Submission

For this assignment, you need to

- submit the screenshot for the final question to the Lab assignment 7 in Brightspace.
- submit the link to *your branch* to the Lab assignment 5b in Brightspace. (You will know what *your branch* is later in this lab assingment.)

Install Git

Follow instructions from this link to install Git.
Important note: (For Windows users), if asked during the installation, select the option that add git to the PATH environment so that you can use it from the command prompt.

In this lab assignment, you will be practicing fundamental git commands. For extensive usage of git, a graphical user interface (GUI) could be convenient. Source is here. Note that, we will not be using any GUI today.

Quick reference to git commands can be found from a cheatsheet. An example is from this link

Setup your Github account

You should by now have an account on Github. If not, please follow the instructions provided in brightspace.

PART 1 - WORK AS A GROUP

A Github repository for your group

For your group, pick an account (amongst yours), and create a repository named `TIL6010-LabAssignments`.
For the settings, use the following:

- Set the repository as Public.
- Select 'Add a README file'

Add collaborators

At your repository page, go to Settings. In the menu on the left, you will find Collaborators under Access. From there, invite your groupmates as collaborators for the repository

The other members need to accept invitations and should have access to the repository afterwards.

Clone the repository

Now, go to the main page of your repository (which is the `<> Code` page). You can notice that the repository has a branch main, a README.md file.
Now let's clone this repository to your local computer. Navigate to the `Code` button (highlighted in green) and click on that.

You will be provided with 3 different ways to clone a repository. Copy the link under HTTPS.
Now, open you terminal, change directory to location (in your computer) where you want to store the repository. (Use the `cd` command).
Clone the repository using the git clone command. Here is an example

```
git clone https://github.com/nguyenthientin/TIL6022-LabAssignments.git
```

If successful, you will have the folder TIL6022-LabAssignments created. Inside, there should be a README.md file.

Your first commit

Now, pick one member of the group,

- Open the README.md file, add some text (whatever you like), save and close the file.
- Create a folder named `Lab5`. Then create a file `lab5.txt` under this folder.

Question 1: What is the current status of the repository? A screenshot is sufficient enough.

Use `git status`

Question 2: Commit the changes you have made to the README.md file. For this, you need 2 steps.

First, stage the file using `git add`. Observe the status of the repository afterwards.

For example, to stage the file README.md: `git add README.md`.
If you want to add all files, use `git add .`

Second, commit the changes using `git commit`. Observe the status of the repository afterwards.
Usage as `git commit -m "message"`. A good `message` should describe the changes well.
An example: `git commit -m "updated README.md"`

```
Windows PowerShell                                                              —  □  ✕
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git add -A
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git add .
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git commit -m 'I have added some files'
[main 402a90f] I have added some files
 2 files changed, 3 insertions(+), 1 deletion(-)
 create mode 100644 Lab5/lab5.txt
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git log
commit 402a90f1c7ee0370a7d08c3f15faa0e41102c273 (HEAD -> main)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 20:39:16 2023 +0200

    I have added some files

commit 6f21222c5d6b4f11055ca726f657ab0e53dd1765 (origin/main, origin/HEAD)
Author: Eka Devi Wulandari <144311782+ewulandari@users.noreply.github.com>
Date:   Wed Sep 27 10:44:11 2023 +0200

    Initial commit
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git pull
remote: Enumerating objects: 6, done.
remote: Counting objects: 100% (6/6), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 6 (delta 0), reused 6 (delta 0), pack-reused 0
Unpacking objects: 100% (6/6), 494 bytes | 10.00 KiB/s, done.
From https://github.com/ewulandari/TIL6010-LabAssignments
 * [new branch]      master     -> origin/master
Already up to date.
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git push
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 381 bytes | 190.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/ewulandari/TIL6010-LabAssignments.git
   6f21222..402a90f  main -> main
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments>
```

Question 3: Show the commit tree of the repository. Take a screenshot of the output

