

LAB 3

GIT AND GITHUB



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- Note: screenshots need to be clear and good-looking; submissions must be in PDF format.

1. Setup and making commits

- Install and setup git on your computer (remember to set your name/email)

```
$sudo apt update ;
```

```
khoadangtran@khoadangtran-virtualbox:~$ sudo apt update
[sudo] password for khoadangtran:
Hit:1 http://archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Get:3 http://archive.ubuntu.com/ubuntu jammy-backports InRelease [109 kB]
Get:4 http://archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [493
kB]
Get:5 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [1.0
11 kB]
Get:6 http://archive.ubuntu.com/ubuntu jammy-updates/main Translation-en [227
kB]
Get:7 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metada
ta [101 kB]
Get:8 http://archive.ubuntu.com/ubuntu jammy-updates/main amd64 c-n-f Metadat
a [15,6 kB]
Get:9 http://archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages
[984 kB]
Get:10 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:11 http://archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages
[655 kB]
Get:12 http://archive.ubuntu.com/ubuntu jammy-updates/universe Translation-en
```

```

Metadata [17,9 kB]
Get:18 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [3
28 kB]
Get:19 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [
802 kB]
Get:20 http://security.ubuntu.com/ubuntu jammy-security/main Translation-en [
169 kB]
Get:21 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Met
adata [43,0 kB]
Get:22 http://security.ubuntu.com/ubuntu jammy-security/main amd64 c-n-f Meta
data [11,3 kB]
Get:23 http://security.ubuntu.com/ubuntu jammy-security/universe i386 Package
s [557 kB]
Get:24 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packag
es [783 kB]
Get:25 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11
Metadata [40,1 kB]
Fetched 7.107 kB in 15s (459 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
16 packages can be upgraded. Run 'apt list --upgradable' to see them.
khoadangtran@khoadangtran-virtualbox:~$

```

```
$sudo apt install git -y
```

```

khoadangtran@khoadangtran-virtualbox:~$ sudo apt install git -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.34.1-1ubuntu1.10).
The following packages were automatically installed and are no longer require
d:
  libflashrom1 libftdi1-2 libllvm13
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 16 not upgraded.
khoadangtran@khoadangtran-virtualbox:~$

```

```
$git config --global user.name "Firstname Lastname"
```

```

khoadangtran@khoadangtran-virtualbox:~$ git config --global user.name "kohara
nt"

```

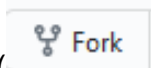
```
$git config --global user.email example@ctu.edu.vn
```

```

khoadangtran@khoadangtran-virtualbox:~$ git config --global user.email khoab2
014926@student.ctu.edu.vn

```

- Create an account (or login) to GitHub at <https://github.com>



- Fork ()this repository <https://github.com/TuanThai/git-exercises.git> to your Github account.

- Clone the forked repository to your computer

```
$git clone <url of your forked repository>
```

```
khoadangtran@khoadangtran-virtualbox:~$ git clone https://github.com/koharant/git-exercises.git
Cloning into 'git-exercises'...
remote: Enumerating objects: 53, done.
remote: Counting objects: 100% (23/23), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 53 (delta 20), reused 18 (delta 18), pack-reused 30
Receiving objects: 100% (53/53), 972.69 KiB | 72.00 KiB/s, done.
Resolving deltas: 100% (24/24), done.
khoadangtran@khoadangtran-virtualbox:~$
```

- Create and add a new file helloworld.py

```
$cd ./git-exercises
```

```
khoadangtran@khoadangtran-virtualbox:~$ cd ./git-exercises
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

```
$nano helloworld.py
#!/usr/bin/python3
print("Hello world")
```

```
GNU nano 6.2 helloworld.py
#!/usr/bin/python3
print("Hello world")
```

```
$git add helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add helloworld.py
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

```
$git commit -m "Add helloworld.py file"
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Add helloworld.py file"
[master 7310e1d] Add helloworld.py file
1 file changed, 2 insertions(+)
create mode 100644 helloworld.py
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Examine the state of your repo

```
$git status
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ 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
```

- Edit and save your new file, then add it to the staging area. Finally make a new commit with the edited file. At all stages use git status to see how your repository changes

```
$nano helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Hello Git")
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ nano helloworld.py
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

```
GNU nano 6.2 helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Hello Git")
```

```
$git add helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add helloworld.py
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

