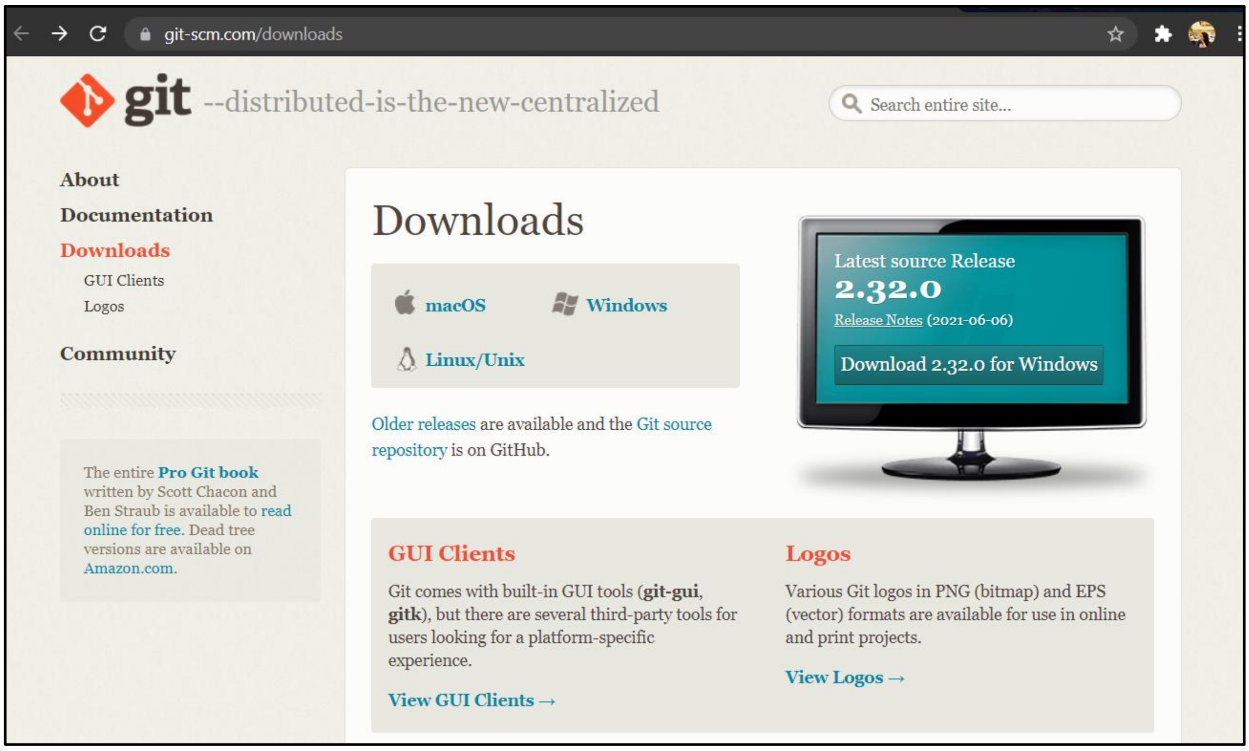
GitHub is a code hosting platform for version control and collaboration. It provides an environment for many users to work together as a group.

Objective:
To get familiarize with Git repositories, branches, commits, push, and pull requests.

1. Git Bash – Desktop Repository

1.1. Download Git for windows using the following URL: https://git-scm.com/downloads



The entire Pro Git book written by Scott Chacon and Ben Straub is available to read online for free. Dead tree versions are available on Amazon.com.

Older releases are available and the Git source repository is on GitHub.

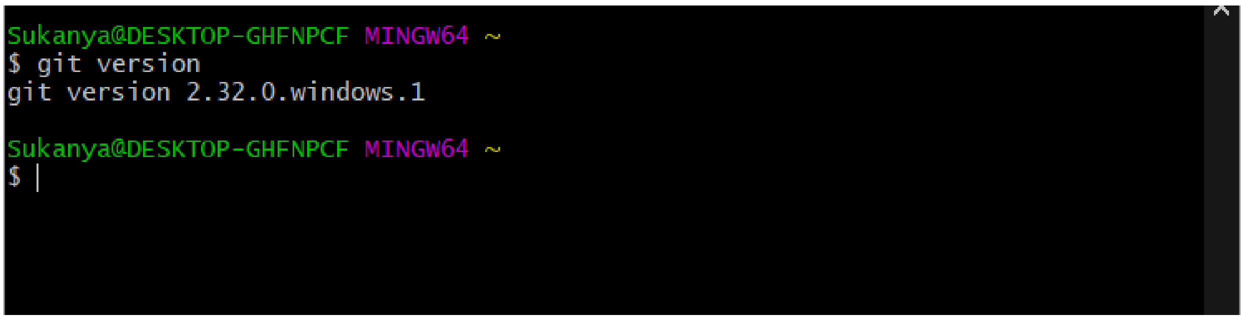
GUI Clients

Git comes with built-in GUI tools (**git-gui**, **gitk**), but there are several third-party tools for users looking for a platform-specific experience.

Logos

Various Git logos in PNG (bitmap) and EPS (vector) formats are available for use in online and print projects.

1.2. Check the version to make sure it installed properly



```
Sukanya@DESKTOP-GHFNPCF MINGW64 ~
$ git version
git version 2.32.0.windows.1

Sukanya@DESKTOP-GHFNPCF MINGW64 ~
$ |
```