Use `git log`

If you have not commit `lab5.txt`, please do so with similar steps.

```
Windows PowerShell                                                              —  □  ✕
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> git log
commit 402a90f1c7ee0370a7d08c3f15faa0e41102c273 (HEAD -> main)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 20:39:16 2023 +0200

    I have added some files

commit 6f21222c5d6b4f11055ca726f657ab0e53dd1765 (origin/main, origin/HEAD)
Author: Eka Devi Wulandari <144311782+ewulandari@users.noreply.github.com>
Date:   Wed Sep 27 10:44:11 2023 +0200

    Initial commit
```
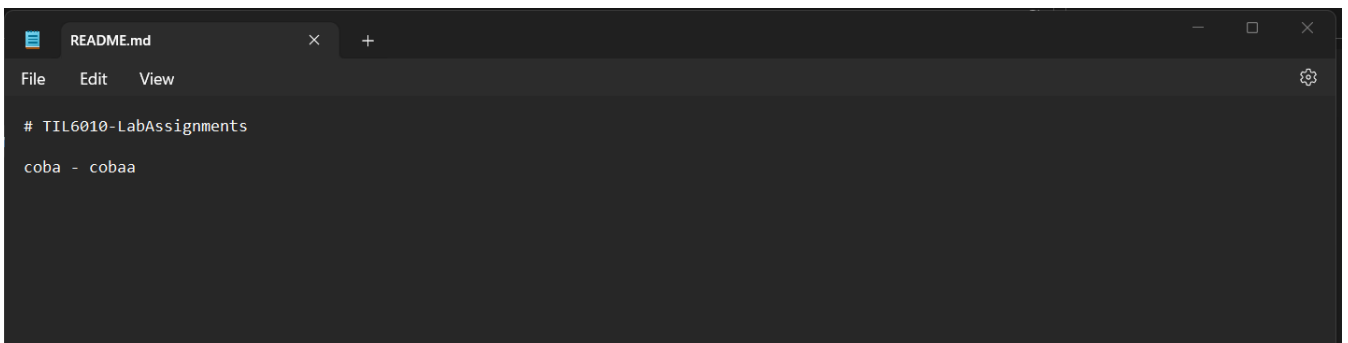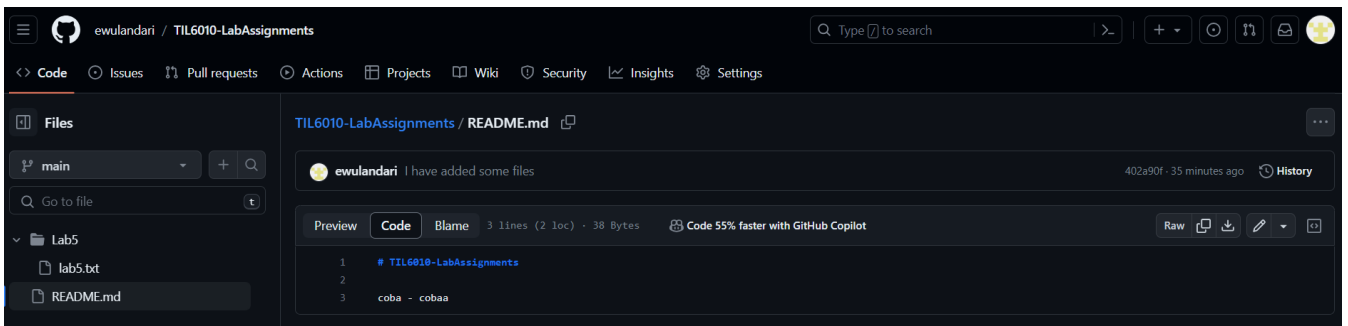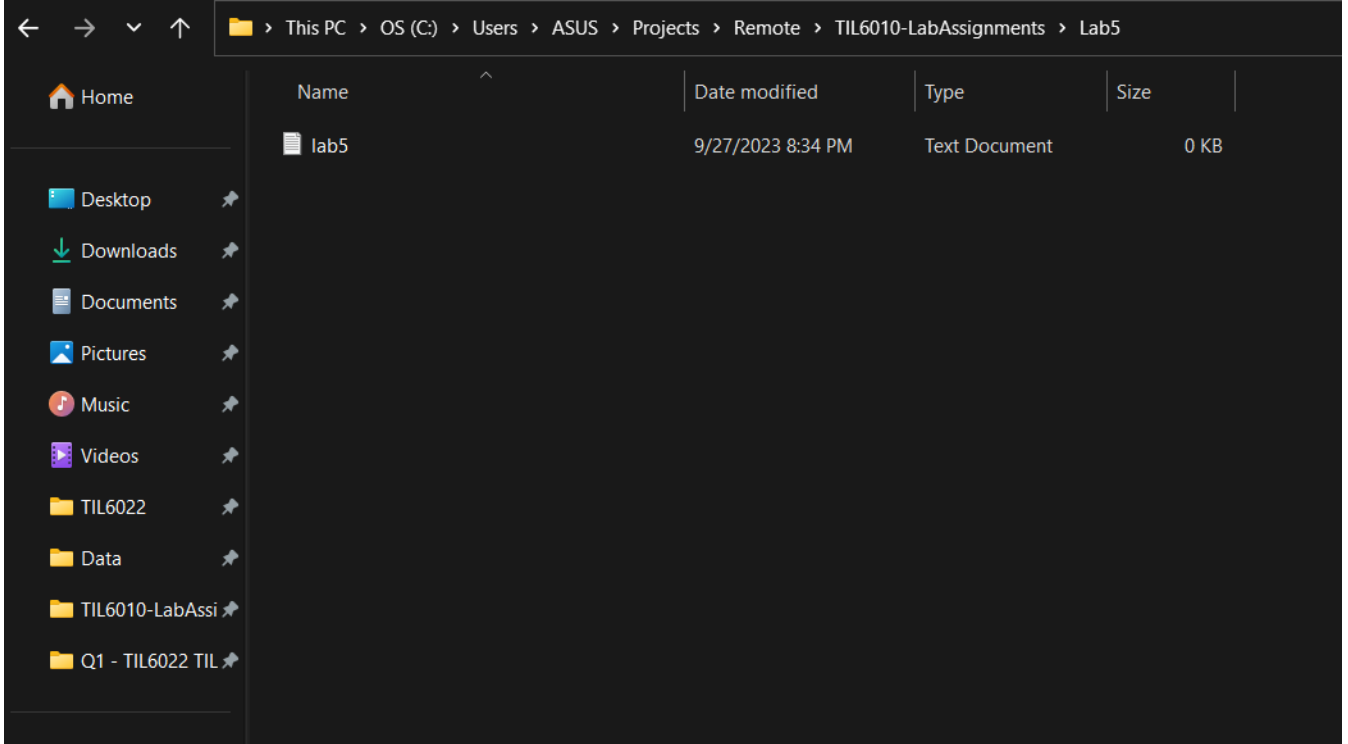
Update local changes to remote repository

