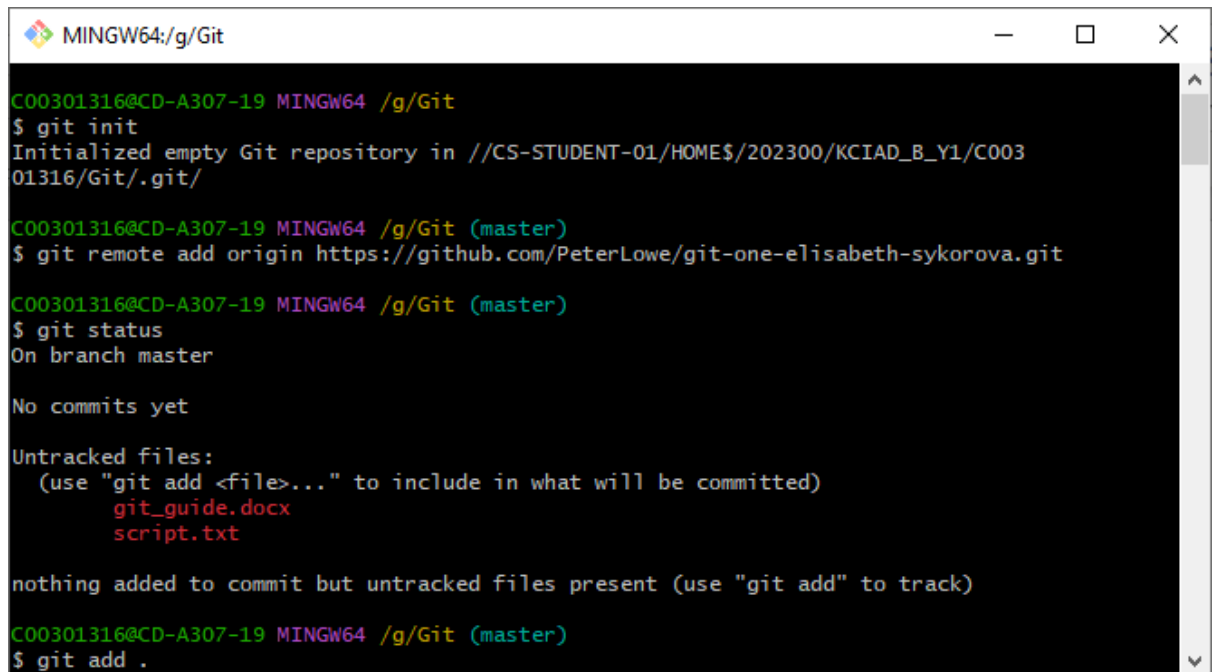


Git Guide

By Elisabeth Sykorova

1. Init

- Creates a new empty repository locally (.git). An initial branch without any commits will be created.



```
MINGW64:/g/Git
C00301316@CD-A307-19 MINGW64 /g/Git
$ git init
Initialized empty Git repository in //CS-STUDENT-01/HOME$/202300/KCIAD_B_Y1/C00301316/Git/.git/

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git remote add origin https://github.com/PeterLowe/git-one-elisabeth-sykorova.git

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    git_guide.docx
    script.txt

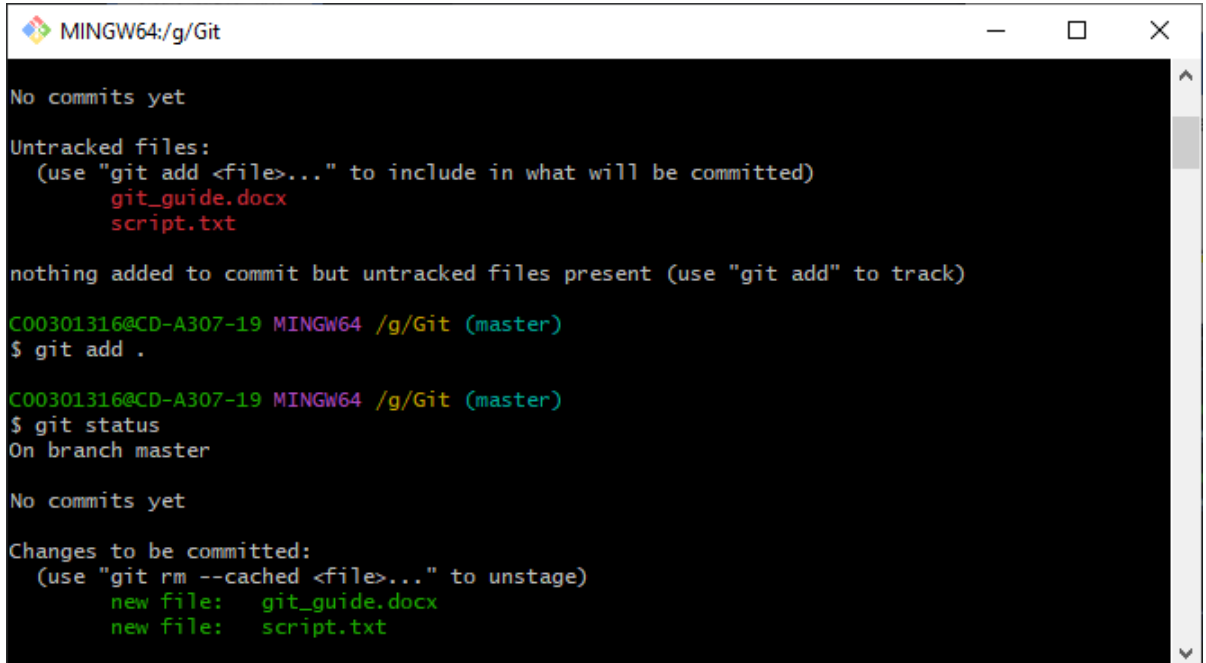
nothing added to commit but untracked files present (use "git add" to track)

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git add .
```

- Format: git init

2. Add

- Used to update the index using the current content found in the working tree. It prepares the content staged for the next commit. It can either add all files in the path or specifically chosen files. Can be performed multiple times before commit.

A screenshot of a terminal window titled 'MINGW64:/g/Git'. The terminal shows the output of 'git status' indicating untracked files 'git_guide.docx' and 'script.txt'. It then shows the command '\$ git add .' being executed, followed by another 'git status' command which shows the files are now staged for commit.

```
MINGW64:/g/Git

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        git_guide.docx
        script.txt

nothing added to commit but untracked files present (use "git add" to track)

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git add .

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   git_guide.docx
        new file:   script.txt
```