2. Creating a local repository using Git Bash

2.1. Create a folder named Myapp-1

2.2. Right click and select “Open Git Bash Here”

2.3. Add index.html

2.4. Open index.html in an editor and add some basic html tags

2.5. Initialize this folder as the Git repository. It will create a hidden .git folder

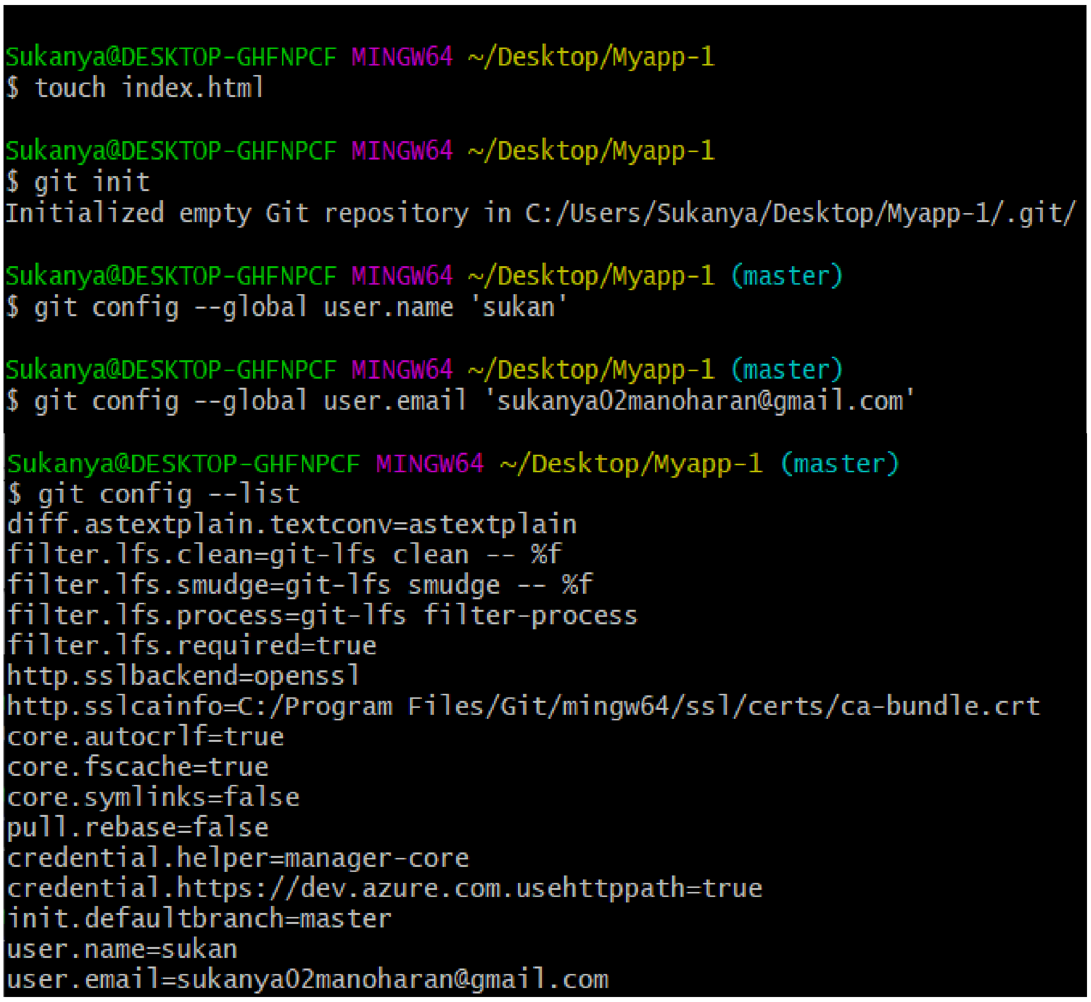
2.6. Add your name and email to Git

2.7. Check your configuration setting

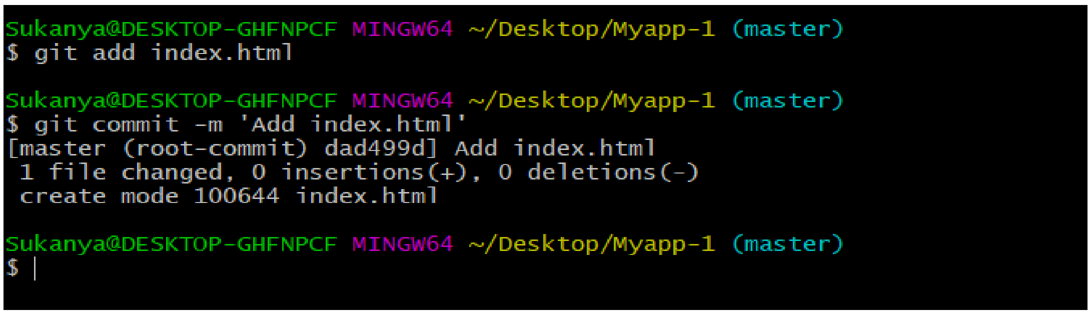
2.8. Add index.html file to Git

2.9. Commit the changes to Git

To add any number of html files `git add *.html`

2.3 2.5 2.6 2.7	

```
Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1
$ touch index.html

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1
$ git init
Initialized empty Git repository in C:/Users/Sukanya/Desktop/Myapp-1/.git/

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ git config --global user.name 'sukan'

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ git config --global user.email 'sukanya02manoharan@gmail.com'

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=openssl
http.sslcainfo=C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager-core
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=sukan
user.email=sukanya02manoharan@gmail.com
```

2.8	

```
Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ git add index.html

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ git commit -m 'Add index.html'
[master (root-commit) dad499d] Add index.html
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 index.html

Sukanya@DESKTOP-GHFNPCF MINGW64 ~/Desktop/Myapp-1 (master)
$ |
```

3. Creating a Branch

3.1. Create a branch name “log-in”

3.2. Swap from “master” to “log-in” branch

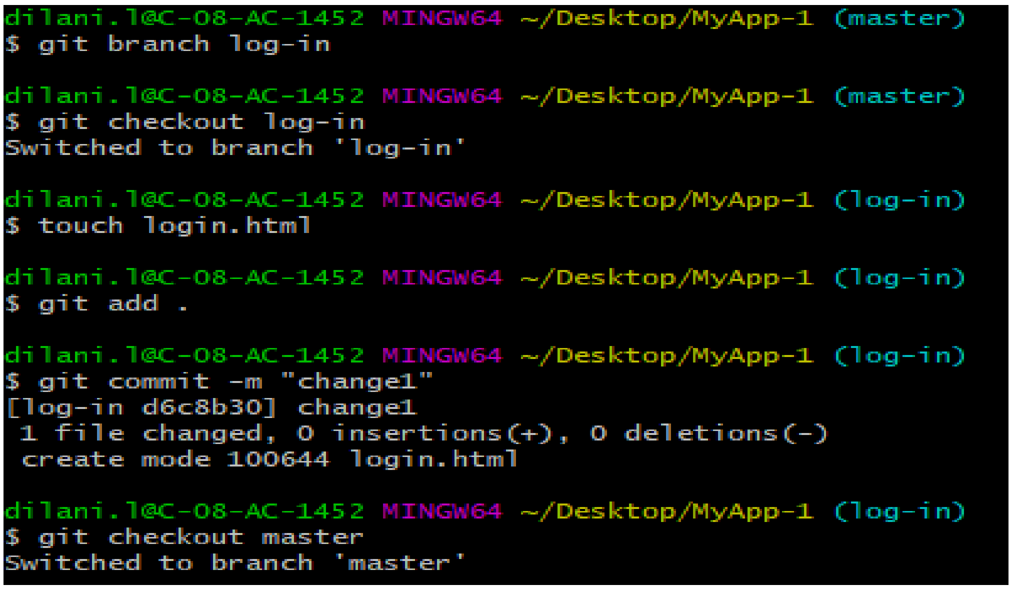
3.3. Add login.html file to “log-in” branch

3.4. Commit to the repository

3.5. Swap to “master”. Note that login.html is not available in master branch.

3.6. Merge “log-in” with “master” using the following command: $ git merge log-in

Now the login.html file is in master branch as well.

3.1 3.2 3.3 3.4 3.5	

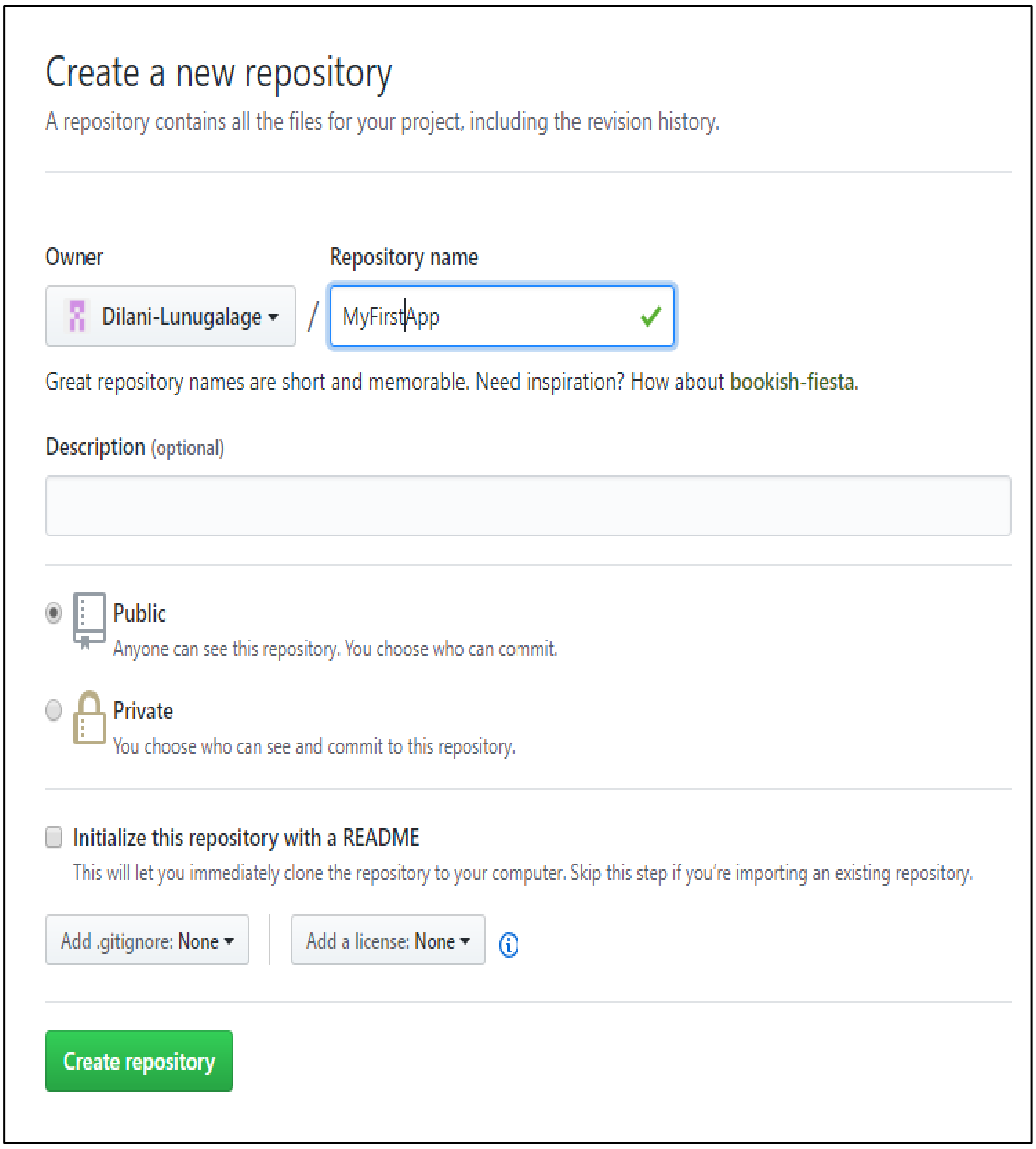
```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (master)
$ git branch log-in

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (master)
$ git checkout log-in
Switched to branch 'log-in'

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (log-in)
$ touch login.html

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (log-in)
$ git add .

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (log-in)
$ git commit -m "change1"
[log-in d6c8b30] change1
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 login.html

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyApp-1 (log-in)
$ git checkout master
Switched to branch 'master'
```