```
$git commit -m "Modify helloworld.py file"
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Modify helloworld.py file"
[master e06cf6a] Modify helloworld.py file
1 file changed, 1 insertion(+)
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- View the log

```
$git log
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git log
commit e06cf6a60d40e381e0cae7d7d8d15fb13a23e563 (HEAD -> master)
Author: khoadangtran <khoahen1508@gmail.com>
Date: Thu Sep 21 15:07:19 2023 +0700

    Modify helloworld.py file

commit 7310e1d67415b36c7dffb73ba34d5258655bb9b3
Author: khoadangtran <khoahen1508@gmail.com>
Date: Thu Sep 21 14:33:16 2023 +0700

    Add helloworld.py file










commit 325b8f80d4ca104e93e61a1952d53ef0260b6a96 (origin/master, origin/HEAD)
Author: Tuan Thai <minhtuan@ctu.edu.vn>
```

- Push the commits to the server

```
$git push
```

(Note: You need to provide a personal access token as a password, please follow [this article](#) to create one)

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git push
Username for 'https://github.com': koharant
Password for 'https://koharant@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 601 bytes | 85.00 KiB/s, done.
Total 6 (delta 2), reused 1 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/koharant/git-exercises.git
   325b8f8..8699313  master -> master
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

	koharant Modify helloworld.py file	...	4 minutes ago	 25
	.gitignore	Initial commit		7 years ago
	LICENSE	Initial commit		7 years ago
	README....	close the bracket		6 years ago
	funky.txt	edit funky file		7 years ago
	git_slides....	update slides		4 years ago
	hello.txt	thay doi tap tin hello.txt		2 years ago
	helloworld.py	Modify helloworld.py file		4 minutes ago

- Invite someone to be a collaborator of Github repository
(take screenshots to show that you finish this exercise)

2. Branching and Merging

- Create a new branch "test_functions"

```
$git checkout -b test_functions
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git checkout -b test_fu
nctions
Switched to a new branch 'test_functions'
```

- Edit helloworld.py file and commit the result

```
$nano helloworld.py
#!/usr/bin/python3
```

```
print("Hello world")
print("Hello OSS Development")
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ nano helloworld.py
```

```
GNU nano 6.2 helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Heloo OSS Development")
```

```
$git add helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add helloworld.py
```

```
$git commit -m "Modify helloworld.py file"
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Modify h
elloworld.py file"
[test_functions bb6a51e] Modify helloworld.py file
1 file changed, 2 insertions(+), 1 deletion(-)
```

- Display helloworld.py content

```
$cat helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ cat helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Heloo OSS Development")
```

- Swap back to the "master" branch

```
$git checkout master
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Display helloworld.py content

```
$cat helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ cat helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Heloo Git")
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Merge "test_functions" branch to "master"

```
$git merge test_functions
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git merge test_function
Updating 8699313..bb6a51e
Fast-forward
 helloworld.py | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Display helloworld.py content. Are there any conflicts?

```
$cat helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ cat helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Hello OSS Development")
```

- Edit helloworld.py file and commit the result

```
$nano helloworld.py
```

```
#!/usr/bin/python3
print("Hello world")
print("Hello OSS Development")
print("Hello CTU")
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ nano helloworld.py
```

```
GNU nano 6.2 helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Hello OSS Development")
print("Hello CTU")
```

```
$git add helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add helloworld.py
```

```
$git commit -m "Modify helloworld.py file"
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Modify helloworld.py file"
[master 4f9cb06] Modify helloworld.py file
1 file changed, 1 insertion(+)
```

- Checkout to test_functions, edit helloworld.py file and commit the result

```
$git checkout
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git checkout
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)
```

```
$nano helloworld.py
```

```
#!/usr/bin/python3
print("Hello world")
print("Hello OSS Development")
print("Hello CTU - CICT")
```

```
GNU nano 6.2 helloworld.py
#!/usr/bin/python3
print("Hello world")
print("Hello OSS Development")
print("Hello CTU-CICT")
```

```
$git add helloworld.py
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add helloworld.py
```

```
$git commit -m "Modify helloworld.py file"
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Modify h
elloworld.py file"
[master ebeff2f] Modify helloworld.py file
1 file changed, 1 insertion(+), 1 deletion(-)
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Swap back to the "master" branch, merge "test_functions" branch to "master"

```
$git checkout master
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git checkout master
Already on 'master'
Your branch is ahead of 'origin/master' by 3 commits.
(use "git push" to publish your local commits)
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

```
$git merge test_functions
```

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git merge test_function
s
Already up to date.
khoadangtran@khoadangtran-virtualbox:~/git-exercises$
```

- Are there any conflicts? If YES, resolve the conflict (i.e. edit the conflict markers to match how you want the file to look - like) and commit the result. Use git log to see the resulting commits on the master branch.

