Caltech | Center for Technology & Management Education

Full Stack Java Developer

simplilearn

Git

TECHNOLOGY

Git File Management

```
#include <iostream>
#include <cstdlib>
using namespace std;
int main()
{
    cout << "Hello, world!" << endl;
    return 0;
}
```

Learning Objectives

By the end of this lesson, you will be able to:

- Learn about the Git configuration command
- Configure Git based on the project requirements
- Learn through a series of syntaxes and examples
- List the configuration levels

Learning Objectives

By the end of this lesson, you will be able to:

- Explain the basic Git commands
- Write their syntaxes and analyze how they are used through examples
- Differentiate between Git fetch and Git pull

A Day in the Life of a Full Stack Developer

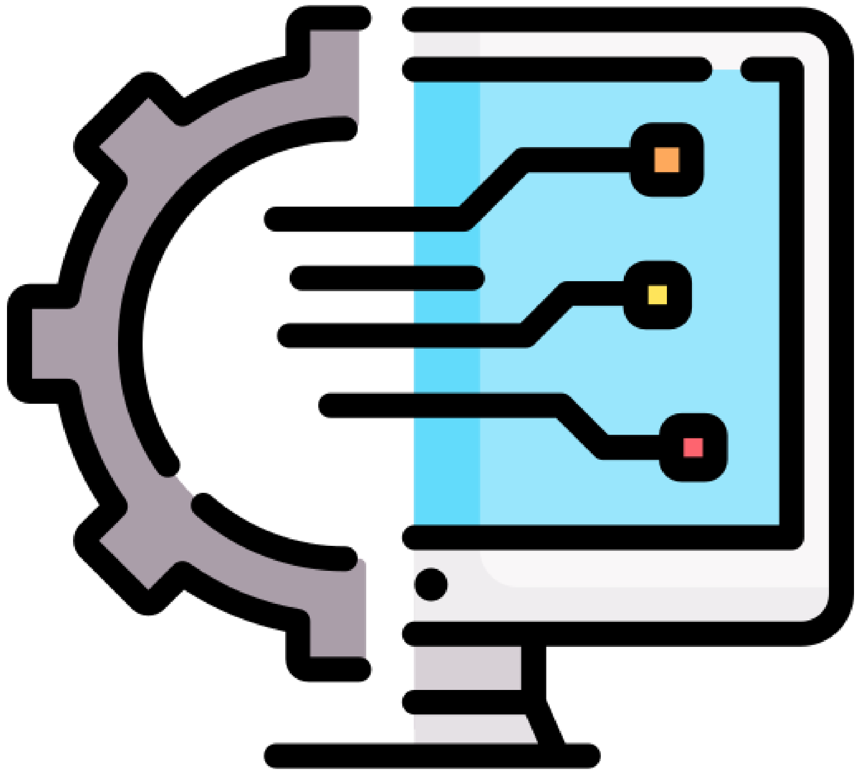
You are working as a full-stack developer in an organization and have been assigned to an application development project. You being the product lead, have decided to manage the source code of the project and maintain each change that happens in the code with the help of Git.

To do so, you need to configure Git and get acquainted with the Git commands and make use of it to manage the code stack. It is also important for you to understand how to create Git repositories.

Configuring Git

Configuring Git

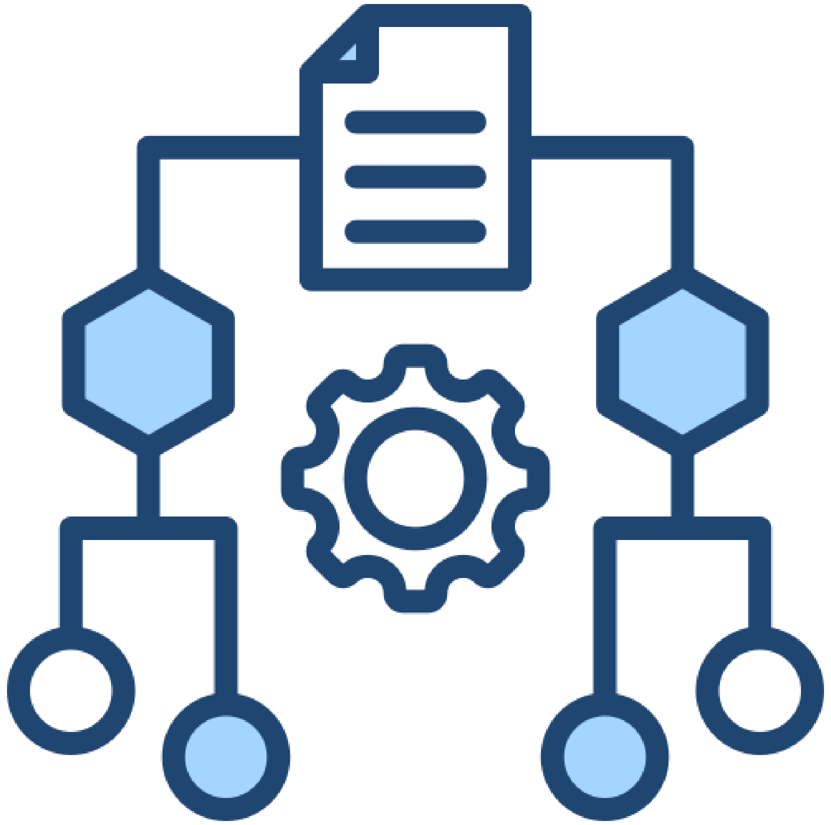
The Git configuration command is used to set Git configuration values on a global or local project.

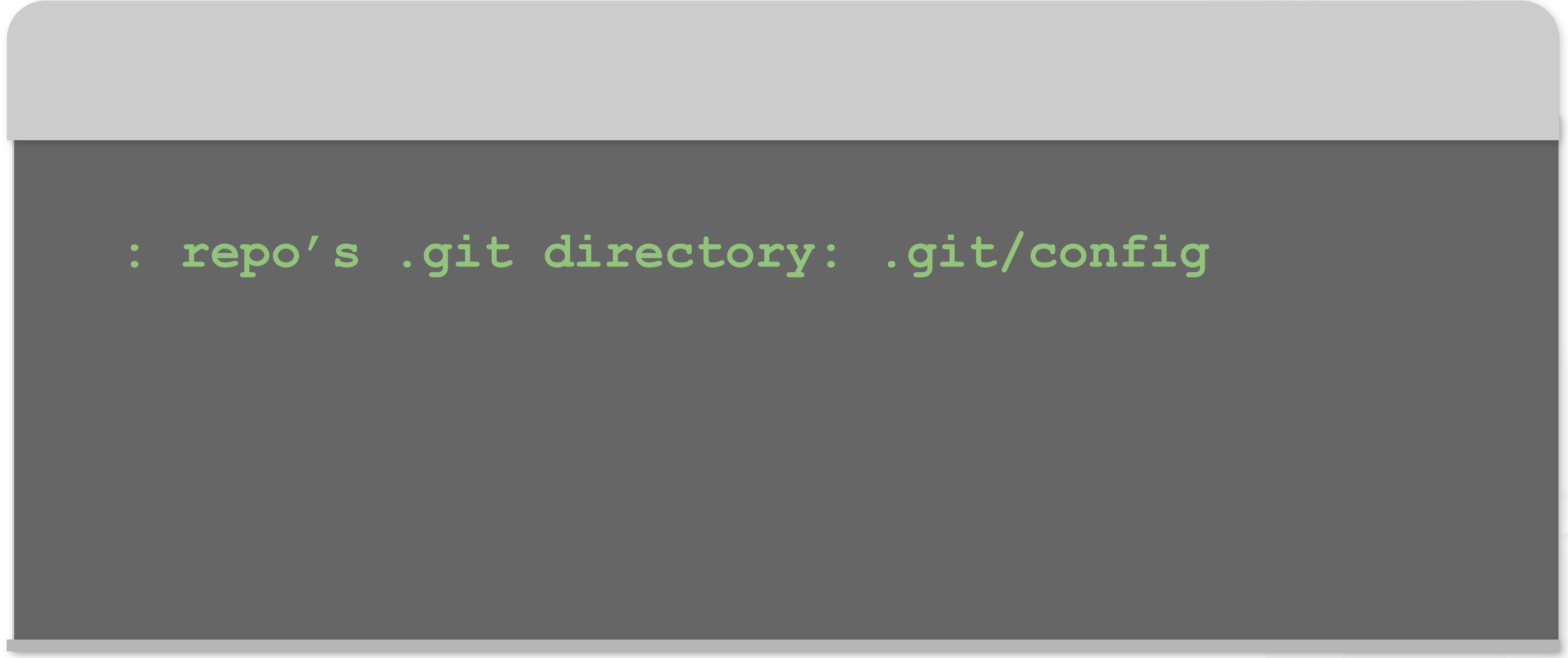


Creating a Git configuration setting helps create a powerful and customized Git workflow.

Configuring Git

The git config command accepts parameters to indicate which configuration tier to operate.





```
: repo’s .git directory: .git/config
```

Git config writes to the local level by default if any configuration level hasn't been specified.