4. Remote Repository

4.1. Click on avatar or identic icon (top right corner) and select new repository

4.2. Name your repository as “MyFirstApp”

4.3. Write a short description



Create a new repository

A repository contains all the files for your project, including the revision history.

Owner: Dilani-Lunugalage / Repository name: MyFirstApp ✓

Great repository names are short and memorable. Need inspiration? How about bookish-fiesta.

Description (optional)

[● Public] Anyone can see this repository. You choose who can commit.

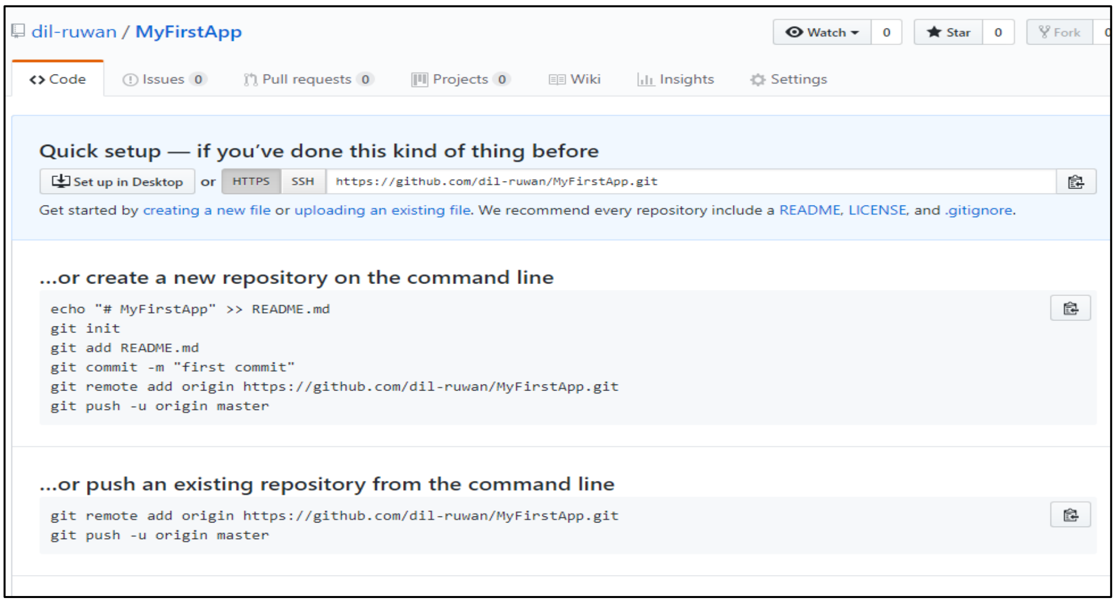
○ Private — You choose who can see and commit to this repository.

☐ Initialize this repository with a README

This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: None | Add a license: None

4.4. Copy the commands using the highlighted button



Quick setup — if you've done this kind of thing before

https://github.com/dil-ruwan/MyFirstApp.git

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

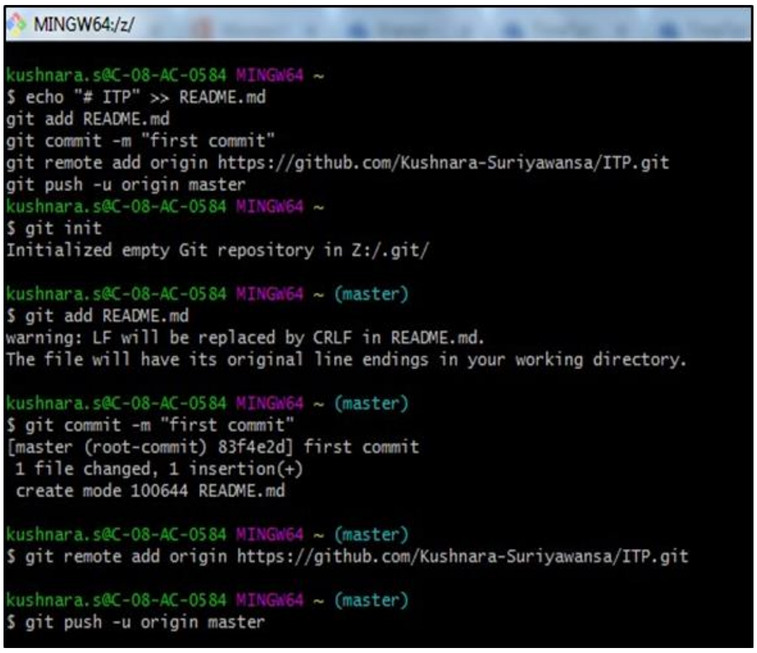
```
echo "# MyFirstApp" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/dil-ruwan/MyFirstApp.git
git push -u origin master
```

...or push an existing repository from the command line

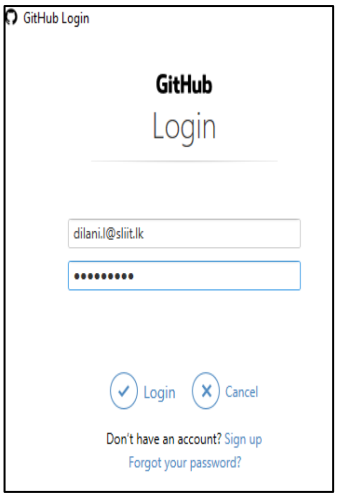
```
git remote add origin https://github.com/dil-ruwan/MyFirstApp.git
git push -u origin master
```

4.5. Open Git Bash.

4.6. Execute the commands in Git Bash



```
MINGW64:/z/
kushnara.s@C-08-AC-0584 MINGW64 ~
$ echo "# ITP" >> README.md
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/Kushnara-Suriyawansa/ITP.git
git push -u origin master
kushnara.s@C-08-AC-0584 MINGW64 ~
$ git init
Initialized empty Git repository in Z:/.git/

kushnara.s@C-08-AC-0584 MINGW64 ~ (master)
$ git add README.md
warning: LF will be replaced by CRLF in README.md.
The file will have its original line endings in your working directory.

kushnara.s@C-08-AC-0584 MINGW64 ~ (master)
$ git commit -m "first commit"
[master (root-commit) 83f4e2d] first commit
 1 file changed, 1 insertion(+)
 create mode 100644 README.md

kushnara.s@C-08-AC-0584 MINGW64 ~ (master)
$ git remote add origin https://github.com/Kushnara-Suriyawansa/ITP.git

kushnara.s@C-08-AC-0584 MINGW64 ~ (master)
$ git push -u origin master
```

