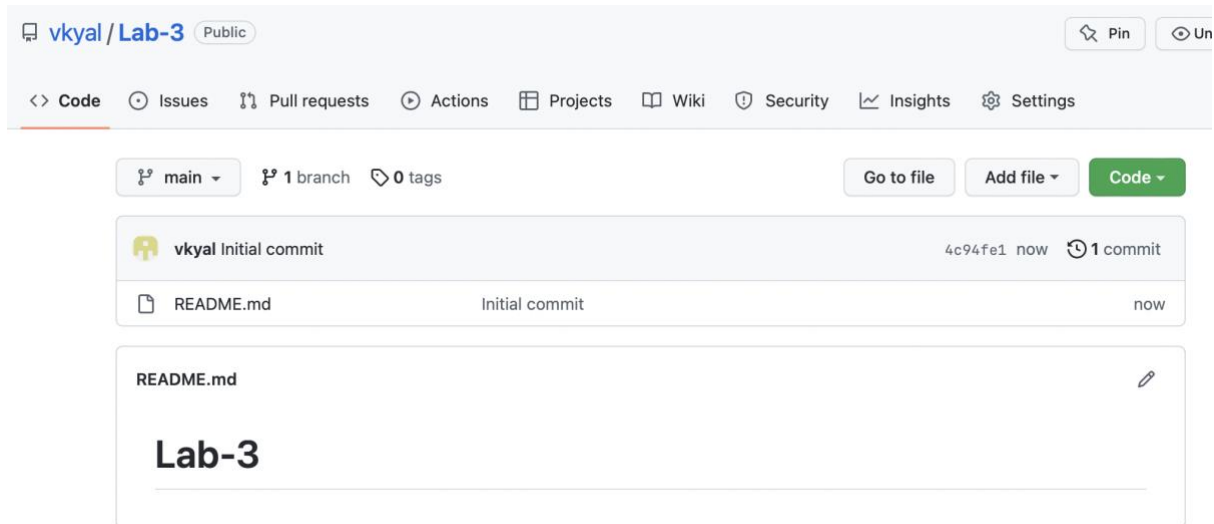# GitHub Version Control

Question 1 (6 marks): Often, it makes sense to create a branch of a repository to work on that is separate from the original codebase. Write the commands into a text file or take screenshots as you perform the following actions to create a Git branch:

1. Clone your Lab 3 repository to your local machine (1 mark)


```
(base) varshitakyal@Varshitas-MacBook-Air Data 541 % git clone https://github.com/vkyal/Lab-3.git
Cloning into 'Lab-3'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
(base) varshitakyal@Varshitas-MacBook-Air Data 541 %
```

2. Navigate into the cloned repository folder

```
[(base) varshitakyal@Varshitas-MacBook-Air Data 541 % cd "Lab-3"
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % pwd
/Users/varshitakyal/Documents/Block 1/Data 541/Lab-3
(base) varshitakyal@Varshitas-MacBook-Air Lab-3 %
```

3. Create a new Git branch called **Markdown** (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git branch Markdown
```

4. Use checkout to move to the **Markdown** branch. You may use the -b flag to create and checkout a branch at the same time. (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git checkout Markdown
 Switched to branch 'Markdown'
 (base) varshitakyal@Varshitas-MacBook-Air Lab-3 %
```

5. Check the status of the current repository and confirm you are on the **Markdown** branch (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git status
On branch Markdown
nothing to commit, working tree clean
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git branch
* Markdown
  main
 (base) varshitakyal@Varshitas-MacBook-Air Lab-3 %
```
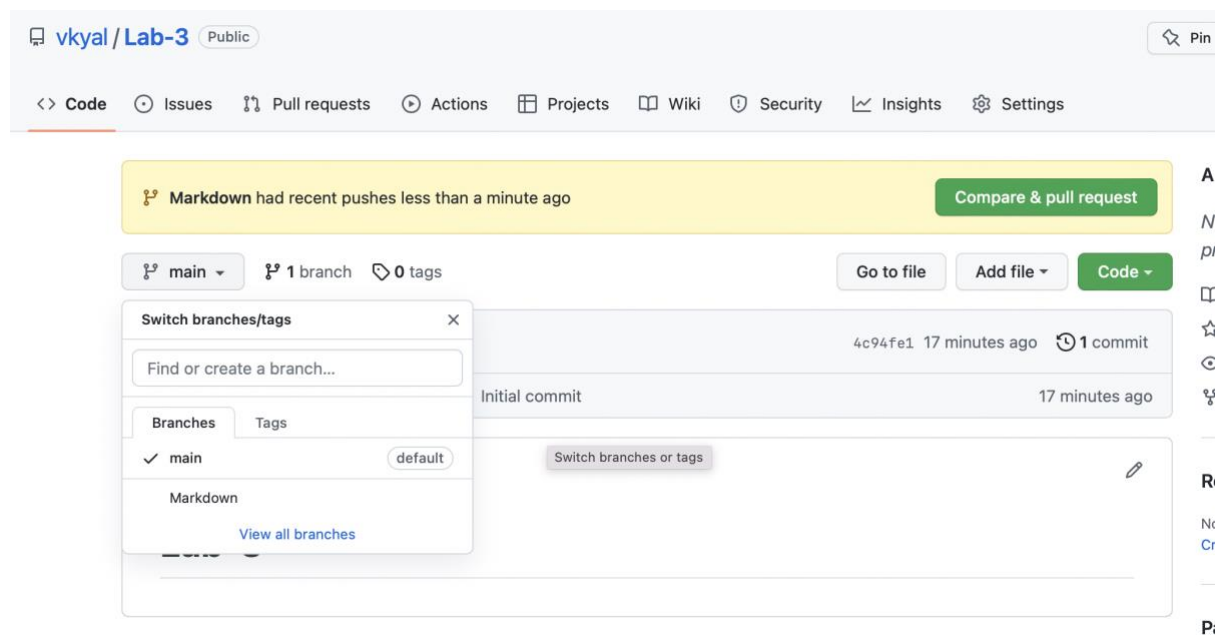
6. Add and commit your lab3_q1.md and lab3_q2.md files to the current branch. (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git add "lab3_q1.md"
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git add "lab3_q2.md"
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git commit -m "Committed"
 [Markdown 7251cf0] Committed
  2 files changed, 91 insertions(+)
  create mode 100644 lab3_q1.md
  create mode 100644 lab3_q2.md
 (base) varshitakyal@Varshitas-MacBook-Air Lab-3 %
```