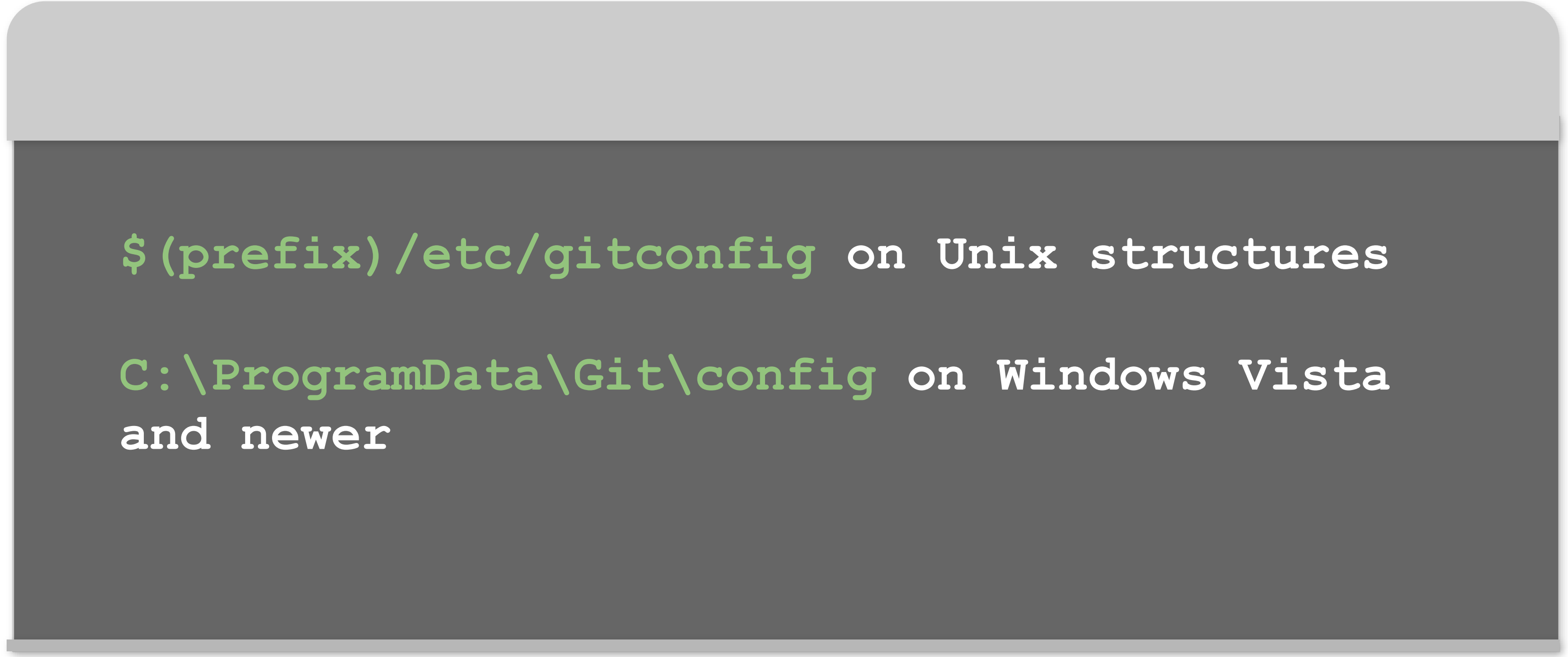
Configuring Git

Global-level configuration settings are user-specific, it is applied to an admin user of the operating system.

A machine's configuration is applied at the system level.

Configuring Git

The Git username can be different from the version control username.

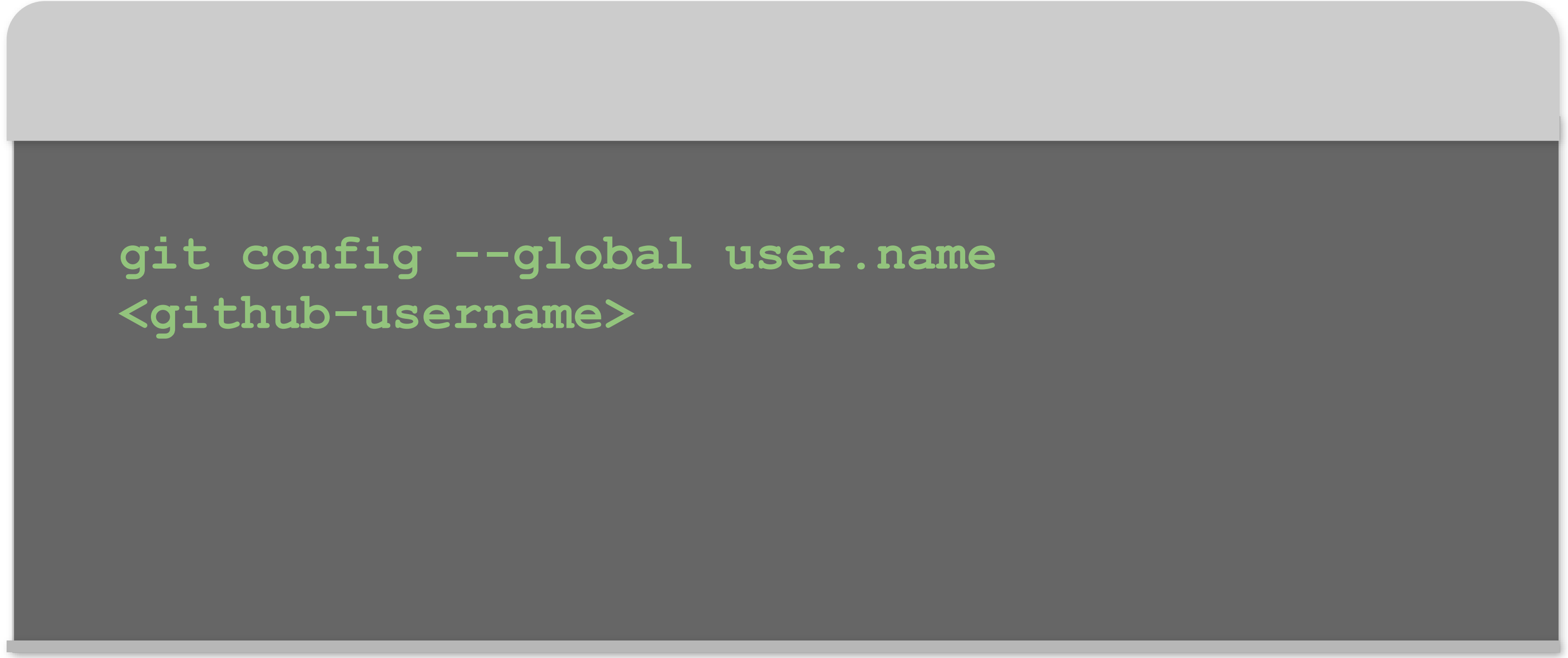


```
$(prefix)/etc/gitconfig on Unix structures

C:\ProgramData\Git\config on Windows Vista
and newer
```

Configuring Git

Owner information cannot be changed once the commit has happened.

The syntax for git config username:

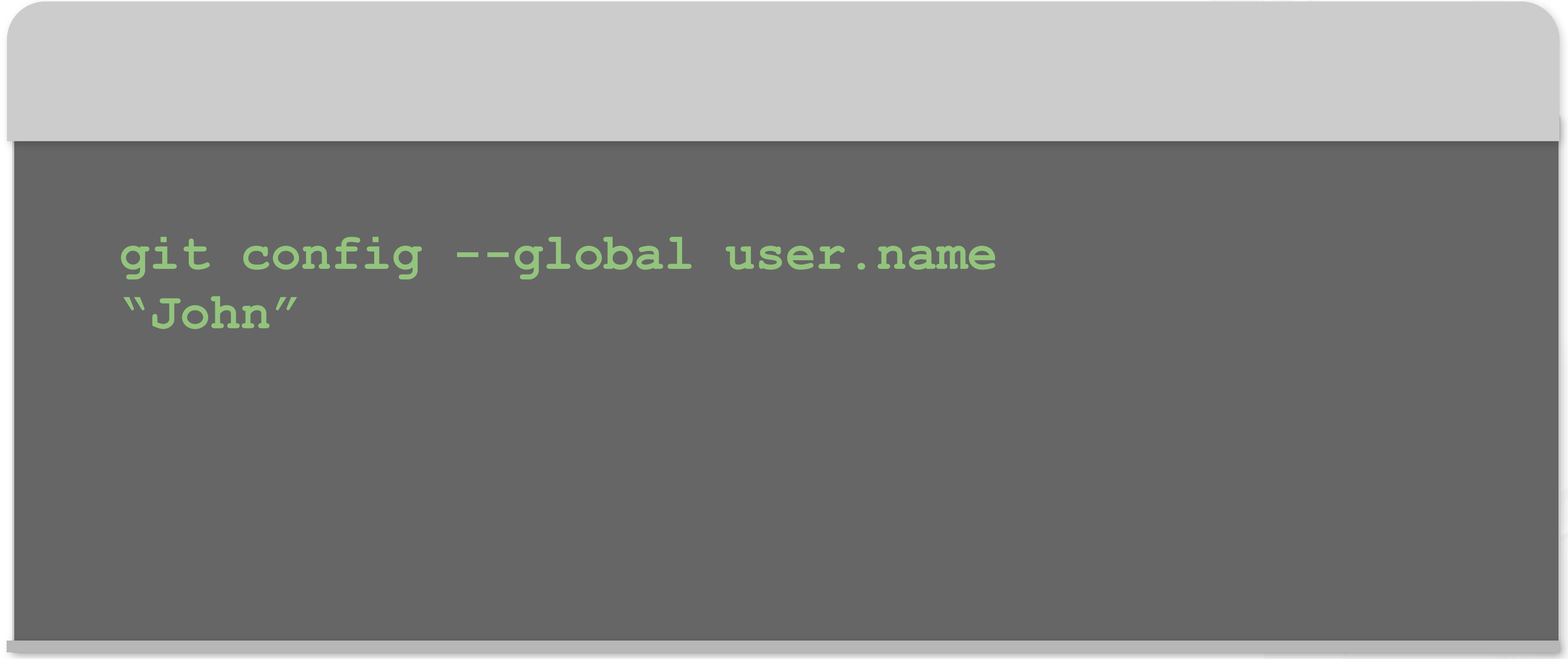


```
git config --global user.name
<github-username>
```

