



GitHub

TUTORIAL



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Github Tutorial

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First published on May 2017, Published by **SmlCodes.com**

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1. Introduction

GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.

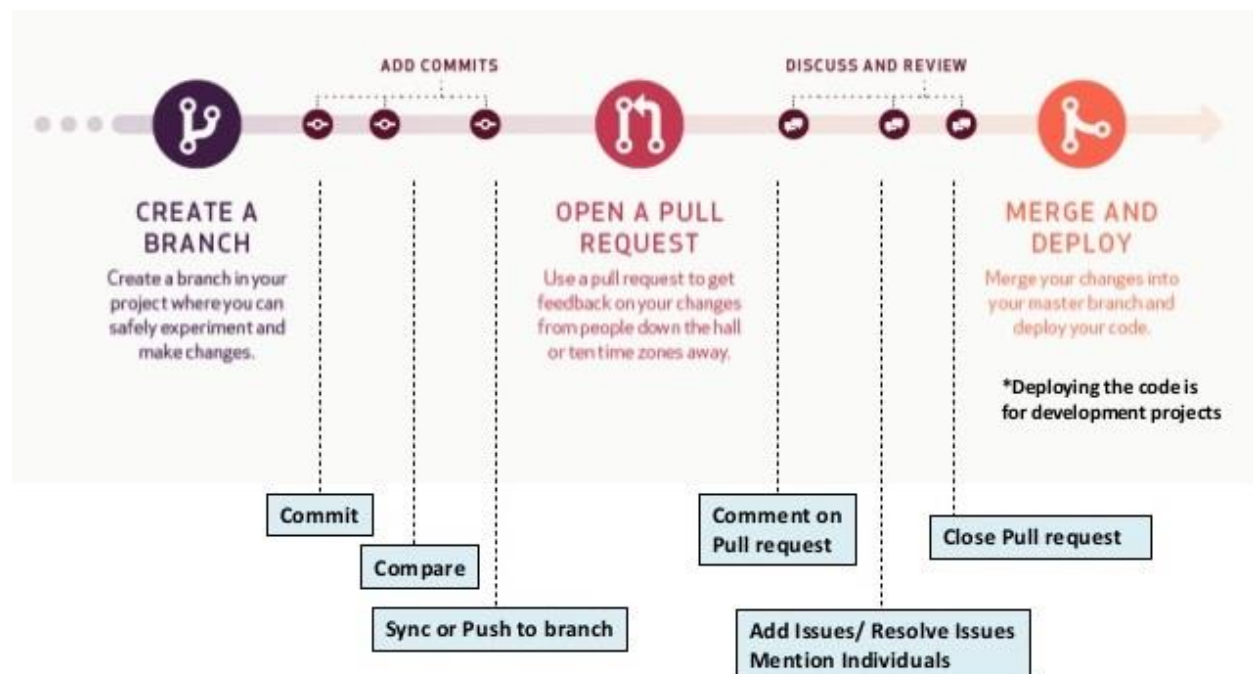
This tutorial teaches you GitHub essentials like **repositories, branches, commits, and Pull Requests**. You'll create your own Hello World repository and learn GitHub's Pull Request workflow, a popular way to create and review code

2. Create GitHub Account

1. Access [GitHub.com](https://github.com) and click **Sign up**.
2. Choose the free account.
3. You will receive a verification email at the address provided.
4. Click the emailed link to complete the verification process.

3. GitHub Workflow

GitHub Flow is a lightweight, branch-based workflow that supports teams and projects where deployments are made regularly.



1. **Create a branch** from the repository.
2. **Create, edit, rename, move, or delete** files.
3. **Send a pull request** from your branch with your proposed changes to kick off a discussion.
4. Make changes on your branch as needed. Your pull request will update automatically.
5. **Merge the pull request** once the branch is ready to be merged.
6. **Tidy up** your branches using the delete button in the pull request or on the branches page.

To know much more about GitHub workflow please **checkout this**.