- Format: git add .
- To add specific files -> git add filename/pattern

3. Status

- Lists files modified in the working area, added files in staging area and current branch

```
MINGW64:/g/Git
Delta compression using up to 16 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 26.26 KiB | 6.56 MiB/s, done.
Total 4 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/PeterLowe/git-one-elisabeth-sykorova.git
6c01207..b4cc0da master -> master

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

nothing to commit, working tree clean

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ |
```

```
MINGW64:/g/Git
$ git push -u origin master
remote: Repository not found.
fatal: repository 'https://github.com/PeterLowe/git-one-elisabeth-sykorova.git/' not found

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   git_guide.docx

no changes added to commit (use "git add" and/or "git commit -a")

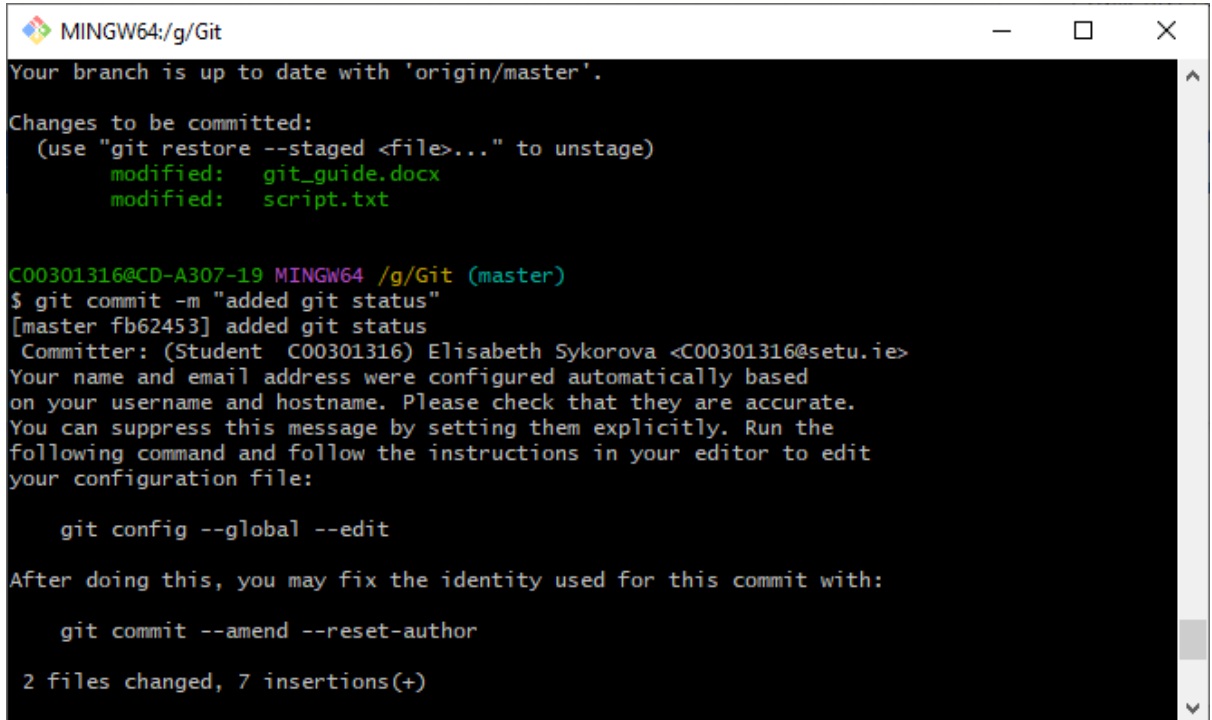
C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git add .

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   git_guide.docx
    modified:   script.txt
```

- Format: git status

4. Commit

- Records changes to the repository (=snapshot/backup). Creates a new commit containing the current contents of the index (created by add) and the given log message describing the changes (comments in “”).