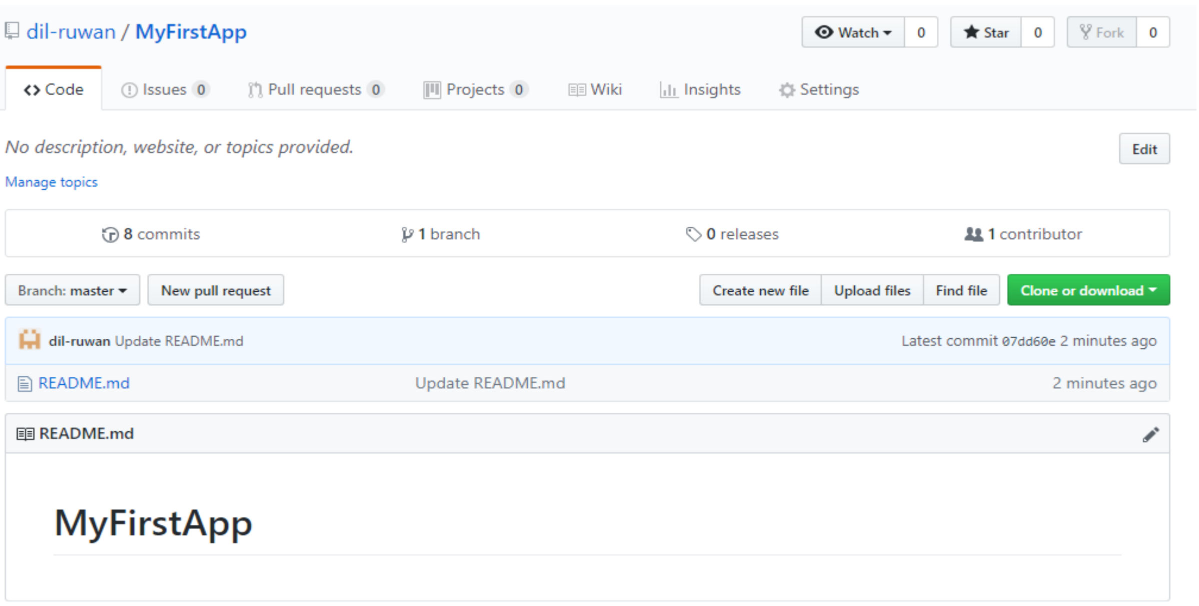


4.7. Provide username and password used in GitHub account.

4.8. Refresh the GitHub in browser.

Note that the committed README.md file is in the repository.

5. Upload projects/files to the repository



dil-ruwan / MyFirstApp

Watch 0 | Star 0 | Fork 0

Code | Issues 0 | Pull requests 0 | Projects 0 | Wiki | Insights | Settings

No description, website, or topics provided.

Edit

Manage topics

8 commits | 1 branch | 0 releases | 1 contributor

Branch: master | New pull request | Create new file | Upload files | Find file | Clone or download

dil-ruwan Update README.md — Latest commit 07dd60e 2 minutes ago

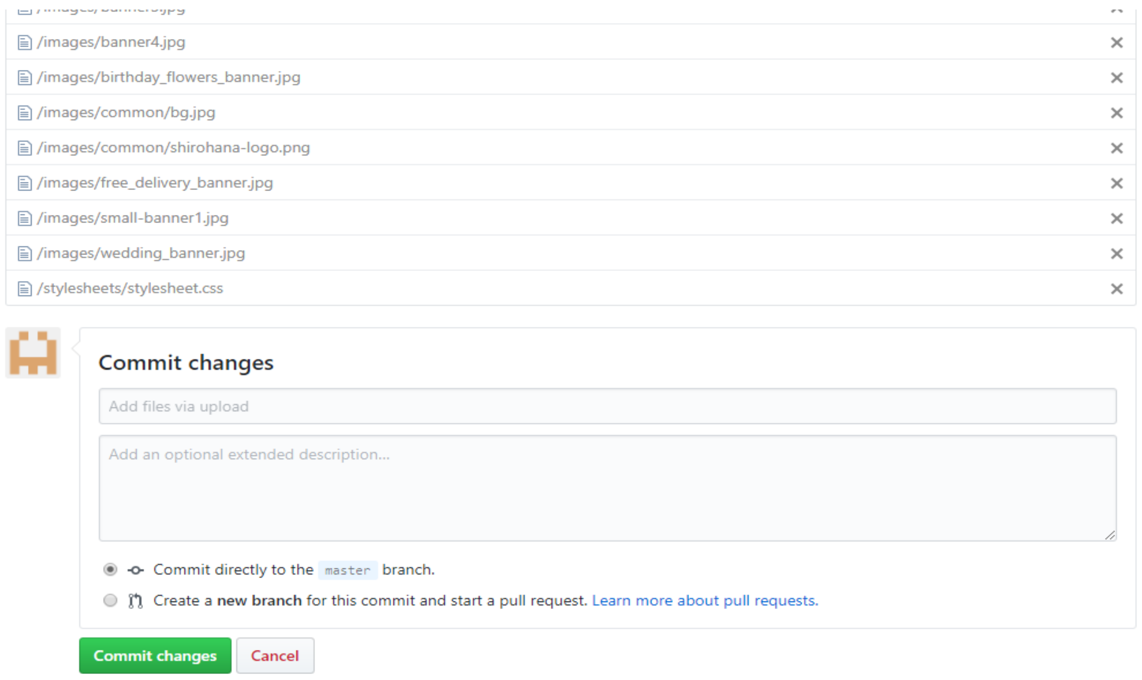
README.md — Update README.md — 2 minutes ago

README.md

MyFirstApp

5.1. Select upload files option and add files/folders of the given sample project.

5.2. Commit changes to the repository.



/images/banner4.jpg
/images/birthday_flowers_banner.jpg
/images/common/bg.jpg
/images/common/shirohana-logo.png
/images/free_delivery_banner.jpg
/images/small-banner1.jpg
/images/wedding_banner.jpg
/stylesheets/stylesheet.css

Commit changes

Add files via upload

Add an optional extended description...

[✓ Commit directly to the `master` branch.]

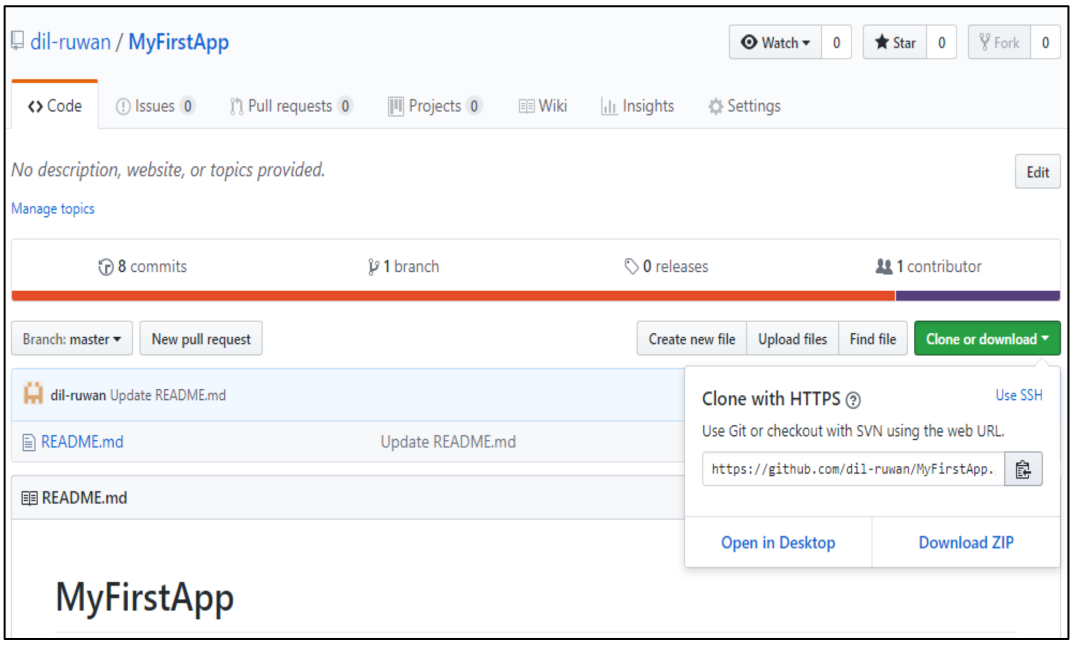
Create a **new branch** for this commit and start a pull request. Learn more about pull requests.