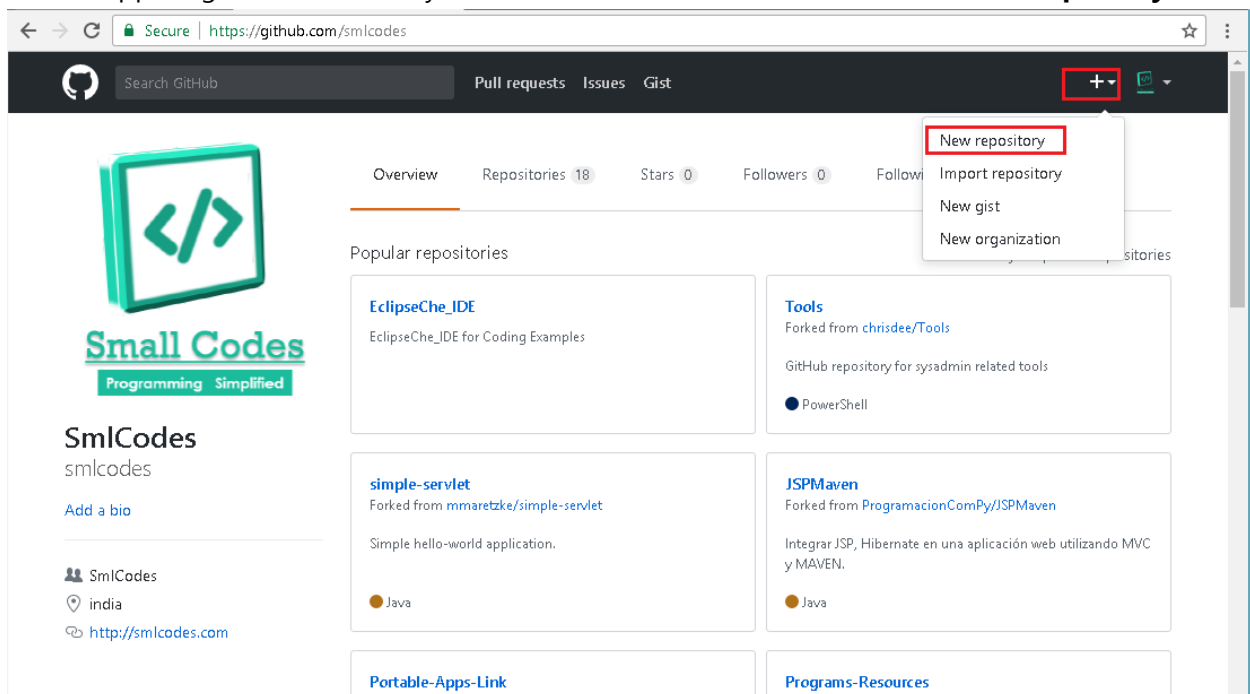
4. Working with GitHub

4.1 Create a Repository in GitHub

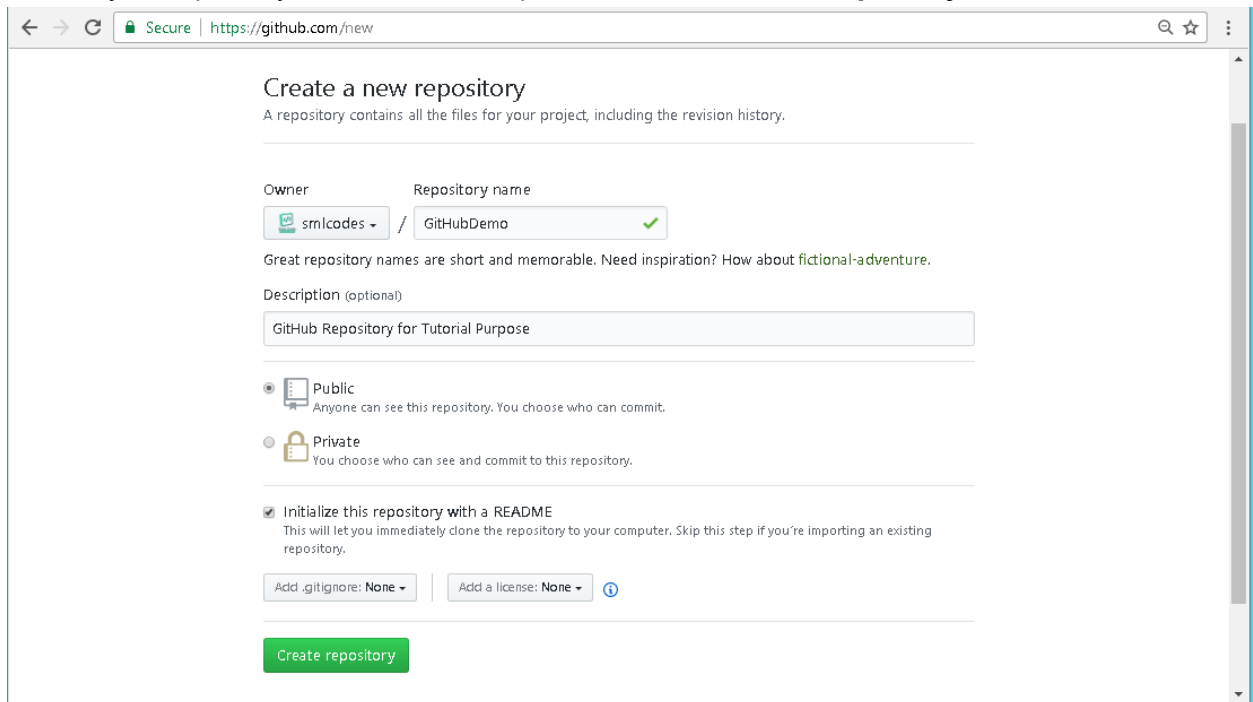
A **repository** is usually used to organize a single project. Repositories can contain folders and files, images, videos, spreadsheets, and data sets – anything your project needs.