Configuring Git

Example:

John



```
git config --global user.name
“John”
```

Configuring Git

To configure the Git email address, execute the **git config -global user.email** command in the terminal.

Syntax

```
git config --global user.email
<github-email>
```

Example

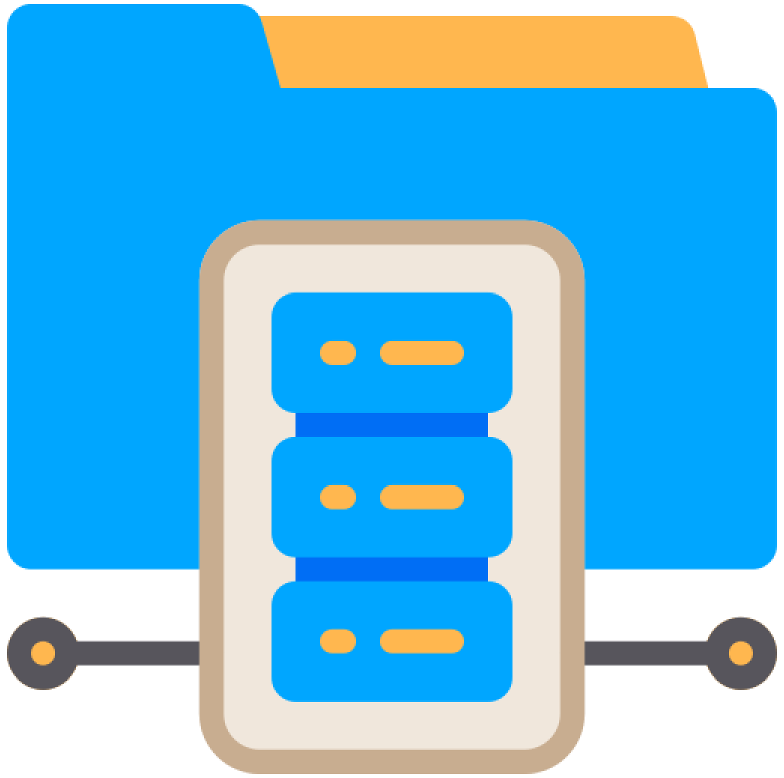
```
git config --global user.email
"john@example.com"
```

TECHNOLOGY

Common Git Commands

Common Git Commands

The git init command is used to create a new Git repository and help to convert an un-versioned project.

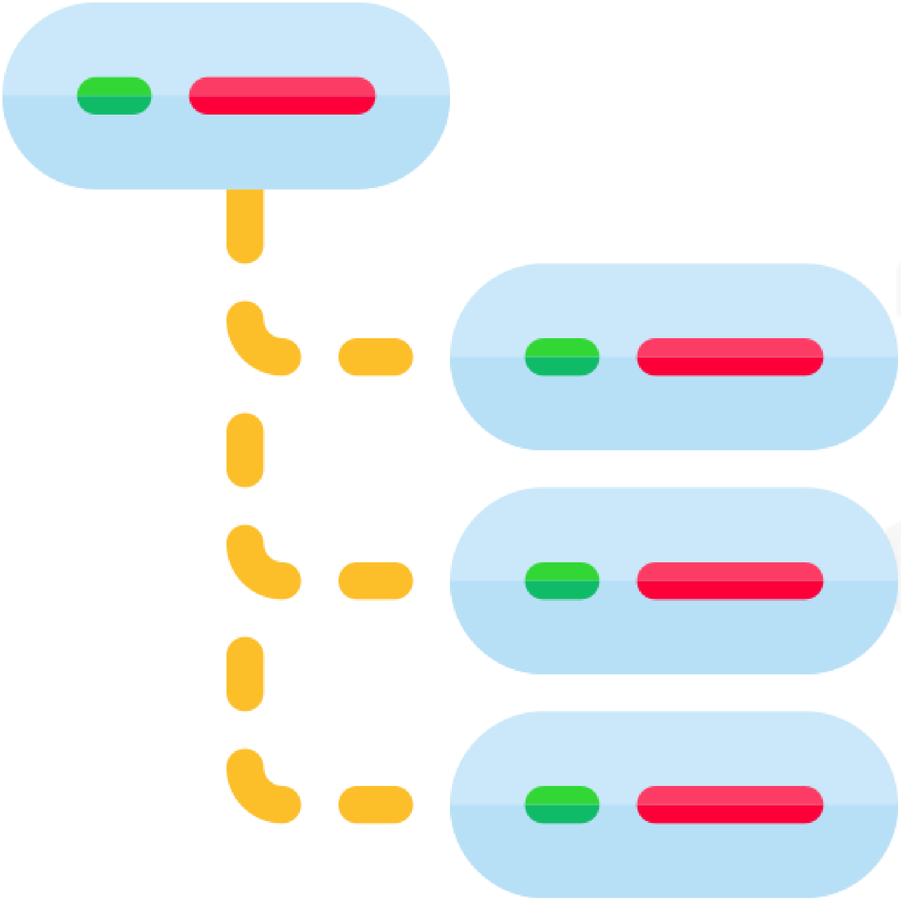


Common Git Commands

The init command makes Git a subdirectory in the existing working directory.

Syntax

```
git init
```



The Git folder contains all the information of metadata for the new repository.

Common Git Commands

The git clone command is employed to duplicate a repository from an existing URL.

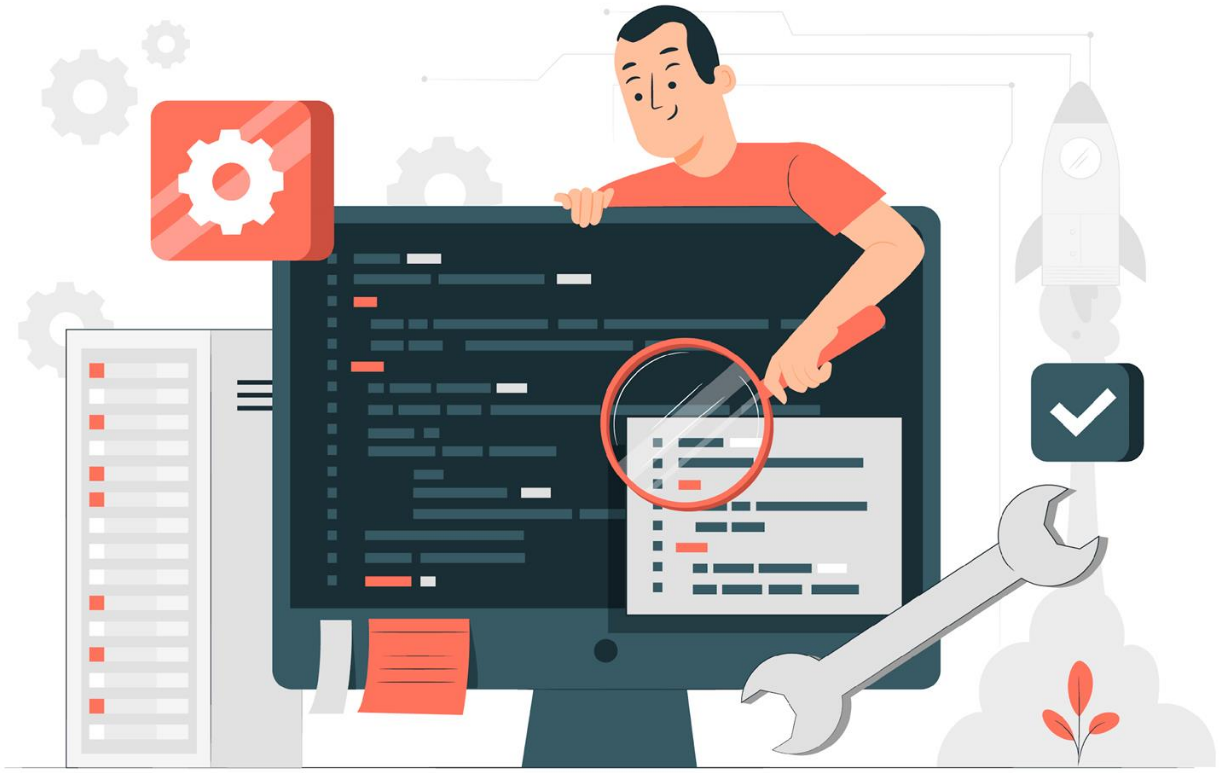
To create a local copy of a repository on the user's local directory from the repository URL, the git init command is used.