Commit changes | Cancel

Note that the committed files/folders will now be in your repository.

6. Clone the uploaded project to your machine

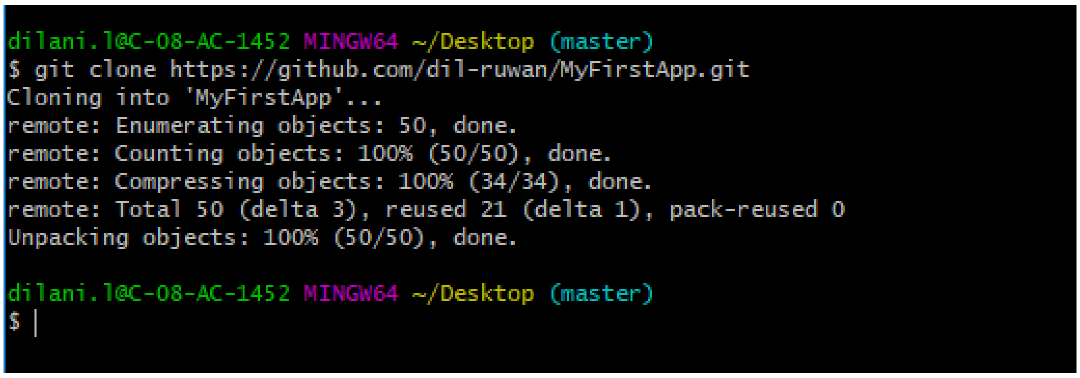
6.1. Select **clone** or **download** option and copy the URL



6.2. Open GitBash from desktop (right click and execute 'GitBash here')

6.3. Execute **git clone <URL>** command in Git Bash

Example: ***git clone https://github.com/username/ITPM.git***



```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop (master)
$ git clone https://github.com/dil-ruwan/MyFirstApp.git
Cloning into 'MyFirstApp'...
remote: Enumerating objects: 50, done.
remote: Counting objects: 100% (50/50), done.
remote: Compressing objects: 100% (34/34), done.
remote: Total 50 (delta 3), reused 21 (delta 1), pack-reused 0
Unpacking objects: 100% (50/50), done.

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop (master)
$ |
```

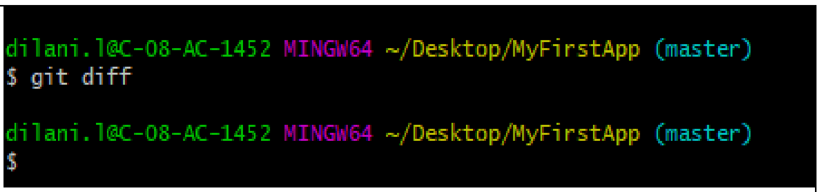
Now there will be a folder from the name of the repository on your desktop. This folder will have all files of the project which are uploaded to the GitHub repository. By default, this project is initialized as a Git project and you will be able to see the hidden .git folder. Thus, now you are able to execute Git commands using the Git bash for this cloned project.

7. Executing Git commands.

Note: To execute the Git commands to the project, open Git Bash inside the project folder. (Go inside the folder-> right click -> Git Bash here)

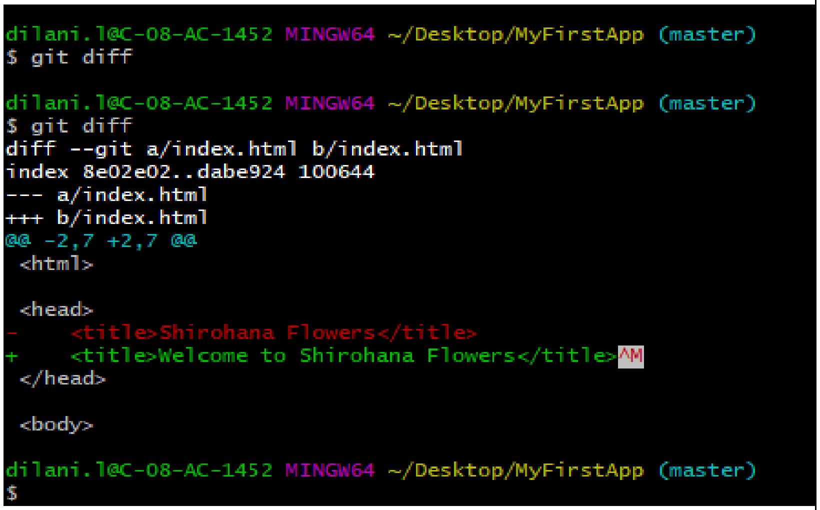
7.1. Gives the changes (not yet saved/added) that are made. **There is no change.**
7.2. Edit and save index.html file in the root project folder. Run the same command and see the output.
7.3. Add/save changes that were made to the given file.
7.4. Record the changes as a commit to local repository. Commit can be thought of as a version of the project.
7.5. Send changes to the master repository.

7.1



```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git diff

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$
```

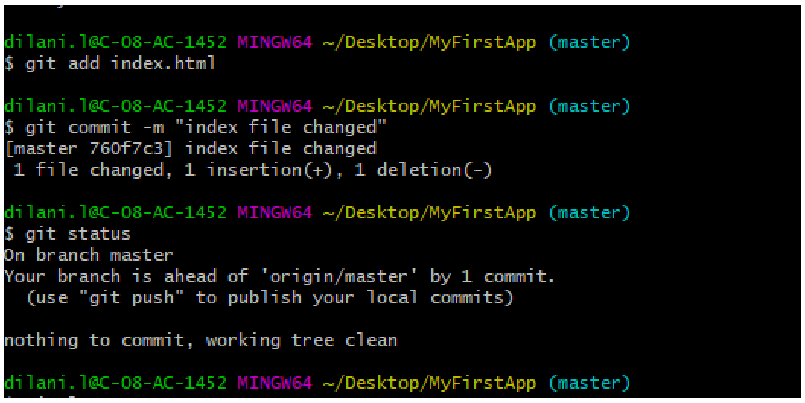
7. 2



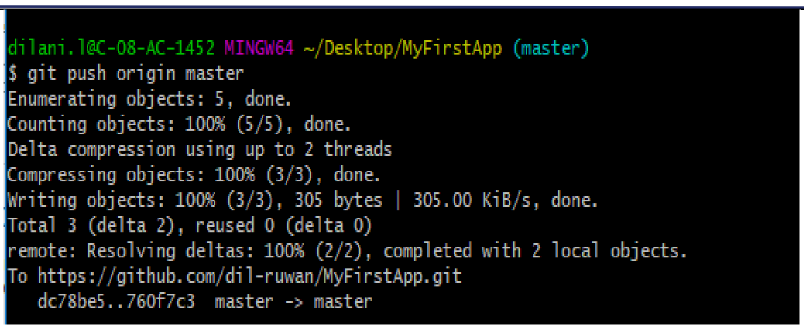
```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git diff

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git diff
diff --git a/index.html b/index.html
index 8e02e02..dabe924 100644
--- a/index.html
+++ b/index.html
@@ -2,7 +2,7 @@
 <html>

 <head>
-    <title>Shirohana Flowers</title>
+    <title>Welcome to Shirohana Flowers</title>^M
 </head>

 <body>

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$
```