A screenshot of a MINGW64 terminal window titled "MINGW64:/g/Git". The terminal shows the output of a git commit command. It starts with "Your branch is up to date with 'origin/master'." followed by "Changes to be committed:" and a list of modified files: "git_guide.docx" and "script.txt". Then, the command "\$ git commit -m 'added git status'" is executed, resulting in "[master fb62453] added git status". The terminal also displays the commit message and the committer's information: "Committer: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>". It then shows instructions on how to suppress this message and how to fix the identity used for this commit. Finally, it displays "2 files changed, 7 insertions(+)" at the bottom.

```
MINGW64:/g/Git
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   git_guide.docx
        modified:   script.txt

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git commit -m "added git status"
[master fb62453] added git status
Committer: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>
Your name and email address were configured automatically based
on your username and hostname. Please check that they are accurate.
You can suppress this message by setting them explicitly. Run the
following command and follow the instructions in your editor to edit
your configuration file:

    git config --global --edit

After doing this, you may fix the identity used for this commit with:

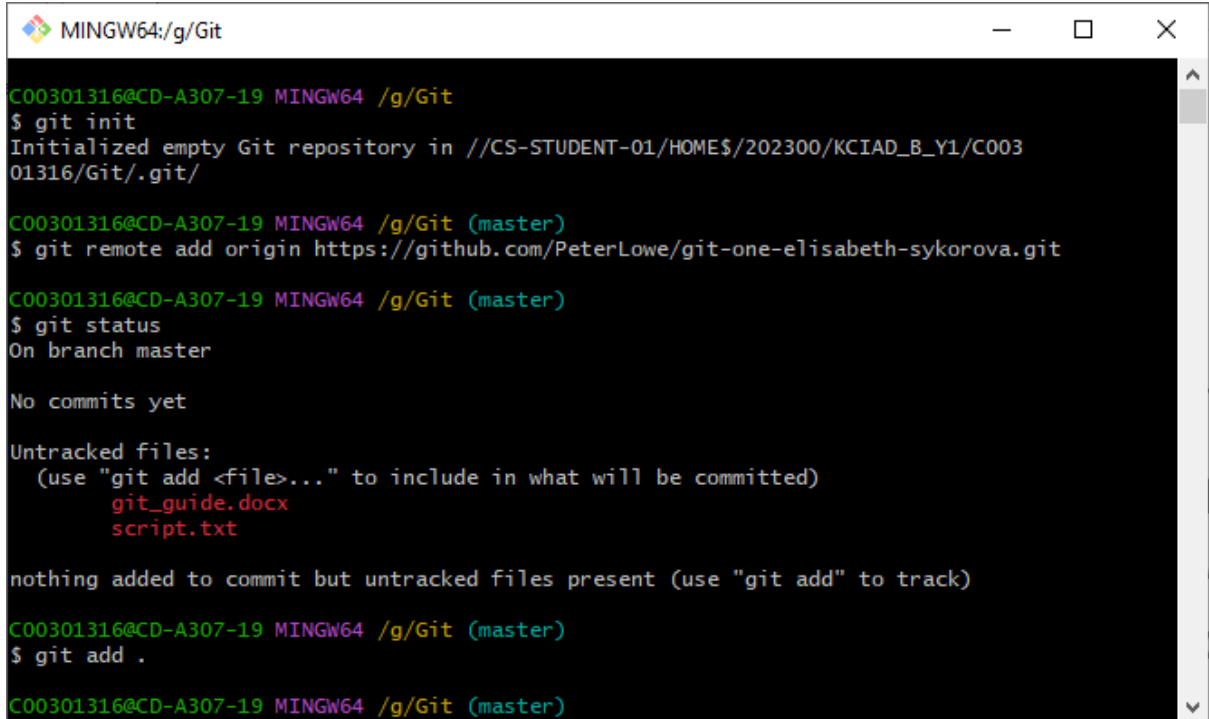
    git commit --amend --reset-author

2 files changed, 7 insertions(+)
```

- Format: `git commit -m "comment"`
- To enter editor mode for multiline comments -> `git commit`