Syntax

```
git clone URL
```

Common Git Commands

The git add command helps to add changes from the current working trees to the staging area.



Example

```
git add: Will add all files to a staging area

git add index.html: Will add only
Index.html file to the staging area
```

Common Git Commands

Git remote helps to manage the set of remotes that are being tracked with the local repository.

Common Git Commands

Git remote add command helps to add a new remote to the local repository.

```
git remote add <remote-name> <repo-url>
```

```
Git remote add origin
https://github.com/<username>/<repo-name>.git
```

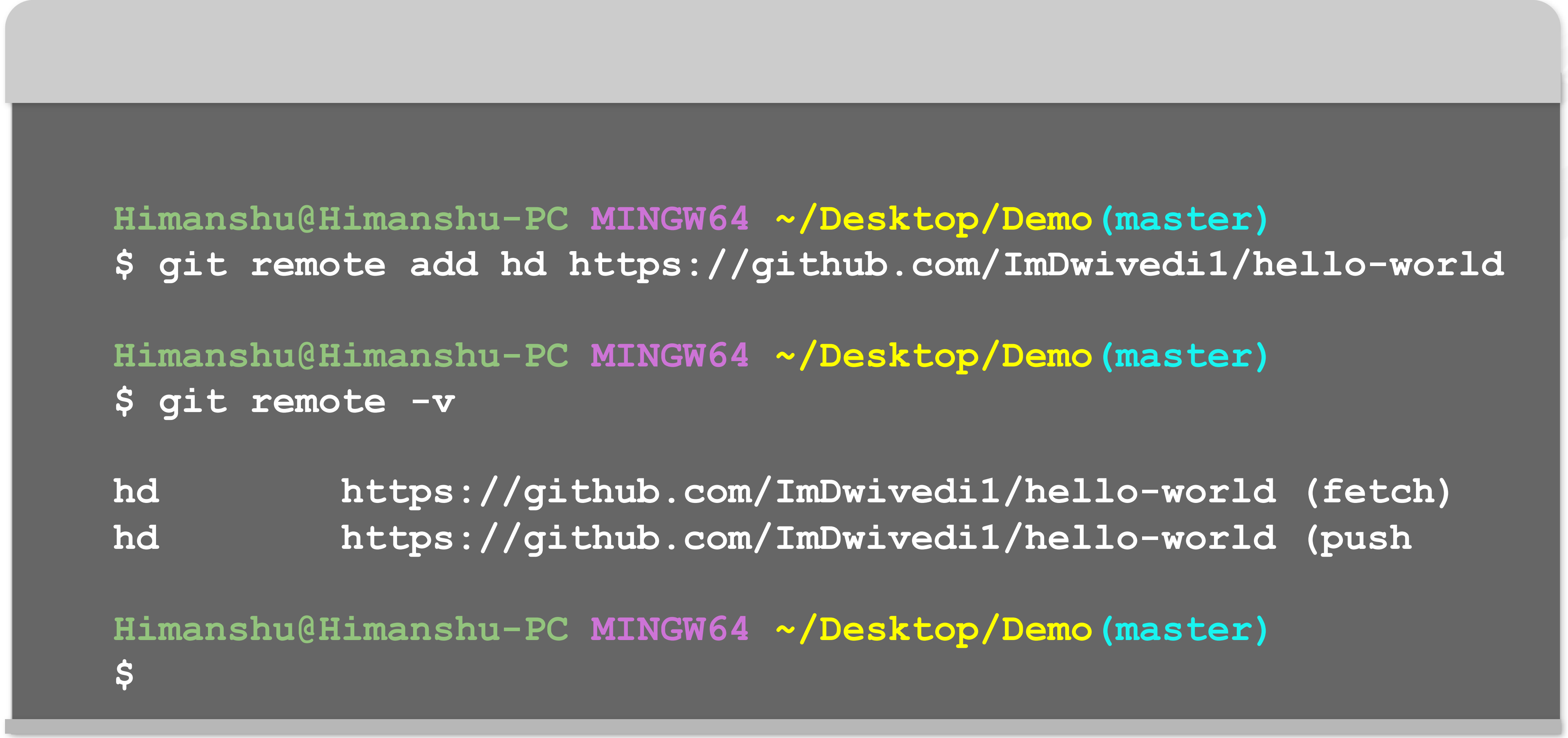
Common Git Commands

Git remote remove <remote-name> will remove the remote from the local repository.

```
git remote set-url origin
https://github.com/<username>/<repo-name>.git
```

Common Git Commands

Git remote set command helps to update the repo URL of a particular remote.



```
Himanshu@Himanshu-PC MINGW64 ~/Desktop/Demo (master)
$ git remote add hd https://github.com/ImDwivedi1/hello-world

Himanshu@Himanshu-PC MINGW64 ~/Desktop/Demo (master)
$ git remote -v

hd        https://github.com/ImDwivedi1/hello-world (fetch)
hd        https://github.com/ImDwivedi1/hello-world (push

Himanshu@Himanshu-PC MINGW64 ~/Desktop/Demo (master)
$
```

Common Git Commands

Git push is used to push a local repository to commit to a remote repository on a GitHub server.

Syntax

```
git push -u <remote—name> <remote-branch>
```

Example

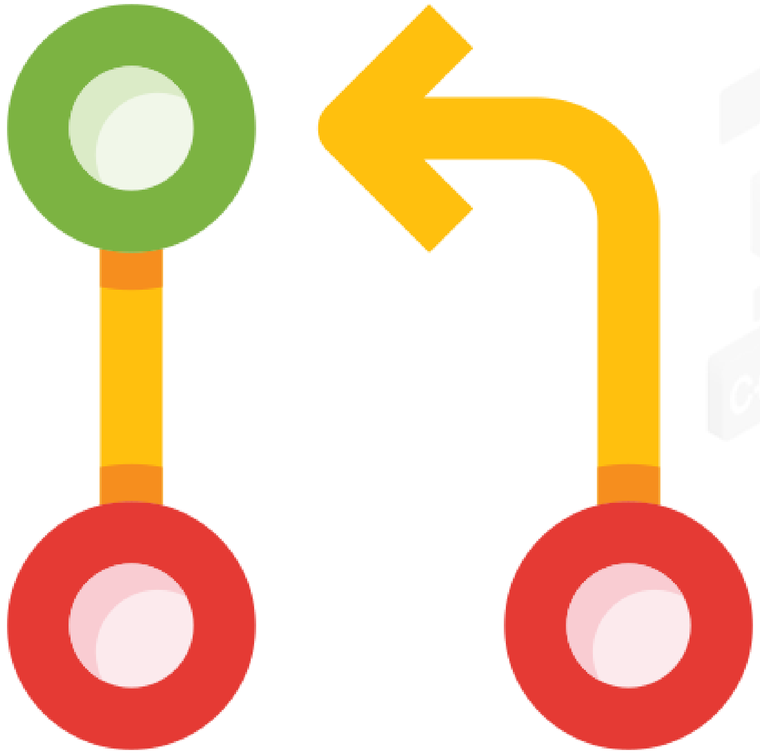
```
git push -u origin master
```

Common Git Commands

The git pull command is used to obtain data from GitHub. It gets and merges changes on the remote server to the working directory.