Question 4: At the moment, do the local repository and the remote repository have the same content? (i.e. are the two README.md files the same?)

Before syncing any local changes, it's good practice to check if there are changes made to the remote repository. (We know that there has not been any for our case).

Run `git pull` to pull changes from the remote repository.

Then run `git push` to push local changes to the remote repository.

Authentication error

When running `git push` for the first time, you might be asked to enter username and password of your Github account.

In the newest policy of Github, account password cannot be used here. One alternative option is to create a Personal Access Token.

You can follow the instruction from Github official document to generate one token.

Afterwards, you should be able to push your code.

Now, other member of your groups can pull the update from the remote repository.

PART 2 - WORK INDIVIDUALLY

Branch

For each member, create a new branch `yourname_lab5` . Change `yourname` according to your name.
Usage `git checkout -b branchname` .
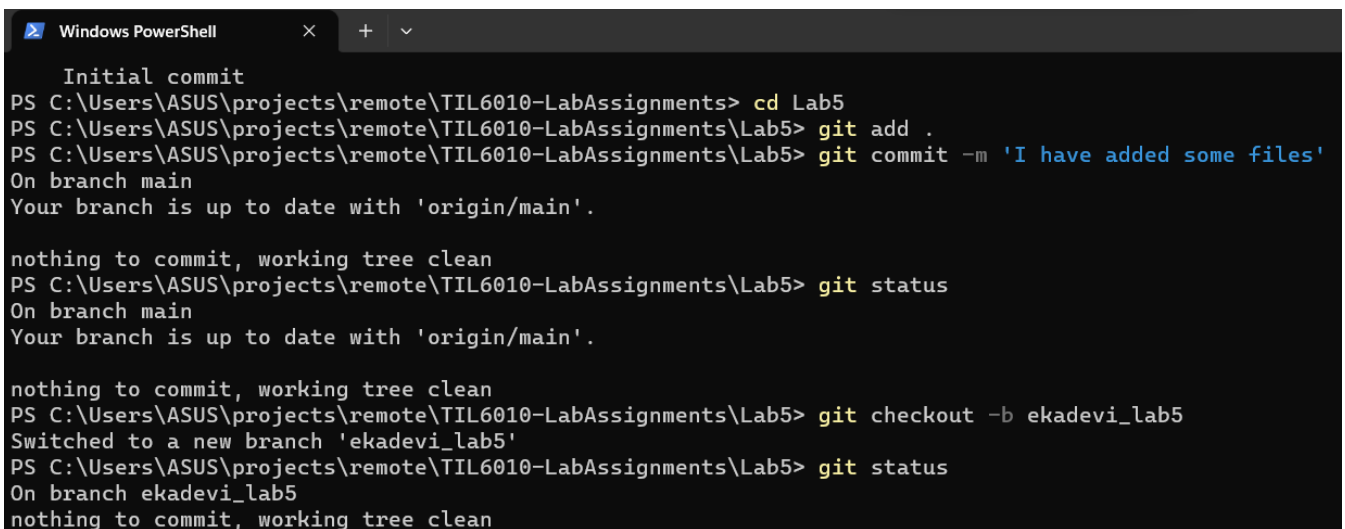Option `-b` will create a branch if it does not exist.
Example: `git checkout -b Peter_lab5`

Run git status to see if you are in the new branch

Question 5: Add and commit your work on Lab assignment 5 to the repository

- Create a folder under the `Lab5` folder. Name it as your student id.
- Put your Lab5 solutions (including all .ipynb, .html files) under the folder.
- Commit the changes

Run git log and observe the git tree

```
Windows PowerShell        ×    +   ∨

    Initial commit
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments> cd Lab5
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git add .
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git commit -m 'I have added some files'
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git checkout -b ekadevi_lab5
Switched to a new branch 'ekadevi_lab5'
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git status
On branch ekadevi_lab5
nothing to commit, working tree clean
```

Question 6: Push your branch to the remote repository

```
  ⏻ Windows PowerShell        ×    +   ∨

PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git checkout -b ekadevi_lab5
Switched to a new branch 'ekadevi_lab5'
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> git status
On branch ekadevi_lab5
nothing to commit, working tree clean
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5> cd 5912822
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git add .
warning: in the working copy of 'Lab5/5912822/versioningsystem-checkpoint.ipynb', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'Lab5/5912822/versioningsystem.ipynb', LF will be replaced by CRLF the next time Git touches it
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git commit -m 'Added some files'
[ekadevi_lab5 98baab4] Added some files
 2 files changed, 850 insertions(+)
 create mode 100644 Lab5/5912822/versioningsystem-checkpoint.ipynb
 create mode 100644 Lab5/5912822/versioningsystem.ipynb
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git pull
From https://github.com/ewulandari/TIL6010-LabAssignments
 * [new branch]      ekadevi_lab5 -> origin/ekadevi_lab5
There is no tracking information for the current branch.
Please specify which branch you want to merge with.
See git-pull(1) for details.

    git pull <remote> <branch>

If you wish to set tracking information for this branch you can do so with:

    git branch --set-upstream-to=origin/<branch> ekadevi_lab5

PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git push
fatal: The current branch ekadevi_lab5 has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin ekadevi_lab5

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.

PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git log
commit 98baab4caaf6b6fca4e6bb72f2dcc7ebd8474f10 (HEAD -> ekadevi_lab5)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 22:04:32 2023 +0200
```

Question 7: Merge your branch with the main branch.

