Graphical user interface, text

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And check if it is all up to date.

Text

Description automatically generated

Which branches do we have now, and where are we working from?

Graphical user interface, text

Description automatically generated

Now, open your favorite editor and confirm that the changes from the GitHub branch carried over.

**Git Push Branch to GitHub**

Let's try to create a new local branch, and push that to GitHub.

Start by creating a branch.

Text

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And make some changes to the README.md file. Just add a new line as below.

Text

Description automatically generated

So now we check the status of the current branch.

Text

Description automatically generated

We are happy with our changes. So we will add and commit them to the branch:

Text

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Now push the branch from our local Git repository, to GitHub, where everyone can see the changes:

Text

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Go to GitHub and confirm that the repository has a new branch: You will see the new branch – ‘update-branch’.

Graphical user interface, application, timeline

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To the right in GitHub, locate the ‘New pull request.’

Graphical user interface, text, application, chat or text message

Description automatically generated

In GitHub, we can now see the changes and merge them into the master branch if we approve it.

If you click the "Compare & pull request", you can go through the changes made and new files added:

Click on new pull request and you will see a page as below

Graphical user interface, text, application, email

Description automatically generated

Click on create new pull request. And then on merge pull request. Confirm the merge.

A pull request is how you propose changes. You can ask someone to review your changes or pull your contribution and merge it into their branch.

Since this is your own repository, you can  merge your pull request yourself:

The pull request will record the changes, which means you can go through them later to figure out the changes made.

The result should be something like this:

Graphical user interface, text, application, email

Description automatically generated

**Git GitHub Flow**

Working using the GitHub Flow

On this page, you will learn how to get the best out of working with GitHub.

The GitHub flow is a workflow designed to work well with Git and GitHub.

It focuses on branching and makes it possible for teams to experiment freely and make deployments regularly.

The GitHub flow works like this:

* Create a new Branch.
* Make changes and add Commits.
* Open a Pull Request
* Review
* Deploy
* Merge

**Create a New Branch**

Branching is the key concept in Git. And it works around the rule that the master branch is ALWAYS deployable.

That means, if you want to try something new or experiment, you create a new branch! Branching gives you an environment where you can make changes without affecting the main branch.

When your new branch is ready, it can be reviewed, discussed, and merged with the main branch when ready.

When you make a new branch, you will (almost always) want to make it from the master branch.

**Note:** Keep in mind that you are working with others. Using descriptive names for new branches, so everyone can understand what is happening.

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**Make Changes and Add Commits**

After the new branch is created, it is time to get to work. Make changes by adding, editing and deleting files. Whenever you reach a small milestone, add the changes to your branch by commit.

Adding commits keeps track of your work. Each commit should have a message explaining what has changed and why. Each commit becomes a part of the history of the branch, and a point you can revert back to if you need to.

**Note:** commit messages are very important! Let everyone know what has changed and why. Messages and comments make it so much easier for yourself and other people to keep track of changes.

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**Open a Pull Request**

Pull requests are a key part of GitHub. A Pull Request notifies people you have changes ready for them to consider or review.

 You can ask others to review your changes or pull your contribution and merge it into their branch.

Review

When a Pull Request is made, it can be reviewed by whoever has the proper access to the branch. This is where good discussions and review of the changes happen.

Pull Requests are designed to allow people to work together easily and produce better results together!

If you receive feedback and continue to improve your changes, you can push your changes with new commits, making further reviews possible.

**Note:** GitHub shows new commit and feedback in the "unified Pull Request view".

**Deploy**

When the pull request has been reviewed and everything looks good, it is time for the final testing. GitHub allows you to deploy from a branch for final testing in production before merging with the master branch.

If any issues arise, you can undo the changes by deploying the master branch into production again!

**Note:** Teams often have dedicated testing environments used for deploying branches.

**Merge**

After exhaustive testing, you can merge the code into the master branch!

Pull Requests keep records of changes to your code, and if you commented and named changes well, you can go back and understand why changes and decisions were made.

**Note:** You can add keywords to your pull request for easier searching!

**Git GitHub Pages**

Host Your Page on GitHub

With GitHub pages, GitHub allows you to host a webpage from your repository. Let's try to use GitHub Pages to host our repository.