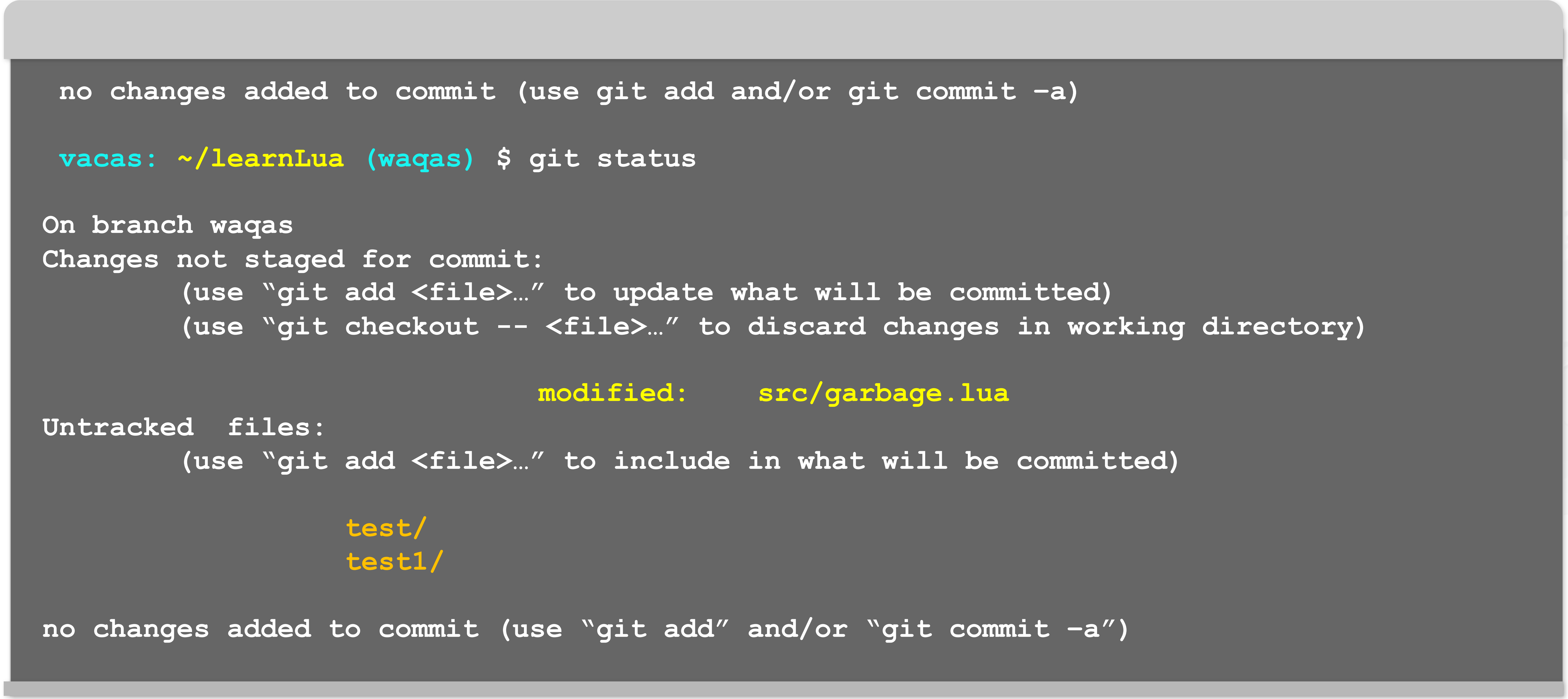
Syntax

```
git pull URL
```



Common Git Commands

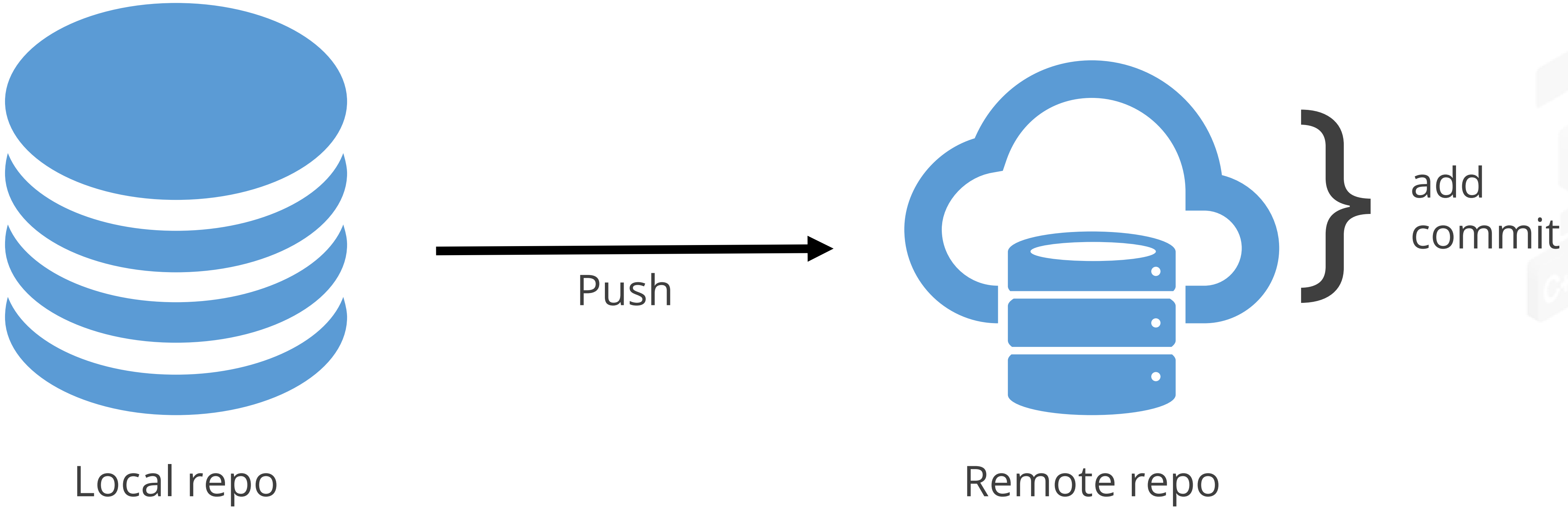
The git status command is used to display the working trees' changes and the files added to the staging area for committing.



```
 no changes added to commit (use git add and/or git commit –a)

 vacas: ~/learnLua (waqas) $ git status

On branch waqas
Changes not staged for commit:
        (use “git add <file>…” to update what will be committed)
        (use “git checkout -- <file>…” to discard changes in working directory)

                             modified:    src/garbage.lua
Untracked  files:
        (use “git add <file>…” to include in what will be committed)

                  test/
                  test1/

no changes added to commit (use “git add” and/or “git commit –a”)
```

Common Git Commands

Pushing refers to the process of copying material from a local repository to a distant repository.



Common Git Commands

The push command helps to overwrite modifications and upload contents from the local repository to the remote repository.

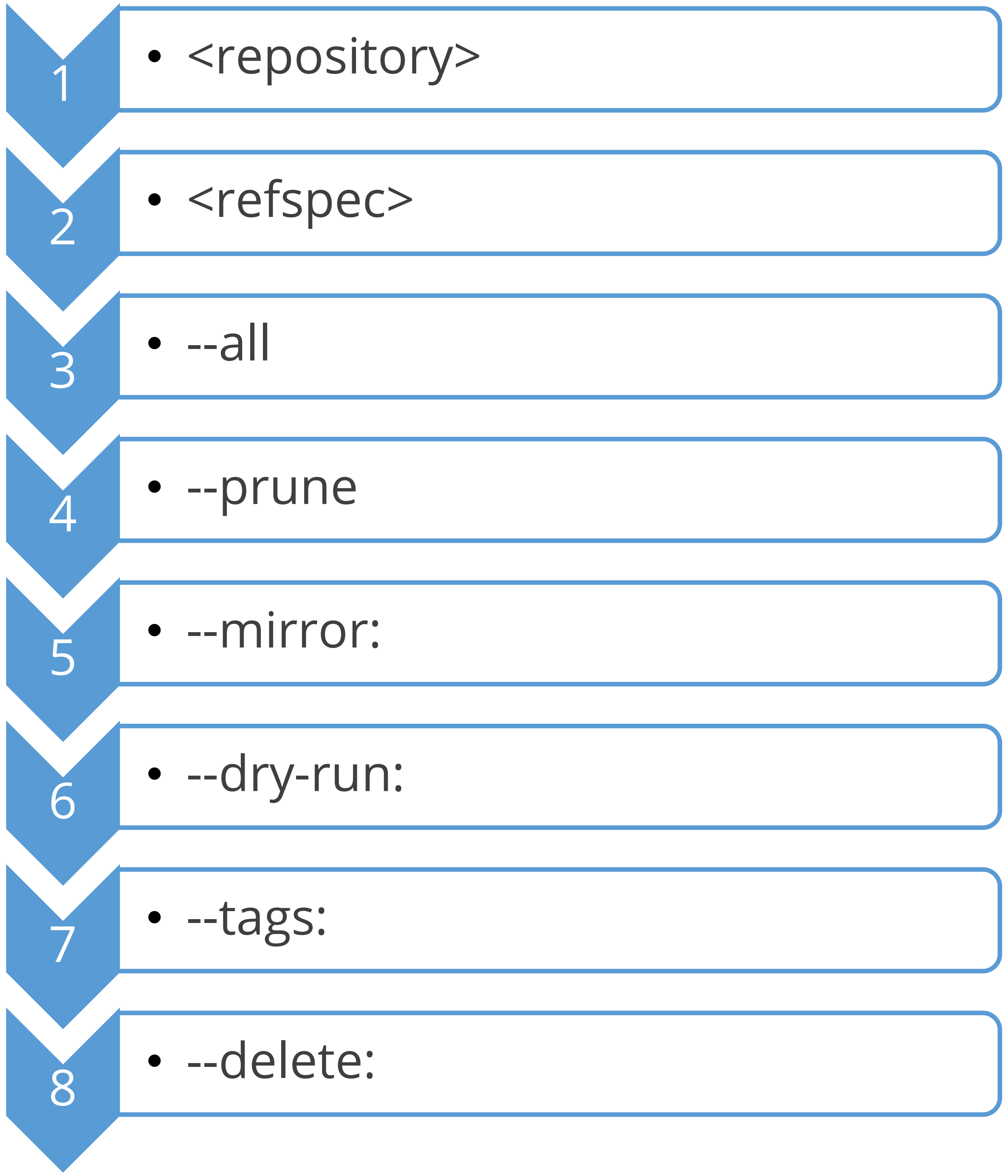
Common Git Commands

To commit changes to the repository, the git push command is used.