7.3

7.4

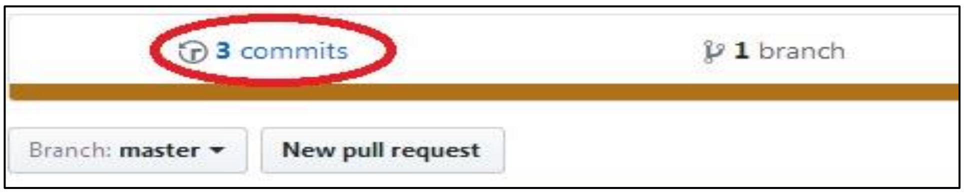


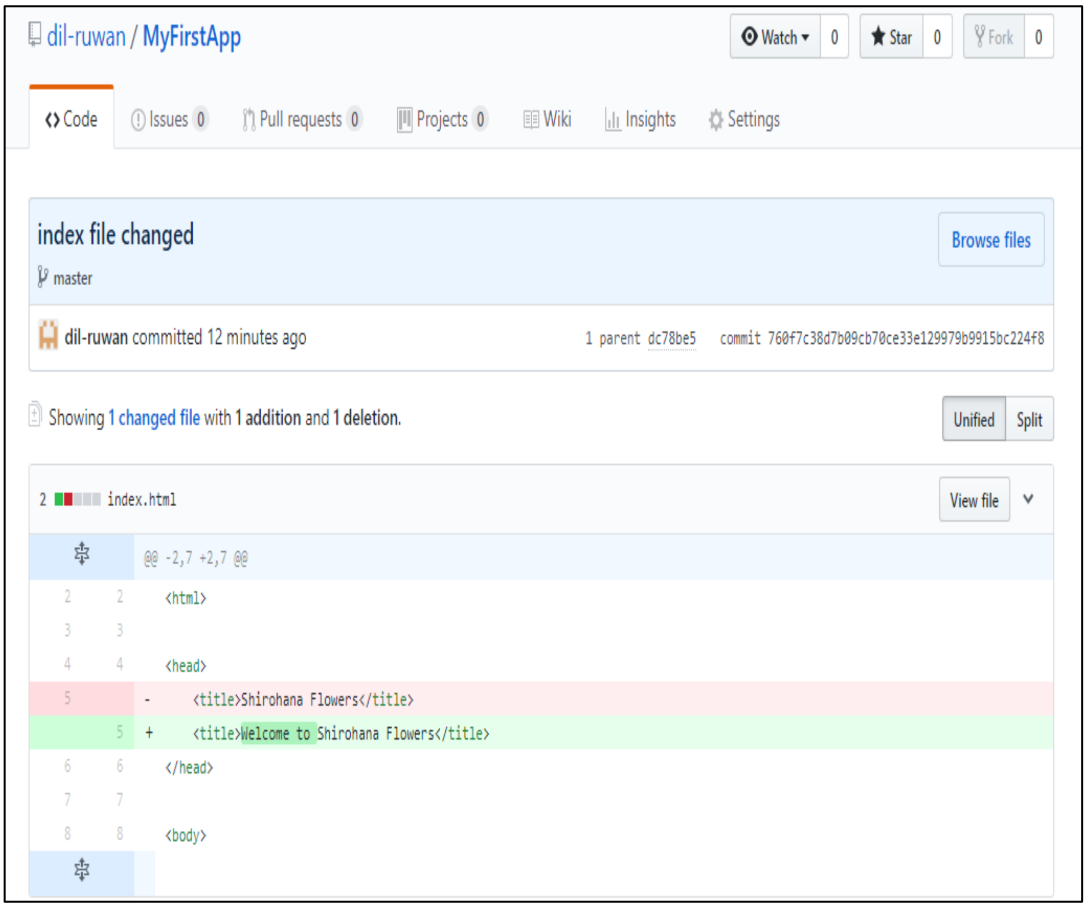
```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git add index.html

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git commit -m "index file changed"
[master 760f7c3] index file changed
 1 file changed, 1 insertion(+), 1 deletion(-)

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
```

7.5	

```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git push origin master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 2 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 305 bytes | 305.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/dil-ruwan/MyFirstApp.git
   dc78be5..760f7c3  master -> master
```

Note the commit request in the master project repository of GitHub.





index file changed

master

dil-ruwan committed 12 minutes ago   1 parent dc78be5   commit 760f7c38d7b09cb70ce33e129979b9915bc224f8

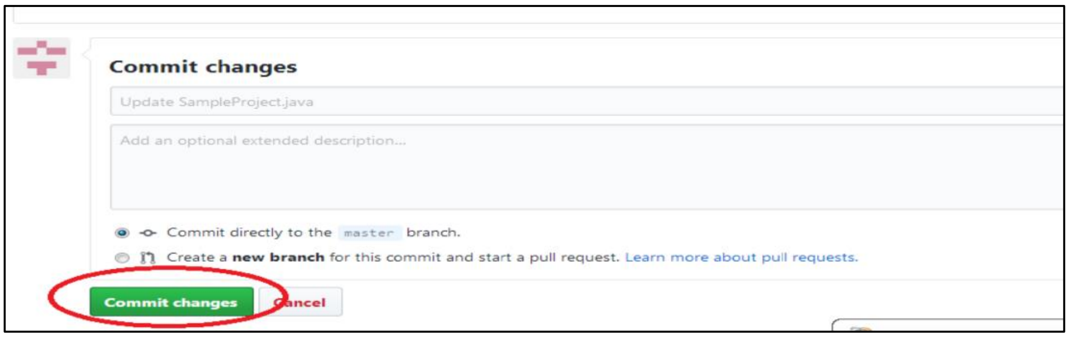
Showing 1 changed file with 1 addition and 1 deletion.

2 index.html

```
@@ -2,7 +2,7 @@
   <html>

   <head>
-      <title>Shirohana Flowers</title>
+      <title>Welcome to Shirohana Flowers</title>
   </head>

   <body>
```

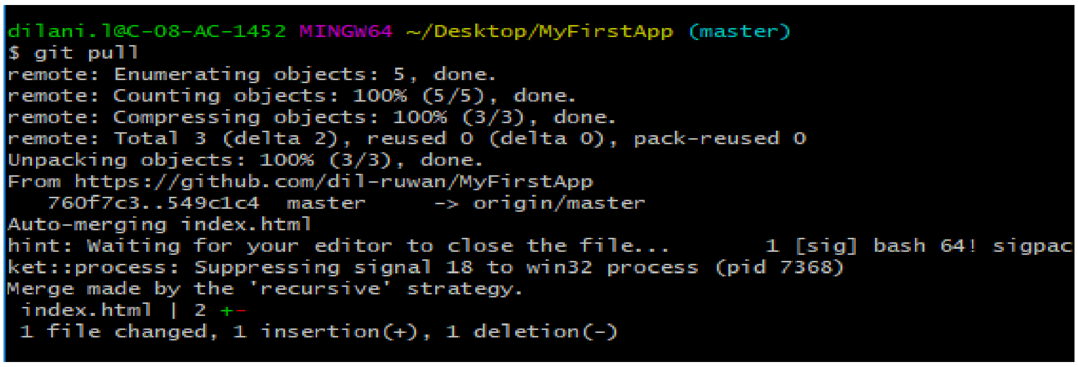
Note that the index.html file of the master project will now have the change you have made in local project.

7.6. Edit the SampleProject.java file in GitHub and commit the change.



Commit changes
Update SampleProject.java
Add an optional extended description...
Commit directly to the master branch.
Create a new branch for this commit and start a pull request. Learn more about pull requests.
Commit changes
Cancel

7.7. Execute **Git pull** command in Git Bash



```
dilani.l@C-08-AC-1452 MINGW64 ~/Desktop/MyFirstApp (master)
$ git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.
From https://github.com/dil-ruwan/MyFirstApp
   760f7c3..549c1c4  master     -> origin/master
Auto-merging index.html
hint: Waiting for your editor to close the file...       1 [sig] bash 64! sigpac
ket::process: Suppressing signal 18 to win32 process (pid 7368)
Merge made by the 'recursive' strategy.
 index.html | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)
```

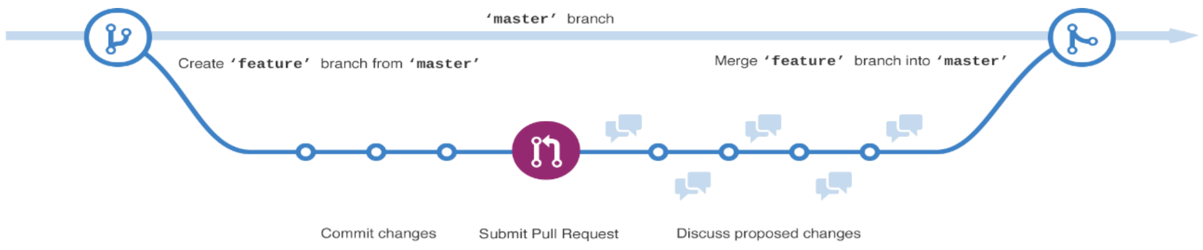
Note that the changes made in master repository will be available in the local project of your computer.