Steps to create a new repository

1. In the upper right corner, next to your avatar or identicon, click and then select **New repository**.

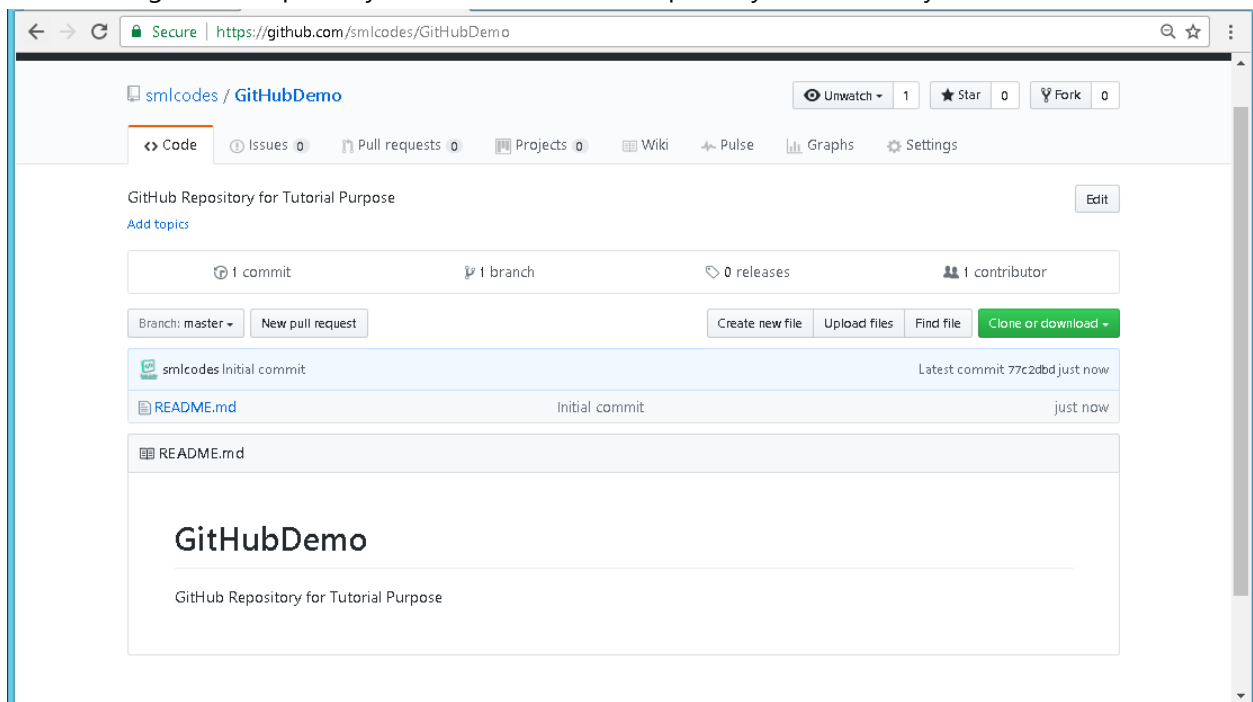


2.Name your repository,write a short description,Select **Initialize this repository with a README**.



The screenshot shows the GitHub 'Create a new repository' page. The browser address bar displays 'https://github.com/new'. The page title is 'Create a new repository' with a subtitle 'A repository contains all the files for your project, including the revision history.' The 'Owner' is 'smlcodes' and the 'Repository name' is 'GitHubDemo', which has a green checkmark. A hint suggests 'Great repository names are short and memorable. Need inspiration? How about fictional-adventure.' The 'Description (optional)' field contains 'GitHub Repository for Tutorial Purpose'. Under 'Visibility', 'Public' is selected with the note 'Anyone can see this repository. You choose who can commit.' 'Private' is also an option. The checkbox 'Initialize this repository with a README' is checked, with a note: 'This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.' Below this are dropdowns for 'Add .gitignore: None' and 'Add a license: None'. A green 'Create repository' button is at the bottom.