Syntax

```
$ git push <option> [<Remote URL><branch name><refspec>…]
```

Common Git Commands



1
- <repository>

2
- <refspec>

3
- --all

4
- --prune

5
- --mirror:

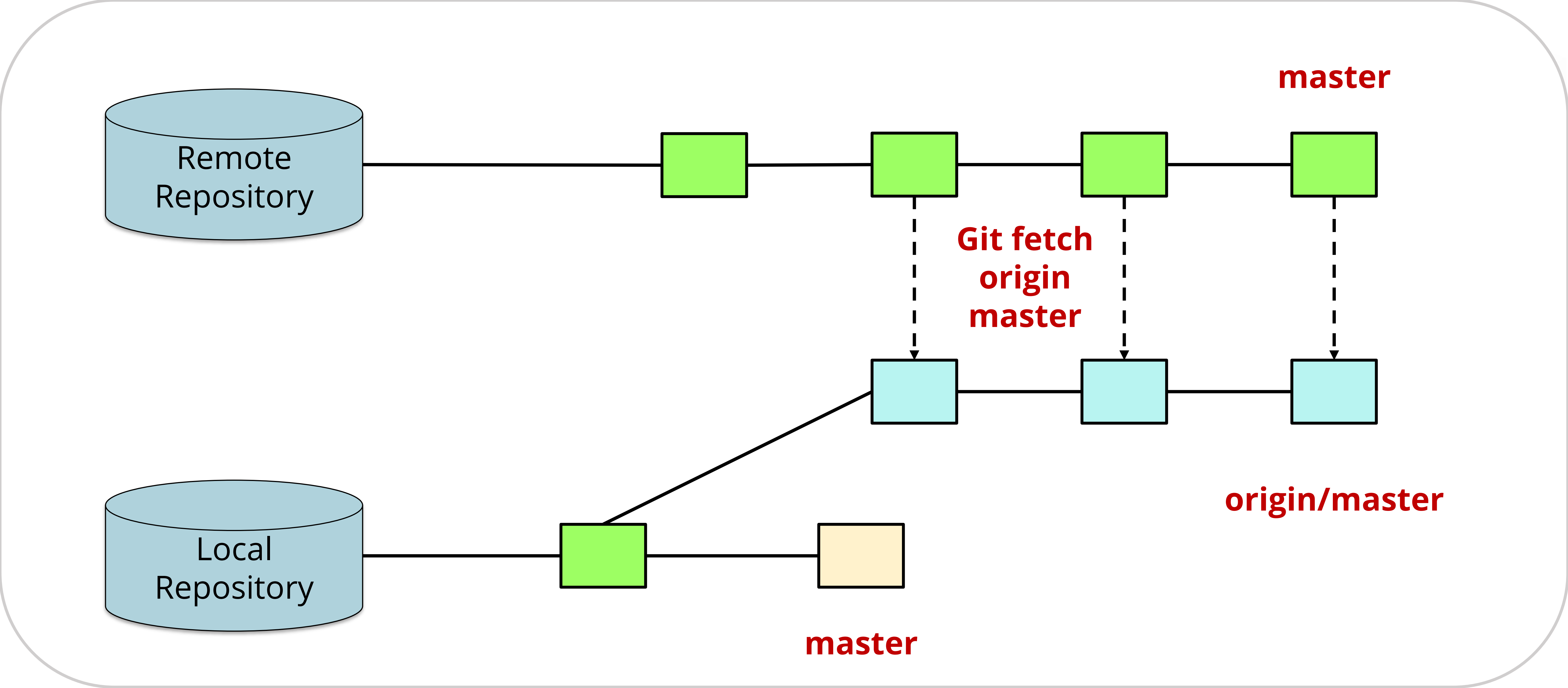
6
- --dry-run:

7
- --tags:

8
- --delete:

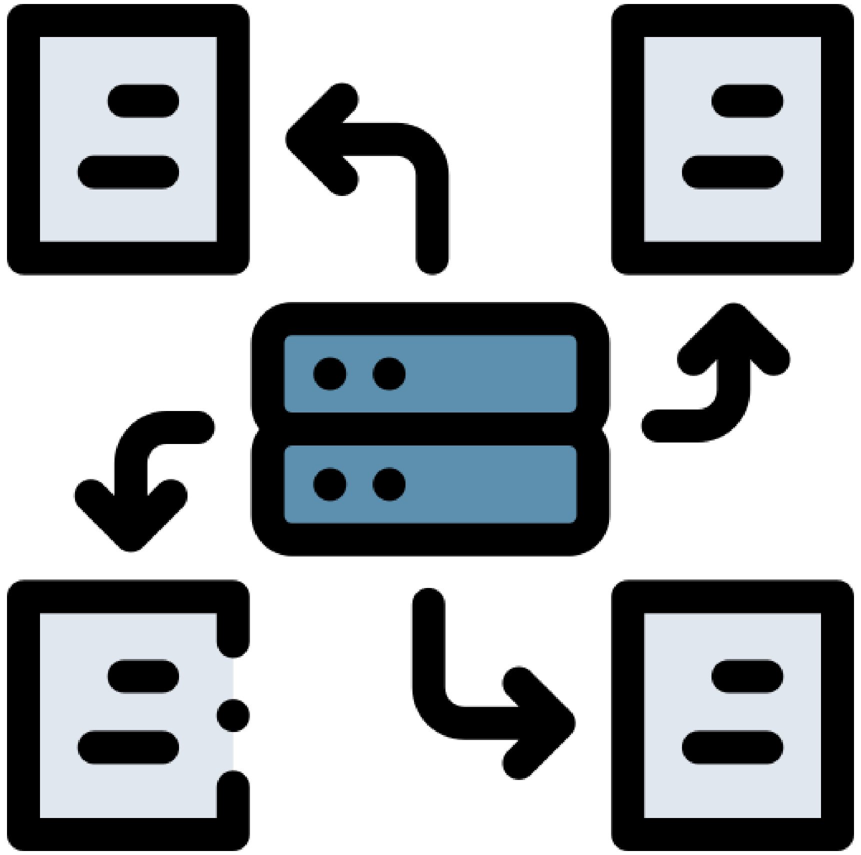
Common Git Commands

The git fetch helps download commits, items, and refs from various other repositories.



Common Git Commands

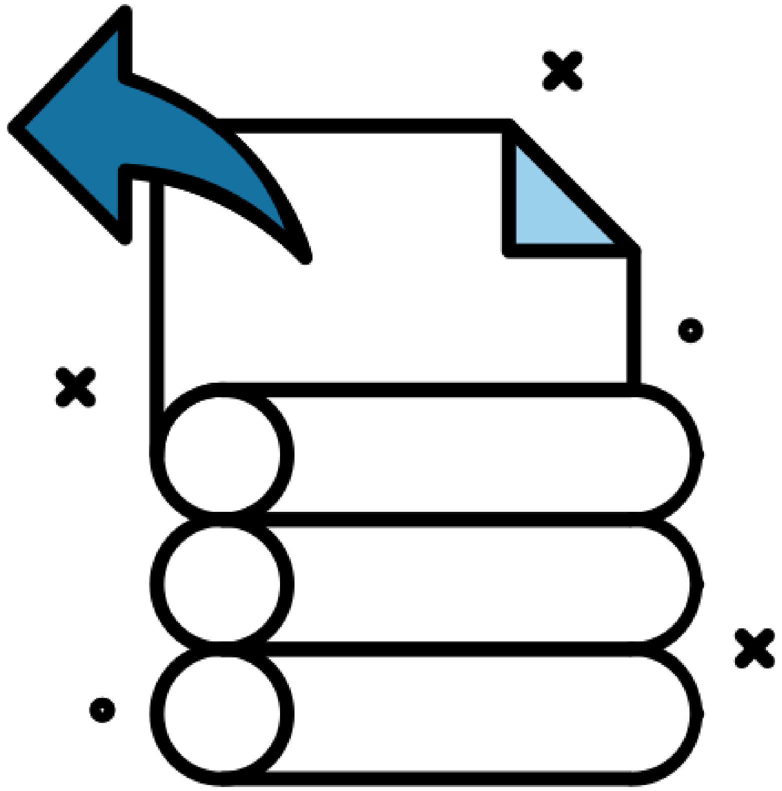
The git fetch command fetches commits, items, and references from other repositories.



Common Git Commands

The git fetch command is used to grab updates from remote monitoring.

The git fetch and git pull commands are different.