- Checkout to the `main` branch
- Merge your lab5 branch with the main branch
- Run git log to observe changes in the git tree

```
 Windows PowerShell          X    +    ✓                                                    ─

PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git push --set-upstream origin ekadevi_lab5
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 313.86 KiB | 7.13 MiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/ewulandari/TIL6010-LabAssignments.git
   402a90f..98baab4  ekadevi_lab5 -> ekadevi_lab5
branch 'ekadevi_lab5' set up to track 'origin/ekadevi_lab5'.
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git pull
Already up to date.
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git push
Everything up-to-date
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git log
commit 98baab4caaf6b6fca4e6bb72f2dcc7ebd8474f10 (HEAD -> ekadevi_lab5, origin/ekadevi_lab5)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 22:04:32 2023 +0200

    Added some files

commit 402a90f1c7ee0370a7d08c3f15faa0e41102c273 (origin/main, origin/HEAD, main)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 20:39:16 2023 +0200

    I have added some files

commit 6f21222c5d6b4f11055ca726f657ab0e53dd1765
Author: Eka Devi Wulandari <144311782+ewulandari@users.noreply.github.com>
Date:   Wed Sep 27 10:44:11 2023 +0200

    Initial commit
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git checkout -b ekadevi_lab5
fatal: a branch named 'ekadevi_lab5' already exists
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git checkout ekadevi_lab5
Already on 'ekadevi_lab5'
Your branch is up to date with 'origin/ekadevi_lab5'.
PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> git status
On branch ekadevi_lab5
Your branch is up to date with 'origin/ekadevi_lab5'.
```

Question 8: Push your Lab 5 to the remote repository.

```
 Windows PowerShell          X    +    ✓

PS C:\Users\ASUS\projects\remote\TIL6010-LabAssignments\Lab5\5912822> cd \Users\ASUS\Projects\Remote\TIL6010-LabAssignments
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git merge Lab5
merge: Lab5 - not something we can merge
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git merge ekadevi_lab5
Updating 402a90f..98baab4
Fast-forward
 Lab5/5912822/versioningsystem-checkpoint.ipynb | 425 ++++++++++++++++++++++++++++
 Lab5/5912822/versioningsystem.ipynb            | 425 ++++++++++++++++++++++++++++
 2 files changed, 850 insertions(+)
 create mode 100644 Lab5/5912822/versioningsystem-checkpoint.ipynb
 create mode 100644 Lab5/5912822/versioningsystem.ipynb
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git log
commit 98baab4caaf6b6fca4e6bb72f2dcc7ebd8474f10 (HEAD -> main, origin/ekadevi_lab5, ekadevi_lab5)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 22:04:32 2023 +0200

    Added some files

commit 402a90f1c7ee0370a7d08c3f15faa0e41102c273 (origin/main, origin/HEAD)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 20:39:16 2023 +0200

    I have added some files

commit 6f21222c5d6b4f11055ca726f657ab0e53dd1765
Author: Eka Devi Wulandari <144311782+ewulandari@users.noreply.github.com>
Date:   Wed Sep 27 10:44:11 2023 +0200

    Initial commit
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git pull
Already up to date.
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git push
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/ewulandari/TIL6010-LabAssignments.git
   402a90f..98baab4  main -> main
```

Final question: Run git log, take a screenshot, and put it below this cell

```
PS C:\Users\ASUS\Projects\Remote\TIL6010-LabAssignments> git log
commit 98baab4caaf6b6fca4e6bb72f2dcc7ebd8474f10 (HEAD -> main, origin/main, origin/ekadevi_lab5, origin/HEAD, ekadevi_lab5)
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 22:04:32 2023 +0200

    Added some files

commit 402a90f1c7ee0370a7d08c3f15faa0e41102c273
Author: ewulandari <E.D.Wulandari@student.tudelft.nl>
Date:   Wed Sep 27 20:39:16 2023 +0200

    I have added some files

commit 6f21222c5d6b4f11055ca726f657ab0e53dd1765
Author: Eka Devi Wulandari <144311782+ewulandari@users.noreply.github.com>
Date:   Wed Sep 27 10:44:11 2023 +0200
```

Try to recreate similar repository for your project