- View the log to see the resulting commits on the master branch.

```
$git log
```



```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git log
commit ebeff2fe0d188e8984503e1c2e1827501e533e79 (HEAD -> master)
Author: koharant <khoab2014926@student.ctu.edu.vn>
Date:   Fri Sep 22 21:10:16 2023 +0700

    Modify helloworld.py file

commit 12032245784edf405ab2ce4e10e70c102ebea157
Author: koharant <khoab2014926@student.ctu.edu.vn>
Date:   Fri Sep 22 21:08:41 2023 +0700

    Modify helloworld.py file

commit 8265a5470b833dafd8cf96ff3c3596e18b00c44f
Author: koharant <khoab2014926@student.ctu.edu.vn>
Date:   Fri Sep 22 21:01:38 2023 +0700

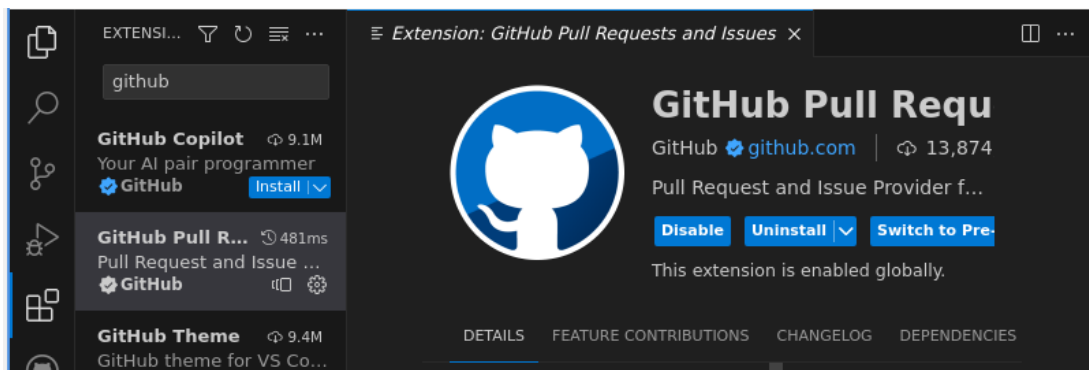
    Modify helloworld.py file

commit ed26e8c0bfcdd2b44515b7153ec22dd9a0816401 (origin/master, origin/HEAD)
Author: koharant <khoab2014926@student.ctu.edu.vn>
```

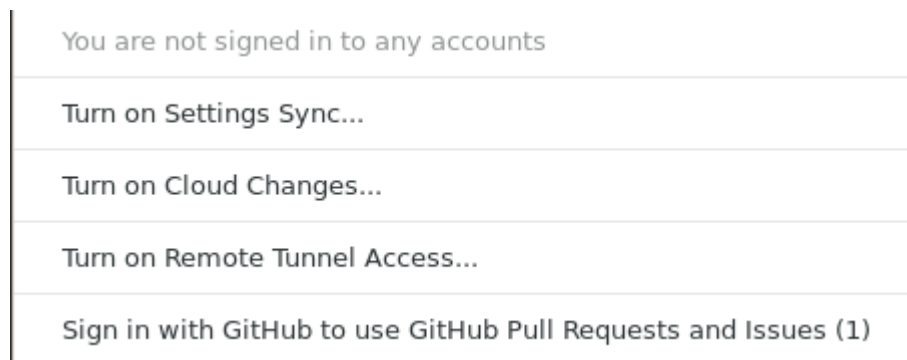
(take screenshots to show that you finish this exercise)