Common Git Commands

git fetch	git pull
Downloads new data from a remote repository only	Updates the current HEAD branch with the latest changes from the remote server
Used to get a new view of the changes in a remote repository	Downloads new data and integrate it into the existing working files
Never manipulates or spoil data	Downloads the data and combines it with the existing working files
Prevents merging conflicts in the code	Increases odds of a merge conflict
Better works with the git merge command on a pulled repository	Doesn’t suit the git pull if you have previously pulled any repository

Git Commands

Problem Statement:

Use various Git commands to manage the distributed version control system with both GitHub and BitBucket

Assisted Practice: Guidelines

Steps to work with various Git commands are:

1. Execute Git commands

Pushing the Code to GitHub

Problem Statement:

Sync your code into the repository and the cloud after creating the repositories on GitHub and under BitBucket that has been initialized on your local system

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to push the code to GitHub are:

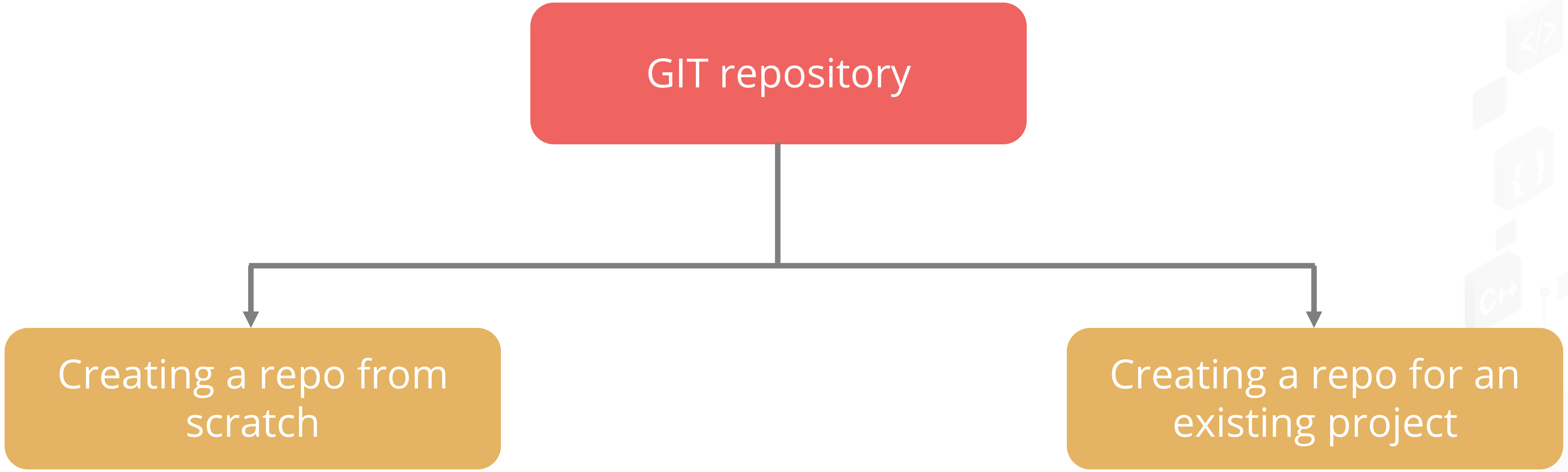
1. Push the code to GitHub

TECHNOLOGY

Creating Repositories in Git

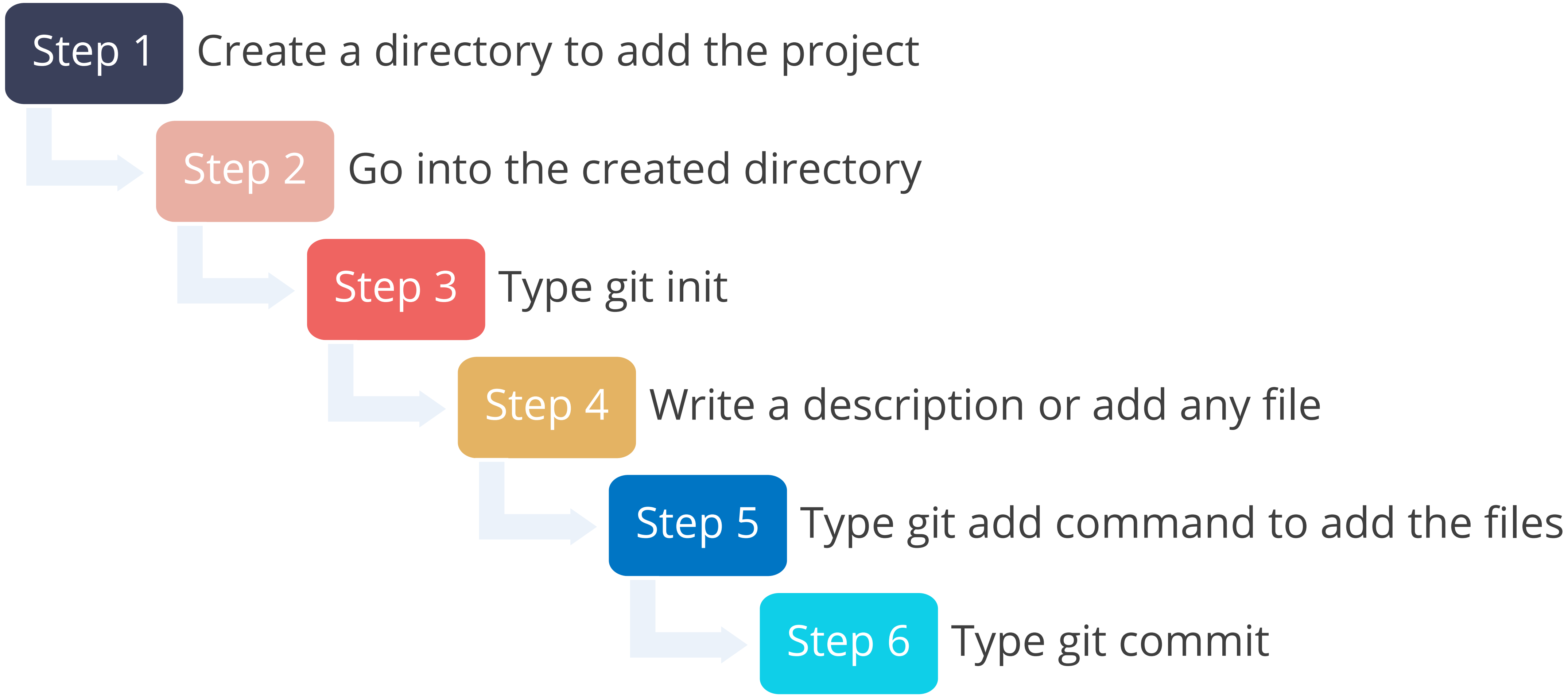
Creating Repositories in Git

There are two ways to create a Git repository:


GIT repository
Creating a repo from scratch
Creating a repo for an existing project

Common Git Commands

The steps to create a repository from scratch are as follows:



Step 1 Create a directory to add the project

Step 2 Go into the created directory

Step 3 Type git init

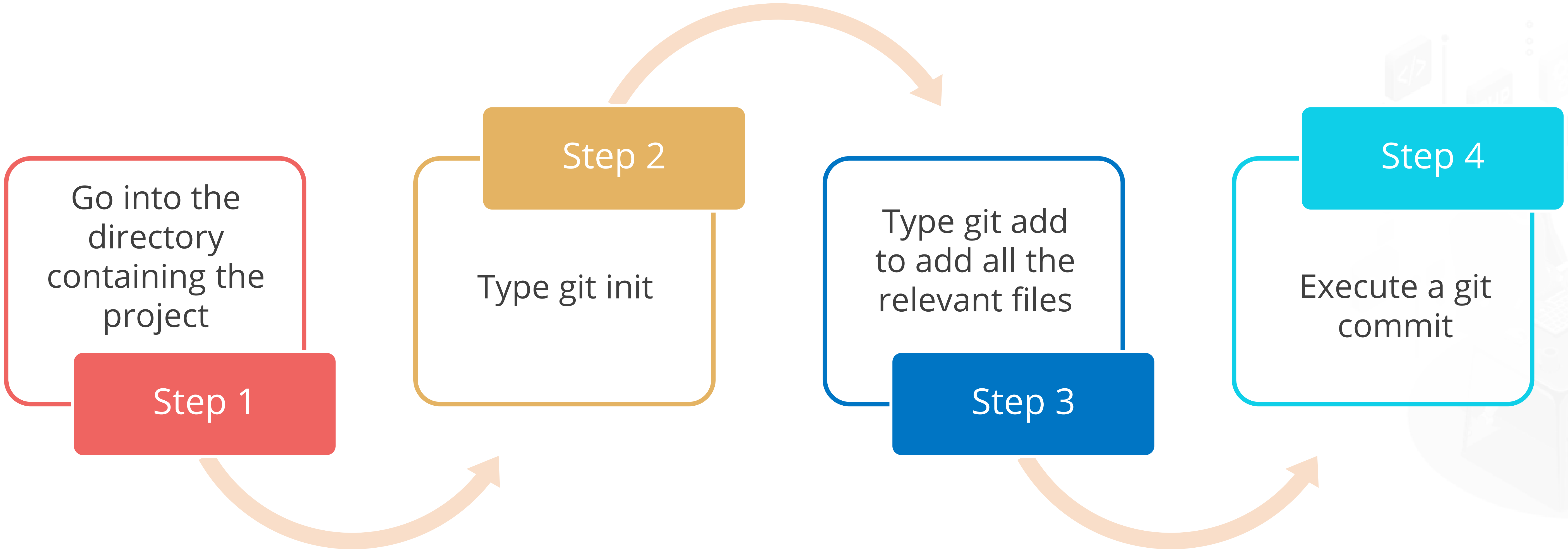
Step 4 Write a description or add any file