3.On Clicking Create repository it will creates the new repository and it is ready for commit the code.



The screenshot shows the GitHub repository page for 'smlcodes / GitHubDemo'. The browser address bar displays 'https://github.com/smlcodes/GitHubDemo'. The repository name is 'GitHubDemo' and it has 1 commit, 1 branch, 0 releases, and 1 contributor. The 'Code' tab is selected, showing the 'master' branch. A 'New pull request' button is visible. The 'Clone or download' button is green. The repository description is 'GitHub Repository for Tutorial Purpose'. The 'README.md' file is listed as the 'Initial commit' and is available for download. The 'README.md' content is displayed below, showing the repository name and description.

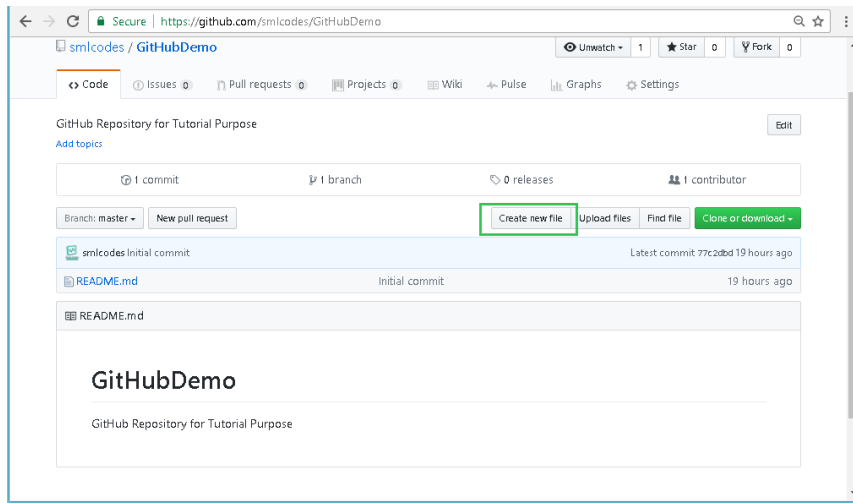
4.2 Adding files to Repository

We can add the files in two ways in GitHub. creating new file

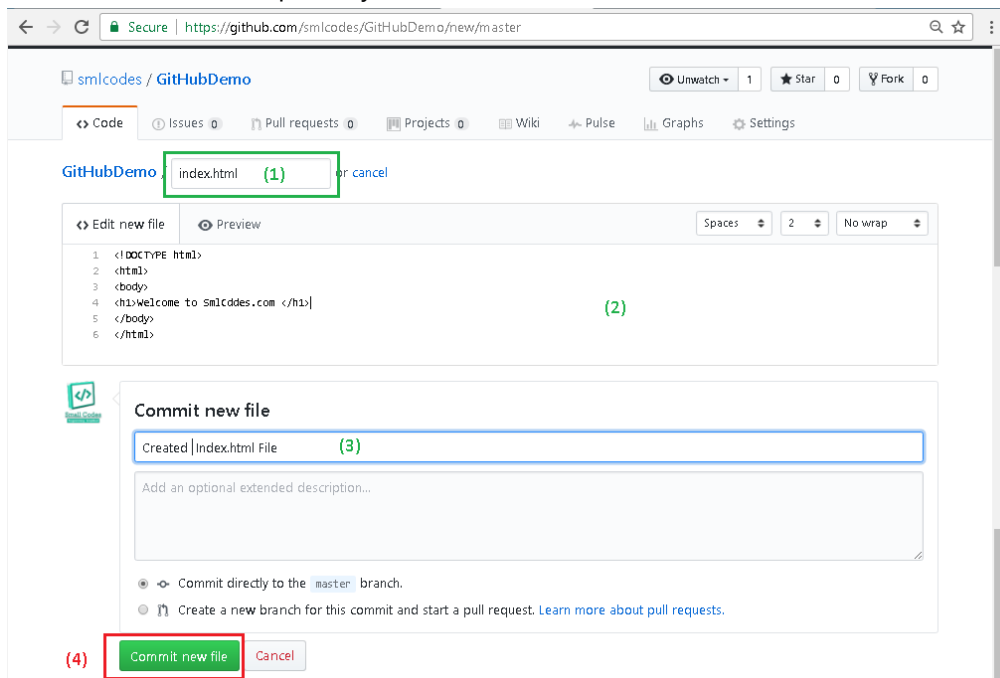
1. Creating files in Github itself
2. Upload files from your PC

1.Creating files in Github

- Open the repository in which you want to create a new file
- Click on create a new file button on the top