This will work on **enterprise under master.**

Create a New Repository

Start by signing in to GitHub. GitHub pages need a special name and setup to work, so we start by creating a new repository:

This repository needs **a special name** to function as a GitHub page. It needs to be your **GitHub username**, followed by **.github.io:**

Graphical user interface, text, application, chat or text message

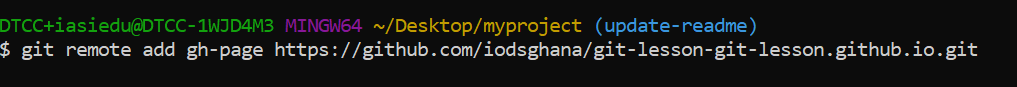
Description automatically generated

Graphical user interface, text, application, chat or text message

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Push Local Repository to GitHub Pages

We add this new repository as a remote for our local repository, we are calling it gh-page (for GitHub Pages).



Make sure you are on the master branch, then push the master branch to the new remote:

Text

Description automatically generated

**Note:** If this is the first time you are connecting to GitHub, you will get some kind of notification to authenticate this connection.

Check that the new repository has received all the files: You may have to refresh the page.

**Check Out Your Own GitHub Page**

That looks good, now click the Settings menu, and navigate to the Pages tab:

* Settings
* Pages

**Git GitHub Fork**

Add to Someone Else's Repository

At the heart of Git is collaboration. However, Git does not allow you to add code to someone else's repository without access rights.

In these next 3 chapters we will show you how to copy a repository, make changes to it, and suggest those changes be implemented to the original repository.

At the end of these chapters, you will have the opportunity to add a message to our public GitHub page:

Fork a Repository

A fork is a copy of a repository. This is useful when you want to contribute to someone else's project or start your own project based on theirs.

fork is not a command in Git, but something offered in GitHub and other repository hosts. Let's start by logging in to GitHub, and fork our repo.

<https://github.com/w3schools-test/w3schools-test.github.io>

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**Git Clone from GitHub**

Clone a Fork from GitHub

Now we have our own fork, but only on GitHub. We also want a clone on our local Git to keep working on it.

A clone is a full copy of a repository, including all logging and versions of files.

Move back to the original repository, and click the green "Code" button to get the URL to clone:

Graphical user interface, text, application, chat or text message

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<https://github.com/iodsghana/w3schools-test.github.io.git>

Open your Git bash and clone the repository:

git clone <https://github.com/w3schools-test/w3schools-test.github.io.git>

Take a look in your file system, and you will see a new directory named after the cloned project using **ls**:

**Note:** To specify a specific folder to clone to, add the name of the folder after the repository URL, like this:

git clone https://github.com/w3schools-test/w3schools-test.github.io.git *myfolder*

Navigate to the new directory, and check the status:

cd w3schools-test.github.io

git status

And check the log to confirm that we have the full repository data:

**git log**

**Configuring Remotes**

Basically, we have a full copy of a repository, whose origin we are not allowed to make changes to.

Let's see how the remotes of this Git is set up:

**git remote -v**

We see that origin is set up to the original "w3schools-test" repository, we also want to add our own fork.

First, we rename the original origin remote:

git remote rename origin upstream.

git remote -v

Then fetch the URL of our own fork:

Graphical user interface, text, application, chat or text message

Description automatically generated

And add that as origin:

git remote add origin <https://github.com/kaijim/w3schools-test.github.io.git>

git remote -v

**Note:** According to Git naming conventions, it is recommended to name your own repository origin, and the one you forked for upstream

Now we have 2 remotes:

* origin - our own fork, where we have read and write access
* upstream - the original, where we have read-only access

Now we are going to make some changes to the code. In the next chapter, we will cover how we suggest those changes to the original repository.

**Git GitHub Send Pull Request**

**Push Changes to Our GitHub Fork**

We have made a lot of changes to our local Git.

Now we push them to our GitHub fork:

commit the changes:

git push origin

Go to GitHub, and we see that the repository has a new commit. And we can send a Pull Request to the original repository:

**Create a pull request**.

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Graphical user interface, text, application, chat or text message

Description automatically generated

Graphical user interface, application

Description automatically generated

Approving Pull Requests

Now any member with access can see the Pull Request when they see the original repository:

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**Git Ignore and .gitignore**

When sharing code, there are often parts of your project you do not want to share.