5. Remote

- Manages set of tracked repositories, used to clone repositories. Includes many different commands.



```
C00301316@CD-A307-19 MINGW64 /g/Git
$ git init
Initialized empty Git repository in //CS-STUDENT-01/HOME$/202300/KCIAD_B_Y1/C00301316/Git/.git/

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git remote add origin https://github.com/PeterLowe/git-one-elisabeth-sykorova.git

C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git status
On branch master

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        git_guide.docx
        script.txt

nothing added to commit but untracked files present (use "git add" to track)

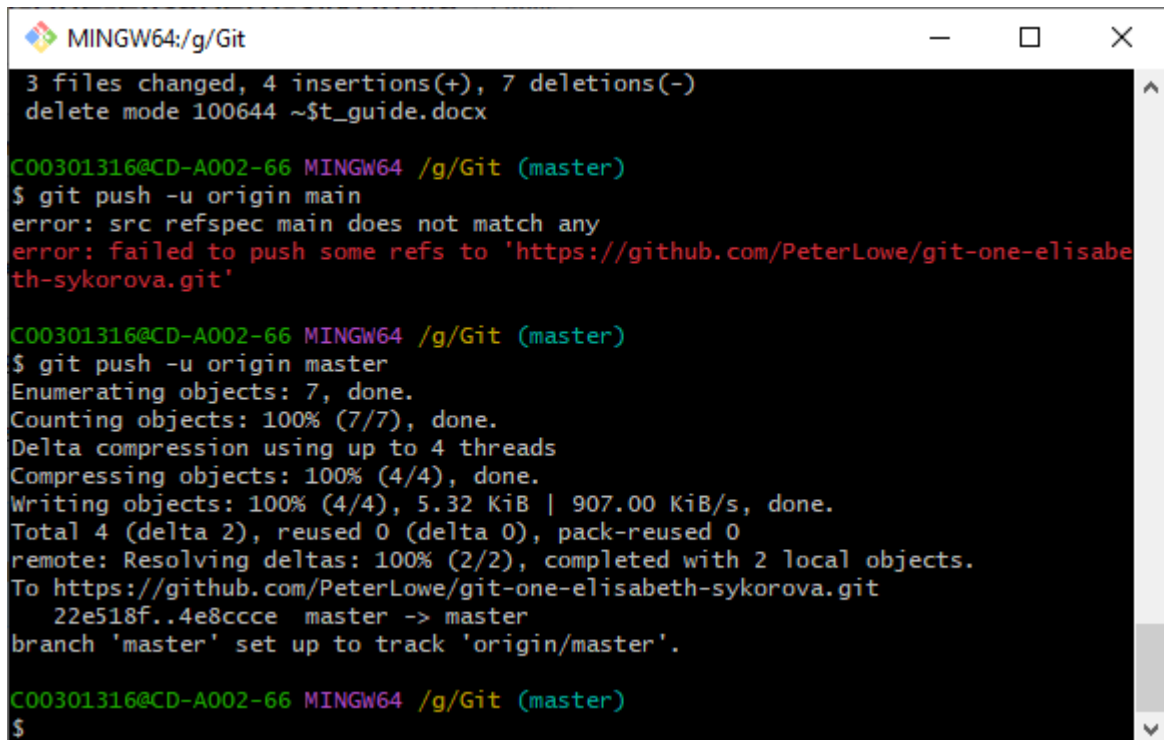
C00301316@CD-A307-19 MINGW64 /g/Git (master)
$ git add .

C00301316@CD-A307-19 MINGW64 /g/Git (master)
```

- Format: git remote ...
- Different uses -> add, rename, remove, set-head, set-branches,...

6. Push

- Used to upload local commits to a remote.



```
MINGW64:/g/Git
3 files changed, 4 insertions(+), 7 deletions(-)
delete mode 100644 ~$t_guide.docx

C00301316@CD-A002-66 MINGW64 /g/Git (master)
$ git push -u origin main
error: src refspec main does not match any
error: failed to push some refs to 'https://github.com/PeterLowe/git-one-elisabeth-sykorova.git'

C00301316@CD-A002-66 MINGW64 /g/Git (master)
$ git push -u origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 5.32 KiB | 907.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/PeterLowe/git-one-elisabeth-sykorova.git
   22e518f..4e8ccce master -> master
branch 'master' set up to track 'origin/master'.

C00301316@CD-A002-66 MINGW64 /g/Git (master)
$
```

- Format: git push -u origin master (depending on what the branch name changes to)

7. Branch

- Used to list, create, or delete branches. Creates a new branch in the local repository that can be worked on separately from the main branch and later merged.