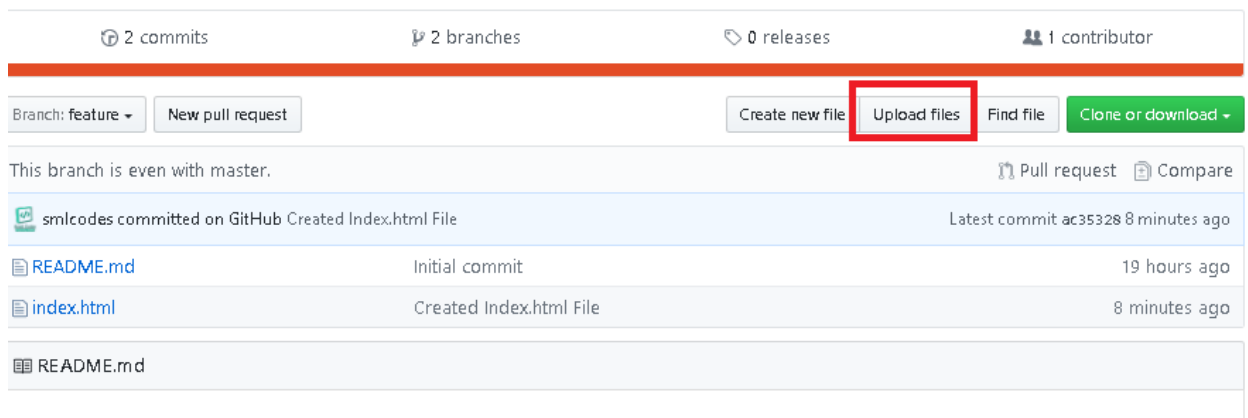


- Provide file name, enter the code you want, give some commit message & say commit new file it will create file in the repository

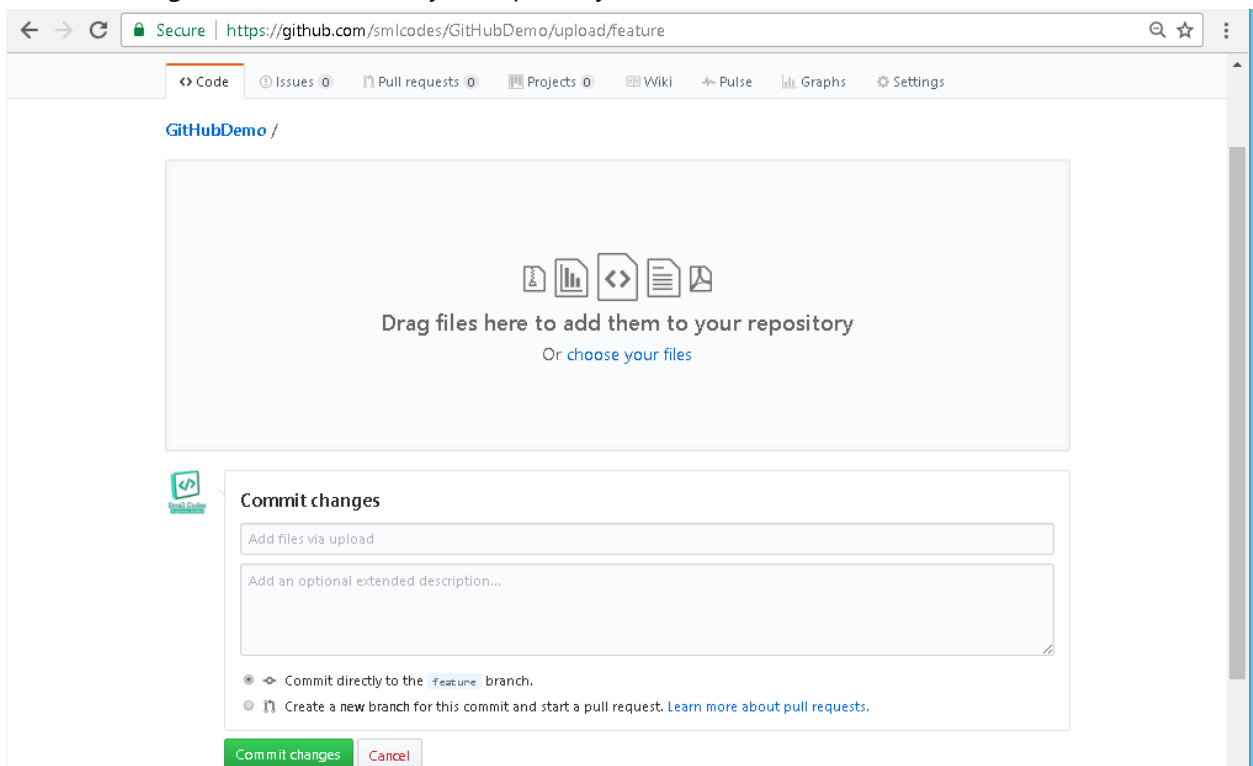


2. Upload files from your PC

- Open the repository in which you want to upload the files
- Click on Upload Files button on the top