8. Create a branch in GitHub

Branching allows to work on different versions of a repository at one time.

Repository has one branch named master by default which is considered to be the definitive branch. Branches are used to experiment and make edits before committing them to master.

When a branch is created off the master branch, a copy or snapshot of the master at that time will be created. If one user made changes to the master branch another user can pull those updates while working on his/her own branch.



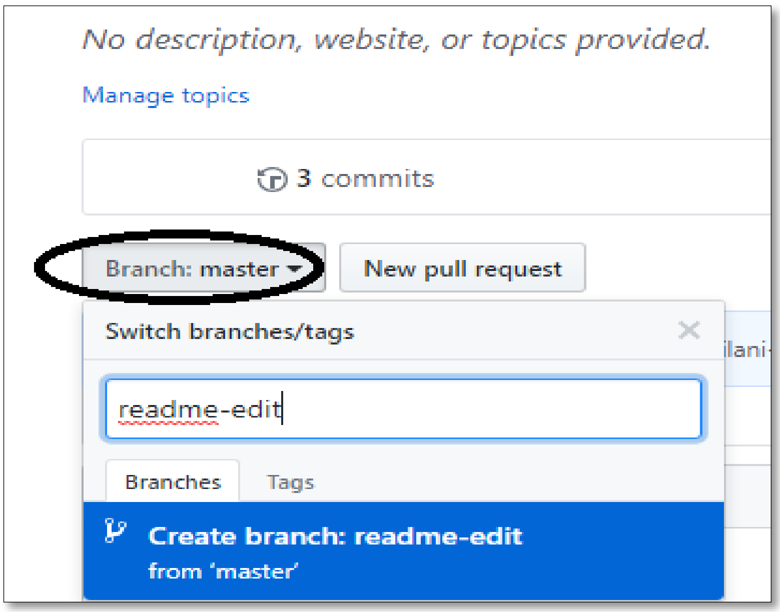
'master' branch
Create 'feature' branch from 'master'
Merge 'feature' branch into 'master'
Commit changes
Submit Pull Request
Discuss proposed changes

8.1. Go to your new repository MyFirstApp.

8.2. Click the drop down at the top of the file list that says **branch: master**.

8.3. Type a branch name and readme-edits into the new branch text box.

8.4. Select **Create branch** box or hit "Enter" on your keyboard.



Now there are two identical branches, master and readme-edit.

9. Make and commit changes

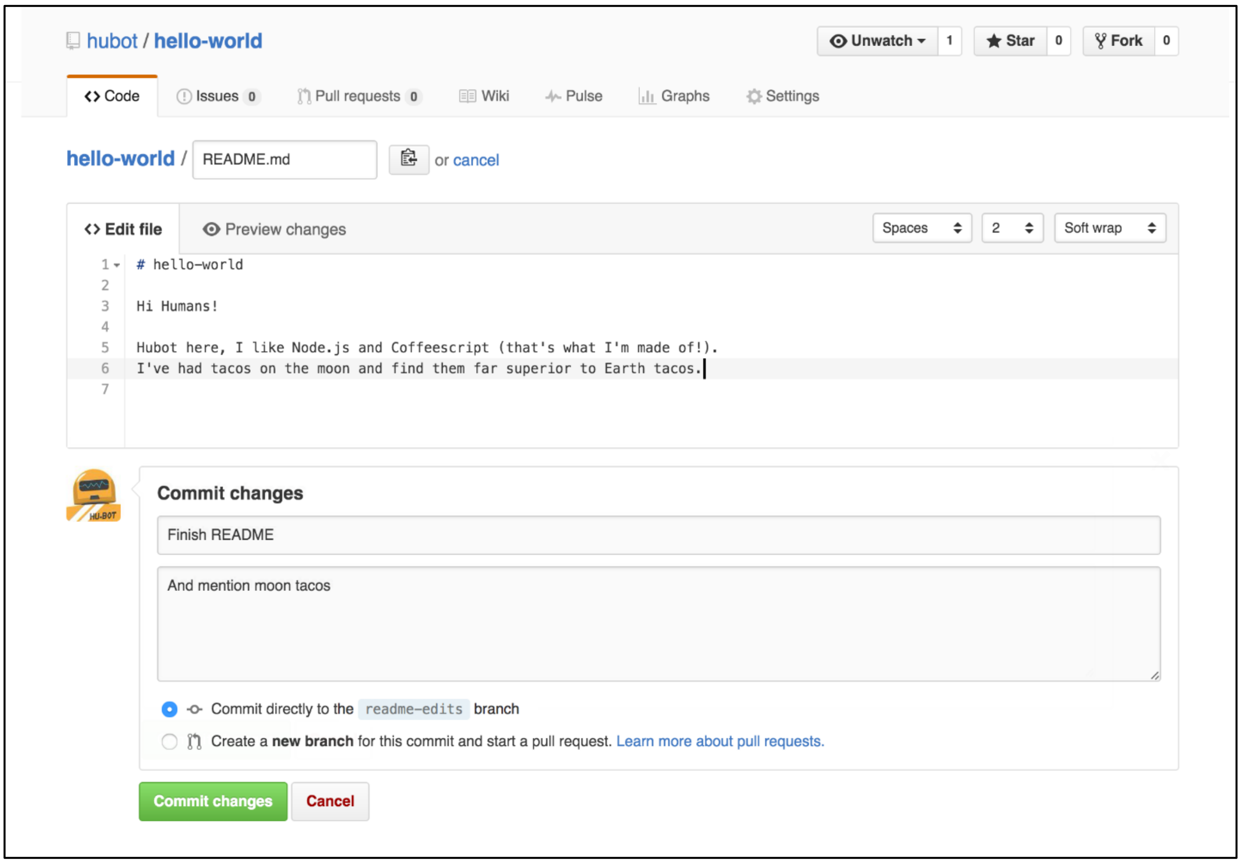
9.1. Click the README.md file

9.2. Click the pencil icon in the upper right corner of the file view to edit

9.3. Write your details in the editor

9.4. Write a commit message that describes the changes

9.5. Click **commit changes** button



```
# hello-world

Hi Humans!

Hubot here, I like Node.js and Coffeescript (that's what I'm made of!).
I've had tacos on the moon and find them far superior to Earth tacos.
```

Finish README

And mention moon tacos

Commit directly to the `readme-edits` branch

Create a **new branch** for this commit and start a pull request. Learn more about pull requests.