* Log files
* Temporary files
* Hidden files
* Personal files
* Etc.

Git can specify which files or parts of your project should be ignored by Git using a .**gitignore file.**

Git will not track files and folders specified in **.gitignore**. However, the .gitignore file itself **is tracked** by Git.

**Create .gitignore**

To create a .gitignore file, go to the root of your local Git, and create it:

First switch from the current branch to master

Text

Description automatically generated

Create .giyignore

Text

Description automatically generated

Now open the file using a text editor.

We are just going to add two simple rules:

* Ignore any files with the **.log** extension.
* Ignore everything in any directory named **temp.**

Example

# ignore ALL .log files  
\*.log  
  
# ignore ALL files in ANY directory named temp  
temp/

Now all .log files and anything in temp folders will be ignored by Git.

**Note:** In this case, we use a single .gitignore which applies to the entire repository.

It is also possible to have additional .gitignore files in subdirectories. These only apply to files or folders within that directory.

**Rules for .gitignore**

Here are the general rules for matching patterns in .gitignore files:

|  |  |  |
| --- | --- | --- |
| **Pattern** | **Explanation/Matches** | **Examples** |
|  | Blank lines are ignored |  |
| # *text comment* | Lines starting with # are ignored |  |
| *name* | All *name* files, *name* folders, and files and folders in any *name* folder | /name.log /name/file.txt /lib/name.log |
| *name*/ | Ending with / specifies the pattern is for a folder. Matches all files and folders in any *name* folder | /name/file.txt /name/log/name.log  **no match:** /name.log |
| *name*.*file* | All files with the *name.file* | /name.file /lib/name.file |
| */name*.*file* | Starting with / specifies the pattern matches only files in the root folder | /name.file  **no match:** /lib/name.file |
| *lib/name*.*file* | Patterns specifying files in specific folders are always relative to root (even if you do not start with / ) | /lib/name.file  **no match:** name.file /test/lib/name.file |
| \*\**/lib/name.file* | Starting with \*\* before / specifies that it matches any folder in the repository. Not just on root. | /lib/name.file /test/lib/name.file |
| \*\**/name* | All *name* folders, and files and folders in any *name* folder | /name/log.file /lib/name/log.file /name/lib/log.file |
| /lib/\*\**/name* | All *name* folders, and files and folders in any *name* folder within the lib folder. | /lib/name/log.file /lib/test/name/log.file /lib/test/ver1/name/log.file  **no match:** /name/log.file |
| \*.*file* | All files withe *.file* extention | /name.file /lib/name.file |
| \**name*/ | All folders ending with *name* | /lastname/log.file /firstname/log.file |
| *name*?.*file* | ? matches a **single** non-specific character | /names.file /name1.file  **no match:** /names1.file |
| *name*[a-z].*file* | [*range*] matches a **single** character in the specified range (in this case a character in the range of a-z, and also be numeric.) | /names.file /nameb.file  **no match:** /name1.file |
| *name*[abc].*file* | [*set*] matches a **single** character in the specified set of characters (in this case either a, b, or c) | /namea.file /nameb.file  **no match:** /names.file |
| *name*[!abc].*file* | [!*set*] matches a **single** character, **except** the ones specified in the set of characters (in this case a, b, or c) | /names.file /namex.file  **no match:** /namesb.file |
| \*.*file* | All files withe *.file* extention | /name.file /lib/name.file |
| *name*/ !*name*/secret.log | ! specifies a negation or exception. Matches all files and folders in any *name* folder, except name/secret.log | /name/file.txt /name/log/name.log  **no match:** /name/secret.log |
| \*.*file* !*name*.file | ! specifies a negation or exception. All files withe *.file* extention, except name.file | /log.file /lastname.file  **no match:** /name.file |
| \*.*file* !*name*/\**.file* junk.\* | Adding new patterns after a negation will re-ignore a previous negated file All files withe *.file* extention, except the ones in *name* folder. Unless the file name is junk | /log.file /name/log.file  **no match:** /name/junk.file |

**Local and Personal Git Ignore Rules**

It is also possible to ignore files or folders but not show it in the distributed .gitignore file.

These kinds of ignores are specified in the **.git/info/exclude**file. It works the same way as .gitignore but are not shown to anyone else.