- Add/ Drag files to add them to your repository and commit



What is commit changes

On GitHub, saved changes are called **commits**. Each commit has an associated **commit message**, which is a description explaining why a particular change was made. Commit messages capture the history of your changes, so other contributors can understand what you've done and why.

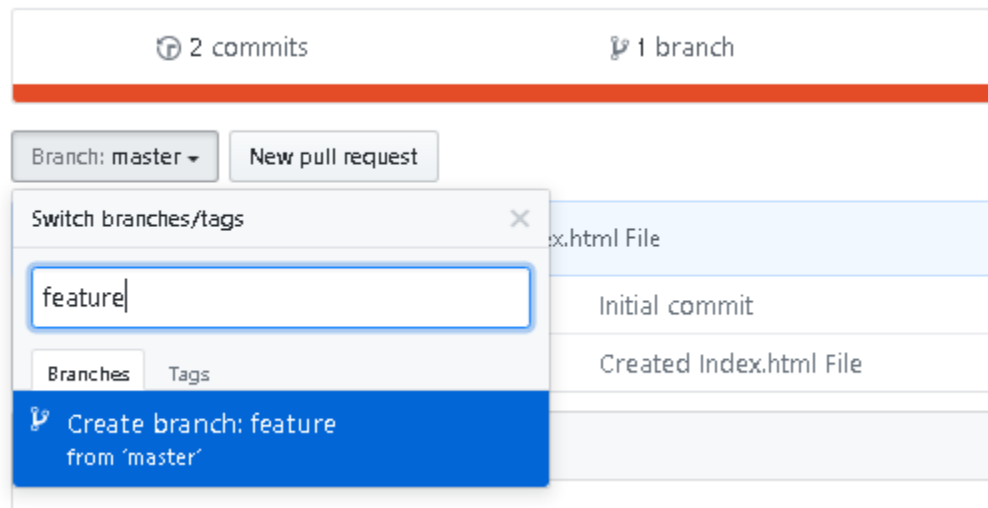
4.3 Create a Branch in GitHub

Branching is the way to work on different versions of a repository at one time.

By default your repository has one branch named **master** which is considered to be the definitive branch. We use branches to experiment and make edits before committing them to master.

I want to create a new branch named **feature**, Here the Steps to do so.

1. Go to your new repository **GitHubDemo**.
2. Click the drop down at the top of the file list that says **branch: master**.
3. Type a branch name, **feature**, into the new branch text box.
4. Select the blue **Create branch** box or hit "Enter" on your keyboard.



Here developers, writers, and designers use branches for keeping bug fixes and feature work separate from our master (production) branch. When a change is ready, they merge their branch into master.

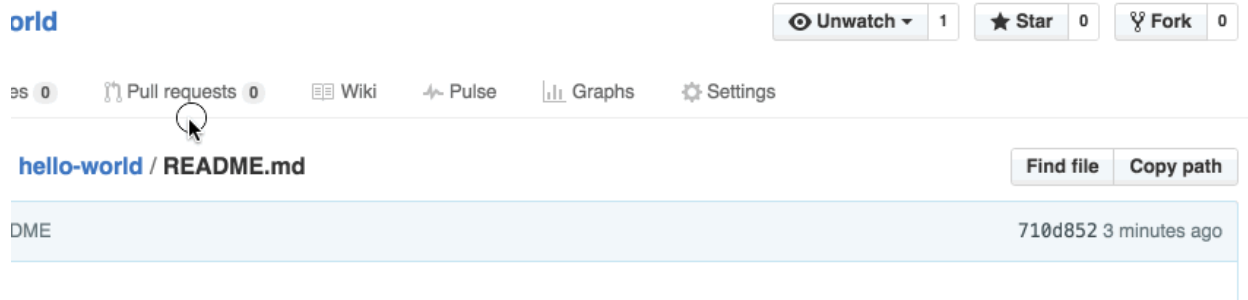
4.4 Pull Request in GitHub

Pull Requests are the heart of collaboration on GitHub. When you open a **pull request**, you're proposing your changes and requesting that someone review and pull in your contribution and merge them into their branch.