7. Use the push command with the following flags -u origin Markdown to push the **Markdown** branch to GitHub. (1 mark)

```
(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git push -u origin Markdown
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 1.67 KiB | 1.67 MiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'Markdown' on GitHub by visiting:
remote:      https://github.com/vkyal/Lab-3/pull/new/Markdown
remote:
To https://github.com/vkyal/Lab-3.git
 * [new branch]      Markdown -> Markdown
branch 'Markdown' set up to track 'origin/Markdown'.
(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % 
```

8. On GitHub, you should see the **Markdown** branch in the Branch dropdown:

Question 2 (4 marks): Once the desired work has been completed on a branch, you can then merge that branch into the **master** branch. Write the commands into the same text file as before, or take screenshots as you perform the following Git merge:

1. Use checkout to move back to the master branch of your Git repository. (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git checkout main
 Switched to branch 'main'
 Your branch is up to date with 'origin/main'.
 (base) varshitakyal@Varshitas-MacBook-Air Lab-3 %
```

2. Merge your **Markdown** branch into your **master** branch. The syntax for the merge command is git merge branchName. (1 mark)
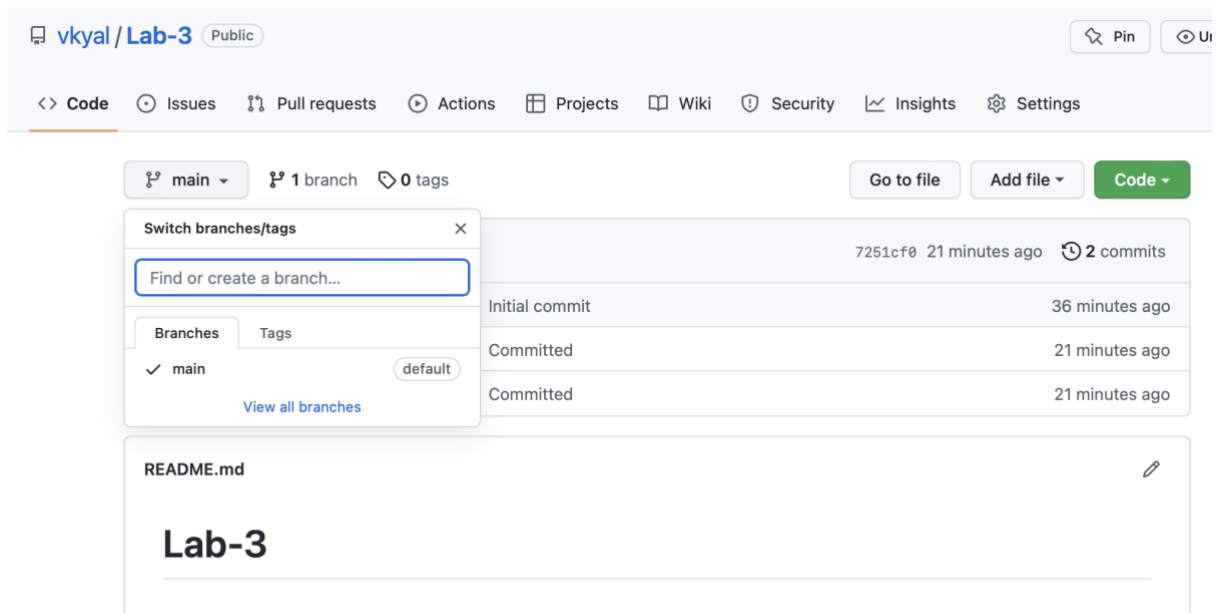
```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git merge Markdown
 Updating 4c94fe1..7251cf0
 Fast-forward
  lab3_q1.md | 58 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++
  lab3_q2.md | 33 +++++++++++++++++++++++++++++++++
  2 files changed, 91 insertions(+)
  create mode 100644 lab3_q1.md
  create mode 100644 lab3_q2.md
```

3. Perform a push to push the merge up to GitHub.

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git push
 Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
 To https://github.com/vkyal/Lab-3.git
    4c94fe1..7251cf0  main -> main
```

4. Delete your **Markdown** branch - now that it is merged, it is no longer necessary. (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git branch -d Markdown
 Deleted branch Markdown (was 7251cf0).
```

5. Use the git log function to print a short log of your actions. If the -oneline flag doesn't work, try using --pretty=oneline instead. Take a screenshot of the output. (1 mark)

```
[(base) varshitakyal@Varshitas-MacBook-Air Lab-3 % git log --oneline
7251cf0 (HEAD -> main, origin/main, origin/Markdown, origin/HEAD) Committed
4c94fe1 Initial commit
```

6. Add and commit your text files with your commands and/or screenshot(s) to the **master** branch of your lab repo and push. Your lab repo **master** branch should now contain your Markdown files from Part 1 of this lab, plus your text files and screenshots from Part 2. Submit the link to your repo on Canvas.