repository. However, some developers prefer to use "**main**" instead of "**master**" in order to remove any references to slavery and promote more inclusive language.
2. Historically, the default branch name in Git was "master", but many organizations and projects have since transitioned to using "main" as the default branch name. This change is driven by the desire to create more inclusive and welcoming environments for all contributors.
3. In practical terms, there is no functional difference between a "main" branch and a "master" branch. Both serve as the primary branch in a Git repository and can be used to manage the history and development of the codebase. The difference is simply a matter of naming convention and preference.

# Can you explain the difference between Git and GitHub?

Git	GitHub
Version control system for managing and tracking changes to code over time	Web-based platform that provides hosting for Git repositories
Created by Linus Torvalds in 2005	Created in 2008
Enables developers to store their code in a repository and make changes to it over time	Provides a web interface for managing Git repositories
Provides features like branching and merging, which make it easy to work on different features or versions of a project simultaneously	Provides additional features like issue tracking, project management, and collaboration tools
Can be used without using GitHub	Developers can use GitHub to collaborate with others and share code more easily
Widely used in the software development industry	The largest host of Git repositories in the world

## How do you create a new repository on GitHub?

Create a new repository on GitHub by following these steps:

1. Sign in to your GitHub account and navigate to the main page.

2. Click on the "+" button in the top-right corner of the page and select "New repository" from the drop-down menu.
3. Enter a name for your repository in the "Repository name" field.
4. Add an optional description of your repository in the "Description" field.
5. Choose whether you want your repository to be public (visible to anyone) or private (visible only to you and collaborators you invite).
6. If you want to initialize your repository with a README, license, or .gitignore file, select the appropriate options.
7. Click the "Create repository" button to create your new repository.

Once you've created your repository, you can start adding files, making changes, and collaborating with others by inviting them as collaborators or by forking and cloning your repository.

## **What is difference between local & remote repository? How to connect local to remote?**

A local repository is a copy of a Git repository that is stored on your local machine, while a remote repository is a copy of the same Git repository that is stored on a remote server, such as GitHub or GitLab. The main difference between a local and remote repository is that changes made to a local repository are only visible to you, while changes made to a remote repository can be visible to others who have access to the same remote repository.

**To connect your local repository to a remote repository, you can follow these general steps:**

1. Create a new repository on the remote server (e.g., GitHub or GitLab).
2. Copy the URL of the remote repository.
3. In your local repository, open the Git terminal or command prompt and run the following command to add the remote repository:


```
git remote add origin <remote repository URL>
```

COPY 

Replace `<remote repository URL>` with the URL of the remote repository that you copied in step 2.

4. Verify that the remote repository has been added to your local repository by running the following command:

```
git remote -v
```

COPY 

This will show you a list of all the remote repositories that are currently connected to your local repository.

5. Push your local repository to the remote repository by running the following command:

```
git push -u origin main
```

This will push the contents of your local repository to the remote repository and set the default branch to "main". If your local repository has a different default branch name (e.g., "master"), replace "main" with the name of your default branch. After you have connected your local repository to the remote repository, you can use Git commands like "push", "pull", and "fetch" to synchronize changes between the two repositories.

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WRITTEN BY

**Shivraj Salunkhe**

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Dedicated and hardworking undergraduate student pursuing a degree in Information Technology with a passion for learning, leadership experience, and real-world skills through internships and part-time jobs in IT sector. Actively looking for new Opportunities and committed to do personal and professional growth.

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