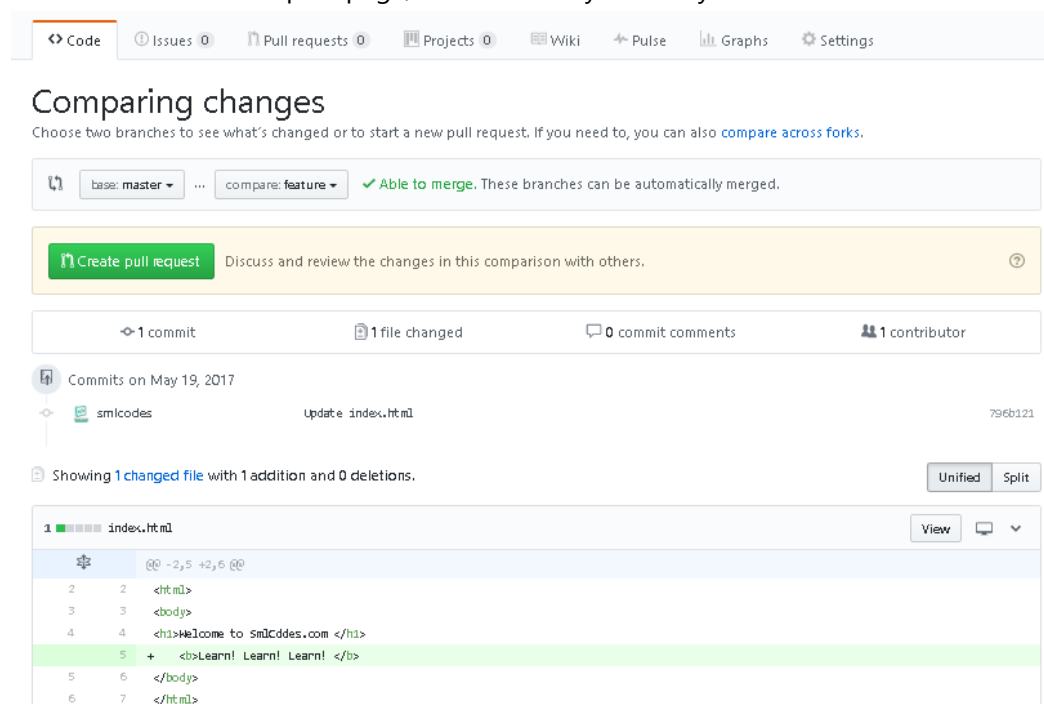
Pull requests show **diffs, or differences**, of the content from both branches. The changes, additions, and subtractions are shown in green and red.

Here I made changes in index.html, I added new line in feature/index.html. See how we can create Pull request in github.

1. Click the **Pull Request** tab, then from the Pull Request page, click the green **New pull request** button.



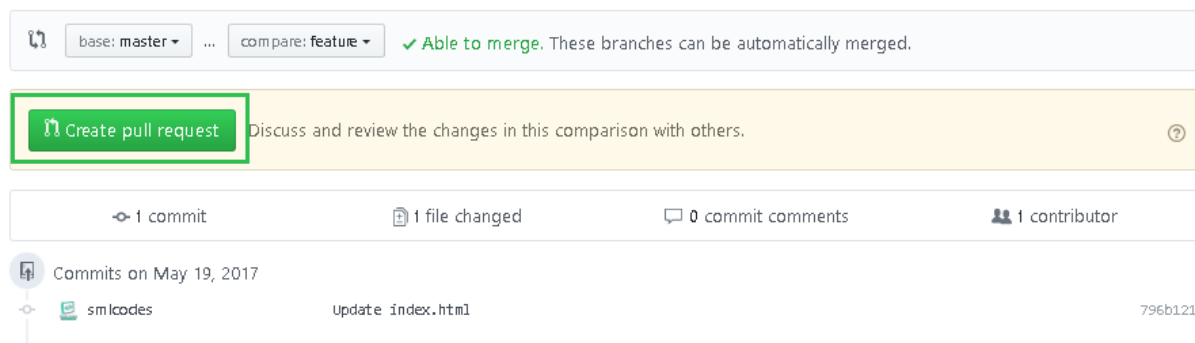
2. Select the branch you made, **feature**, to compare with **master (the original)**. Look over your changes in the diffs on the Compare page, make sure they're what you want to submit



3. When you're satisfied that these are the changes you want to submit, click the big green **Create Pull Request** button.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).



4. Give your pull request a title and write a brief description of your changes. When you're done with your message, click **Create pull request!**

Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base: master ... compare: feature ✓ Able to merge. These branches can be automatically merged.