10. Open a pull request

10.1. Click the pull **request** tab and select **new pull request.**

10.2. In the **Example Comparisons box**, select the branch, readme-edits to compare with master (the original).

10.3. Note the changes in diffs on the compare page.

10.4. Once the changes are finalized, click the create **pull request** button.

10.5. Give a title and write a brief description of changes for the pull request.

11. Merge your pull request

11.1. Click **merge pull request** button to merge changes into the master.

11.2. Click **confirm merge.**

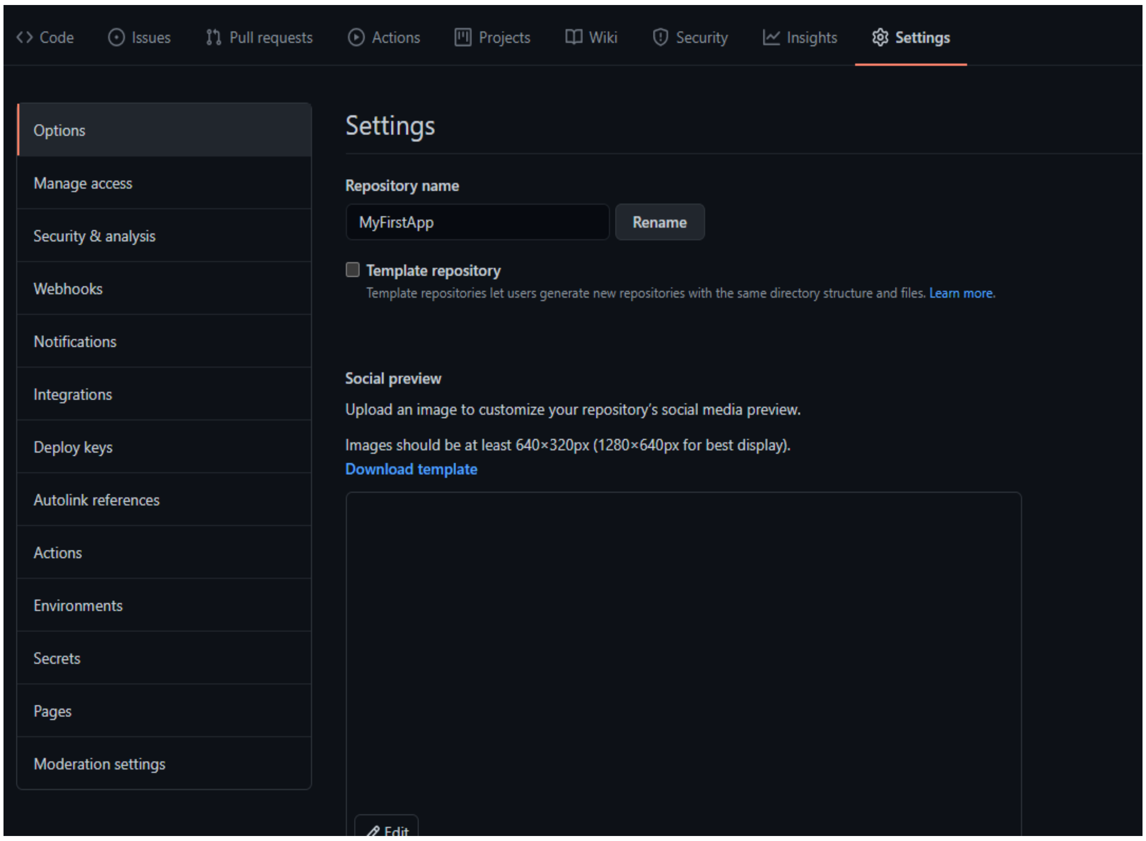
11.3. Delete the branch using **delete branch** button, since its changes have been incorporated.

12. Multiple users and single repository

There are two main workflows. Both assume each developer has set up a GitHub account which is free and sensible:

12.1. Add other developers as collaborators to your main repository so they can push their changes to it. Following are the steps to add collaborators

- Go to the repository and setting
- Click manage access



Settings

Repository name

MyFirstApp

Template repository

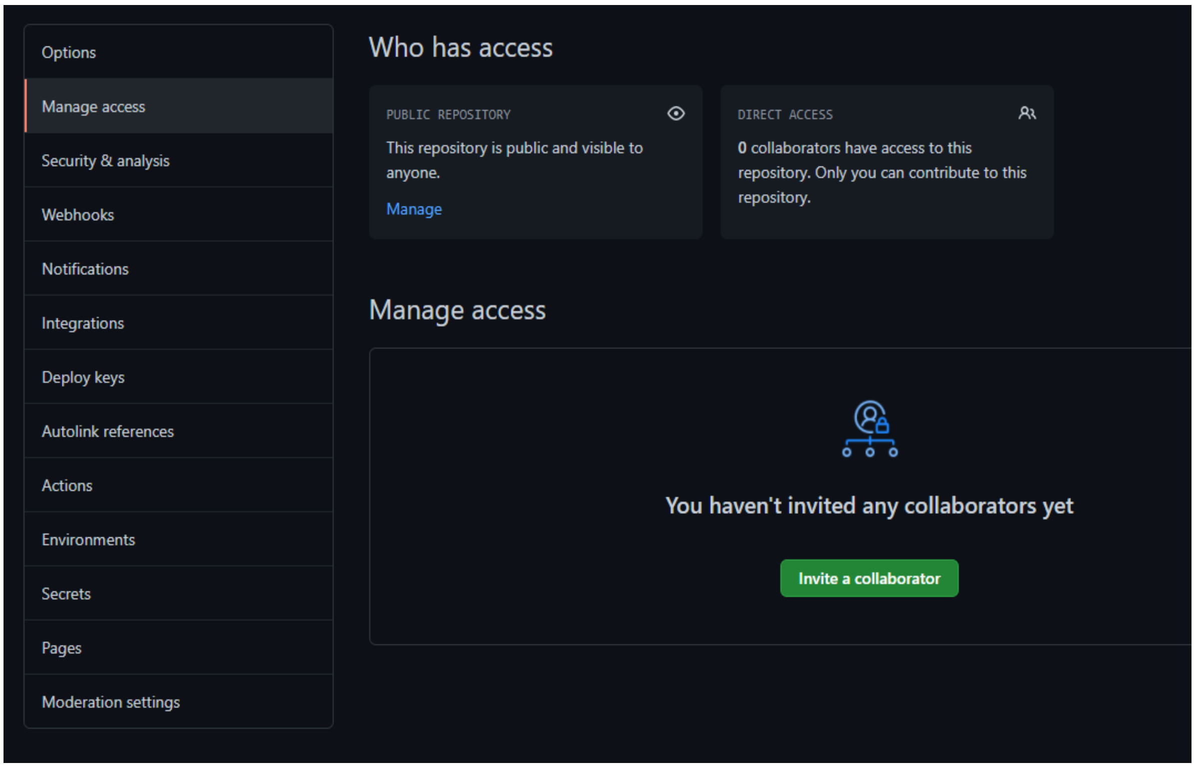
Template repositories let users generate new repositories with the same directory structure and files. Learn more.

Social preview

Upload an image to customize your repository's social media preview.

Images should be at least 640×320px (1280×640px for best display).

- Click ‘Invite a collaborator’



Who has access

PUBLIC REPOSITORY

This repository is public and visible to anyone.

Manage

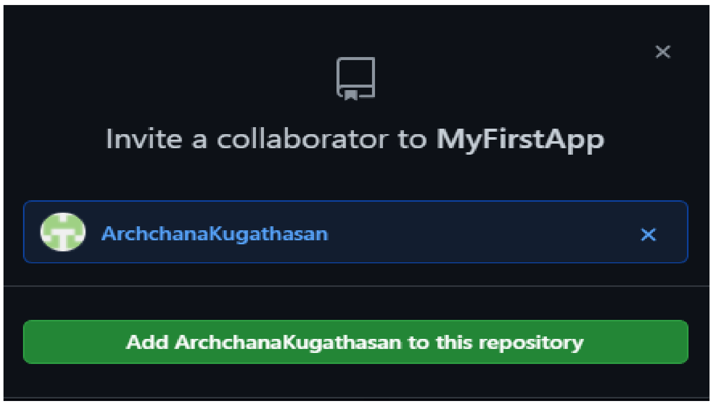
DIRECT ACCESS

0 collaborators have access to this repository. Only you can contribute to this repository.

Manage access

You haven't invited any collaborators yet

- Add the username or email address of the user. (User must accept it and after that they can clone the repository in their machine)



Invite a collaborator to MyFirstApp

ArchchanaKugathasan

Collaborators are preferable if there are group members making or maintaining a software product. There is one repository for the project on GitHub and each developer will have a local repository for their development work.

12.2. Let other developers fork your repository and issue pull requests to integrate changes.

The forking is useful if there are other teams or developers using their own version of your product. It gives them a way (pull requests) to offer their changes back to enhance your product. Each fork is generally considered as a distinct viable variant of your project. Forking is also useful in an open source environment while you are 'coming to trust' a potential collaborator. If you find yourself routinely accepting their pull requests, you may ‘promote’ them to be a collaborator.