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git branch test_branch

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git switch test_branch
Switched to branch 'test_branch'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$ git checkout master
Switched to branch 'master'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git checkout test_branch
Switched to branch 'test_branch'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$ git status
On branch test_branch
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    ~$t_guide.docx

nothing added to commit but untracked files present (use "git add" to track)

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$
```

- Format: `git branch new_branch_name`
- To list all branches in repository: `git branch -a/-l/-r`

8. Checkout

- Makes chosen node the current HEAD – switches branches or restores working tree files. Updates files in the working tree to match the version in the index or the specified tree.

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git pull origin master
warning: redirecting to https://github.com/PeterLowe/git-one-elisabeth-sykorova/
From http://github.com/PeterLowe/git-one-elisabeth-sykorova
* branch          master       -> FETCH_HEAD

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git branch test_branch

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git switch test_branch
Switched to branch 'test_branch'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$ git checkout master
Switched to branch 'master'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git checkout test_branch
Switched to branch 'test_branch'
```

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$ git checkout master
Switched to branch 'master'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git merge test_branch
Updating b13865a..aee0553
Fast-forward
 git_guide.docx | Bin 225630 -> 307264 bytes
  script.txt    |   6 ++++++
 2 files changed, 6 insertions(+)
```

- Format: git checkout branch_name/commit_name

9. Merge

- Used to merge target branch into current branch (allows to join two or more development branches together). To update main branch, you have to first switch into it.

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (test_branch)
$ git checkout master
Switched to branch 'master'

elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git merge test_branch
Updating b13865a..aee0553
Fast-forward
 git_guide.docx | Bin 225630 -> 307264 bytes
 script.txt     |   6 ++++++
 2 files changed, 6 insertions(+)
```

- Format: git merge branch_name (of a branch that is the further one)
- To merge head with master -> git merge master

10. Log

- Shows the history of reachable commits in the terminal, can be altered using special arguments.

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git log
commit 76f9920ac76e61ed2b7c3b4a7d5b3f6d6a082711 (HEAD -> master, origin/master)
Author: Elisabeth Sykorova <c00301316@setu.ie>
Date: Mon Oct 23 18:49:46 2023 +0100

    added git merge

commit 78b629560487ecaaf1bf0c411ecbb3e0f9ddc013
Author: Elisabeth Sykorova <c00301316@setu.ie>
Date: Mon Oct 23 18:22:33 2023 +0100

    added git checkout

commit aee0553352305adde09e047a827921309e7b993d (test_branch)
Author: Elisabeth Sykorova <c00301316@setu.ie>
Date: Mon Oct 23 17:52:02 2023 +0100

    added branch

commit b13865a0e8fcf38bf23a4bfd51c51951ac444917
Author: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>
Date: Mon Oct 23 15:08:10 2023 +0100

    added git push
```

```
elisy@gio MINGW64 ~/OneDrive/Plocha/Uni/git (master)
$ git log --decorate --all --graph
* commit aee0553352305adde09e047a827921309e7b993d (HEAD -> master, test_branch)
| Author: Elisabeth Sykorova <c00301316@setu.ie>
| Date: Mon Oct 23 17:52:02 2023 +0100
|
|     added branch
|
| * commit b13865a0e8fcf38bf23a4bfd51c51951ac444917 (origin/master)
| | Author: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>
| | Date: Mon Oct 23 15:08:10 2023 +0100
| |
| |     added git push
| |
| * commit 4e8ccce36adfa3db8e28729dad1743caeabb4321
| | Author: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>
| | Date: Mon Oct 23 15:04:08 2023 +0100
| |
| |     edited small edits
| |
| * commit 22e518f6b548a9e0a222e08f9238270144e44bac
| | Author: (Student C00301316) Elisabeth Sykorova <C00301316@setu.ie>
| | Date: Mon Oct 23 14:59:47 2023 +0100
| |
| |     small edits, test for push example
| |
|_
```

- Format: git log
- Controlled by <space> or arrows to scroll, <q> to quit
- Altered files and the number of changed lines -> git log --stat
- Drawn branch paths -> git log --graph