Update index.html

Write Preview

Give your pull request a title and write a brief description of your changes

Attach files by dragging & dropping, [selecting them](#), or pasting from the clipboard.

Styling with Markdown is supported

Create pull request

Reviewers
No reviews—request one

Assignees
No one—assign yourself

Labels
None yet

Projects
None yet

Milestone
No milestone

4.5 Merge Pull Request in GitHub

In this final step, it's time to bring your changes together – merging your feature branch into the master branch.

1. Click the green **Merge pull request** button to merge the changes into master.
2. Click **Confirm merge**.
3. Go ahead and delete the branch, since its changes have been incorporated, with the **Delete branch** button in the purple box.

Add more commits by pushing to the **feature** branch on [smlcodes/GitHubDemo](#).

✓ This branch has no conflicts with the base branch
Merging can be performed automatically.

Merge pull request You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

5. GitHub with Git Command-line Tool

Before you can work with Git on the command line, you will need to set some basic configurations:

1. Open your git terminal application.
2. Type `git --version` to ensure Git is installed. Check git-scm.com to download the latest version.
3. Type `git config --global user.name "USER NAME"`, replacing USERNAME with your first and last name.
4. Type `git config --global user.email "EMAIL"`, replacing EMAIL with the email account associated with your GitHub account.
5. Depending on your operating system, set the core.autocrlf.
 - **Windows users:** Type `git config --global core.autocrlf true`.
 - **Mac & Linux users:** Type `git config --global core.autocrlf input`.
6. Type `git config --list` to see your current configurations.

5.1 Clone the Repository Using the Command Line

After you've created a repository on the remote, the next step is to clone it to your local environment.

1. Navigate to the Code tab of the repository on GitHub.com.
2. Click **Clone or download**.
3. Copy the **Clone URL** provided.
4. Open your command line/terminal application and `cd` into the directory where you would like to copy the repository. This can be anywhere in your local file system.
5. Type `git clone URL`. Be sure to replace URL with the Clone URL you copied in the previous step. The repository will be cloned into a new directory in this location.
6. Type `cd REPOSITORY-NAME` to move into the directory of the repository you just created.
7. Type `git status`.

`git status` is a command you will use often to verify the current state of your repository and the files it contains. Right now, we can see that we are on branch master, everything is up to date with origin/master and our working directory is clean.

5.2 Create Local Branches with Git

Now that you have a local copy of the repository, let's use the steps of the [GitHub Flow](#) to make a change in your project. First we will create a branch:

1. Create a new branch with a descriptive name: `git branch BRANCH-NAME`.
2. Type `git status` to see that although you created a new branch, you are still checked out to **master** (as indicated by the in-line response from Git).
3. Check out to your new branch: `git checkout BRANCH-NAME`.
4. Type `git status` to verify you are now checked out to your new branch.

5.3 Add Local Commits With Git

After you have finished making your changes, it is time to commit them.

1. Type `git status`. Remember that git status allows us to see the status of the files on our branch at any given time. Your file is listed under the heading *Untracked files*.
2. Type `git add FILE-NAME`. This adds the file to the staging area and prepares it to become part of the next commit.
3. Type `git status` again to see what has changed. Your file is now listed under the heading *Changes to be committed*.
4. Type `git commit`. This tells git to collect all of the files in the staging area and commit them to version control as a single unit of work. Git will open your default text editor where you can enter the commit message.
5. Type the commit message, save and quit your editor.
 - The default text editor associated with git is vi in most cases, which requires that you `type :wq` to save and quit after entering your commit message.
 - Alternatively, you can bypass vi altogether and enter your commit message inline with `git commit -m "your message"`
6. To see the history of commits, type `git log`.

5.4 Open a Pull Request on GitHub using Git

Now that you have made some local commits, it is time to send your changes to the remote copy of your repository on GitHub.com and create a Pull Request:

1. Type `git push -u origin BRANCH-NAME` to push your commits to the remote, and set a tracking branch.
2. Enter your GitHub username and password, if prompted to do so.
3. Create a Pull Request on GitHub.
4. Fill out the body of the Pull Request with information about the changes you're introducing.

Since this is your repository, you probably don't have anyone to collaborate with (yet). Go ahead and merge your Pull Request now:

1. On GitHub.com, navigate to the Pull Request that you just opened.
2. Scroll down and click the big green **Merge Pull Request** button.

5.5 Git Pull

After you merge your Pull Request, you will need to update your local copy of the repository:

1. In your command line, type `git checkout master`.
2. Type `git pull`

References

<https://guides.github.com/activities/hello-world/>

<https://try.github.io/levels/1/challenges/1>

<https://services.github.com/on-demand/>