3. Working with GitHub in VS Code

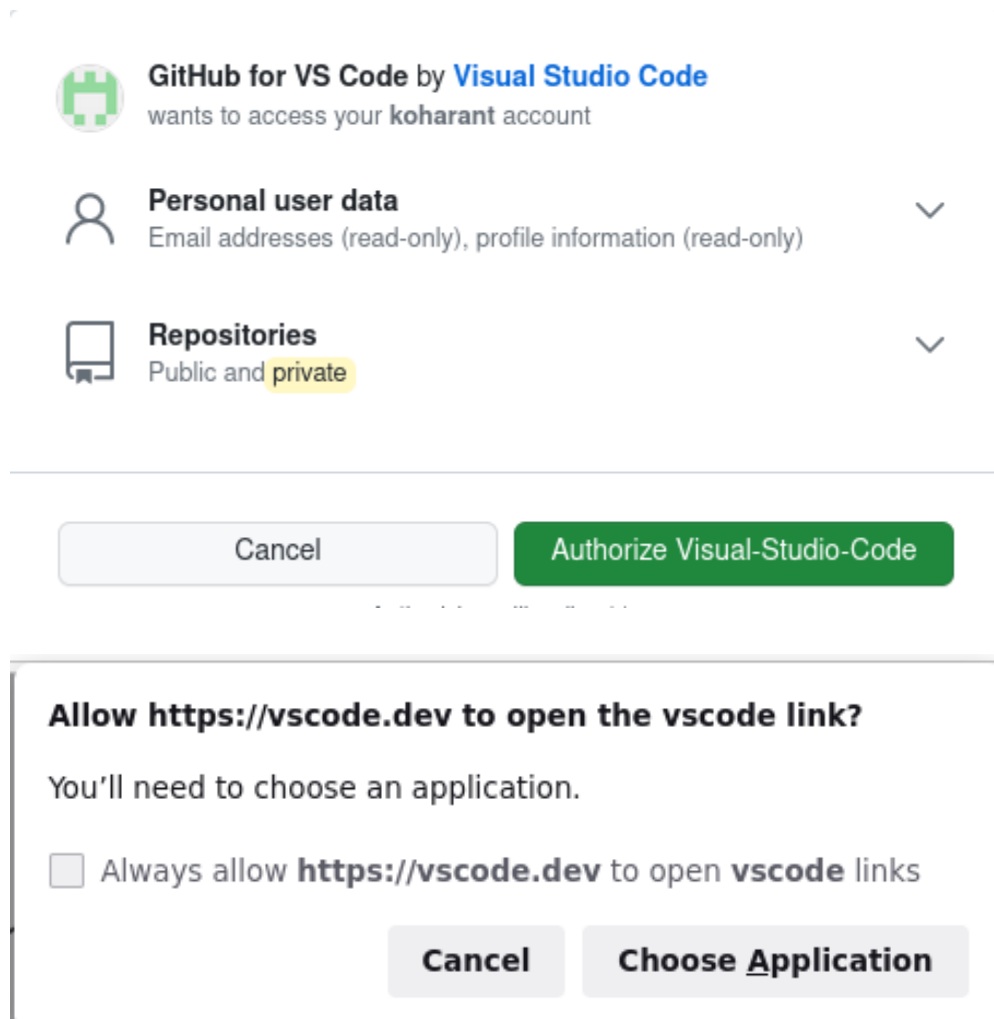
- Install VS Code and its GitHub Pull Requests-Issues extension to your computer.



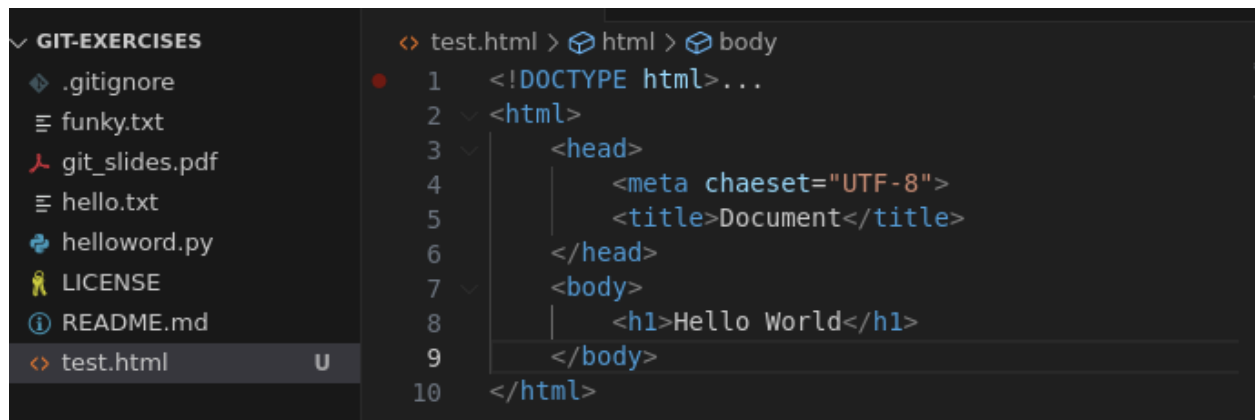
- Sign in GitHub using GitHub Pull Requests and Issues extension.



- Clone a remote repository to your computer.



- Create and add a new file to the local repository, then commit everything you have done so far.



- Push the commits to the remote repository.

```
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add test.html
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git commit -m "Commit"
[master cac647f] Commit
 1 file changed, 10 insertions(+)
 create mode 100644 test.html
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git push origin master
Username for 'https://github.com': khoadangtran
Password for 'https://khoadangtran@github.com':
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git push origin master
Username for 'https://github.com': koharant
Password for 'https://koharant@github.com':
Enumerating objects: 14, done.
Counting objects: 100% (14/14), done.
Delta compression using up to 2 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (12/12), 1.13 KiB | 387.00 KiB/s, done.
Total 12 (delta 6), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (6/6), completed with 1 local object.
To https://github.com/koharant/git-exercises.git
   ed26e8c..cac647f  master -> master
khoadangtran@khoadangtran-virtualbox:~/git-exercises$ git add test.html
```

(take screenshots to show that you finish this exercise)

---END---