Step 5 Type git add command to add the files

Step 6 Type git commit

Creating Repositories in Git

The steps to create a repository for an existing project:



Step 1

Go into the directory containing the project

Step 2

Type git init

Step 3

Type git add to add all the relevant files

Step 4

Execute a git commit

TECHNOLOGY

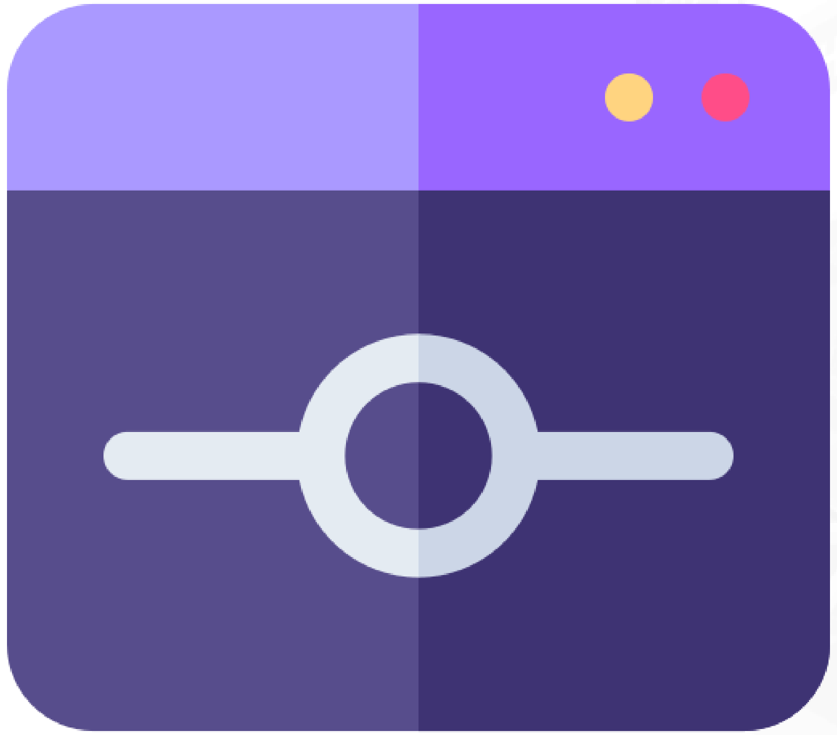
Creating a Commit

Creating a Commit

The files are moved from the staging area to a local repository using the ‘this’ command.

This command is always executed after Git add.

It takes a snapshot of the changes made to a Git repository.

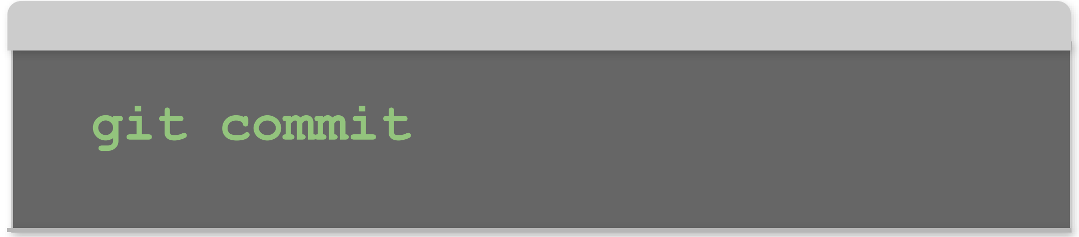


Creating a Commit

Different ways of using the Git commit command:

git commit

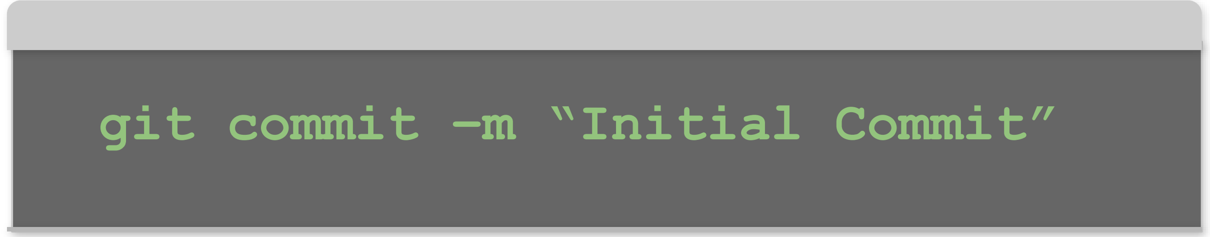
This command will open the text editor, prompting a commit message.



```
git commit
```

git commit -m <message>

This is a shorthand way of git commit with a message argument.



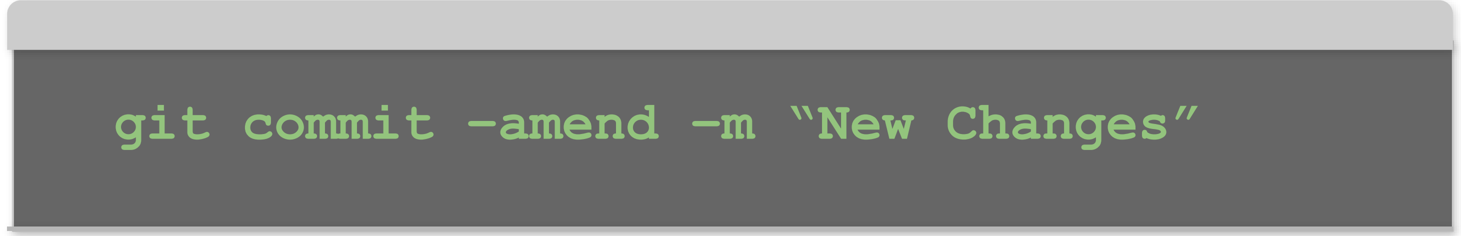
```
git commit -m “Initial Commit”
```

Creating a Commit

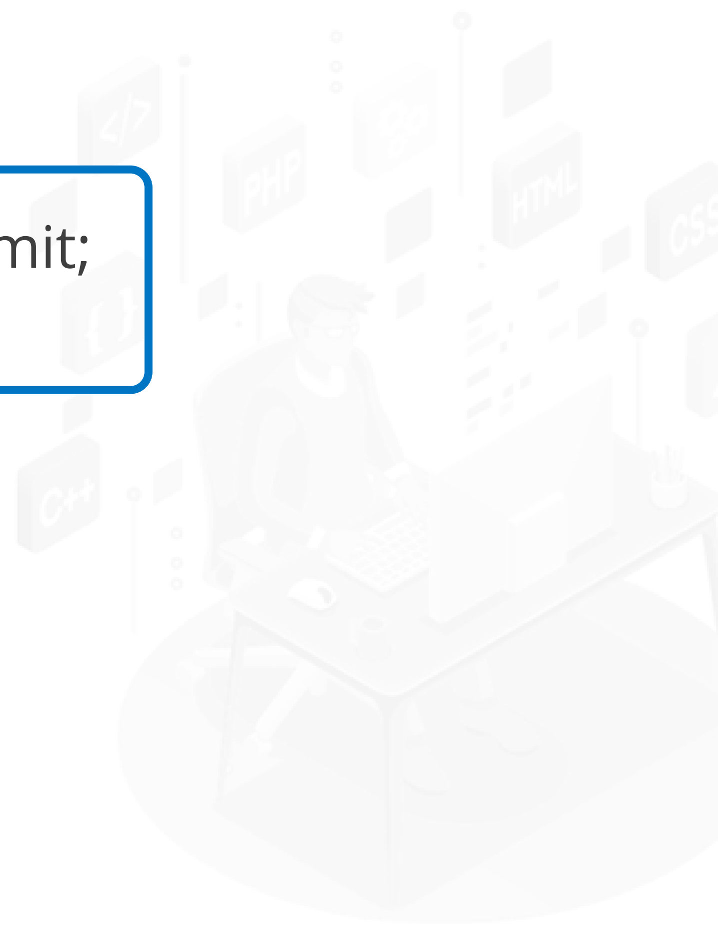
Different ways of using the Git commit command:

git commit --amend

This command will modify the last commit instead of creating a new commit; stage changes will be added to the previous or last commit.



```
git commit –amend –m “New Changes”
```



Key Takeaways

- The git configuration command is a useful feature used to set Git configuration values on a global or local project.
- The init command makes git a subdirectory in the existing working directory.
- Using Git commit command, the files are moved from the staging area to a local repository using this command.
- The git push command helps to push a local repository to commit to a remote repository on a GitHub server.

TECHNOLOGY

Thank You