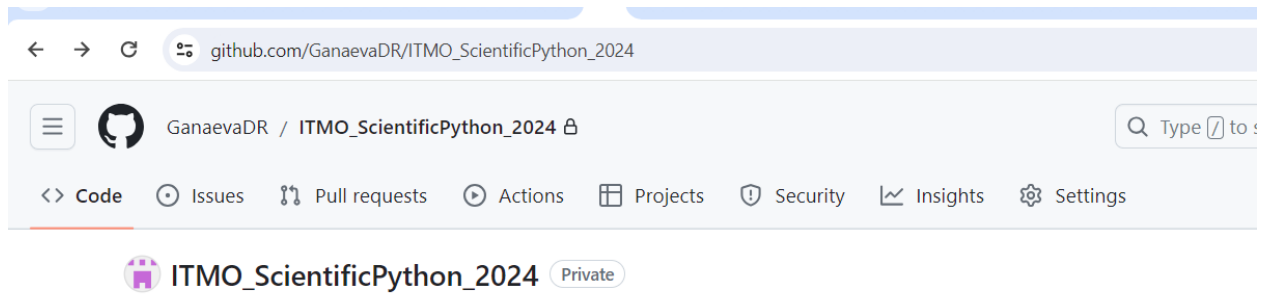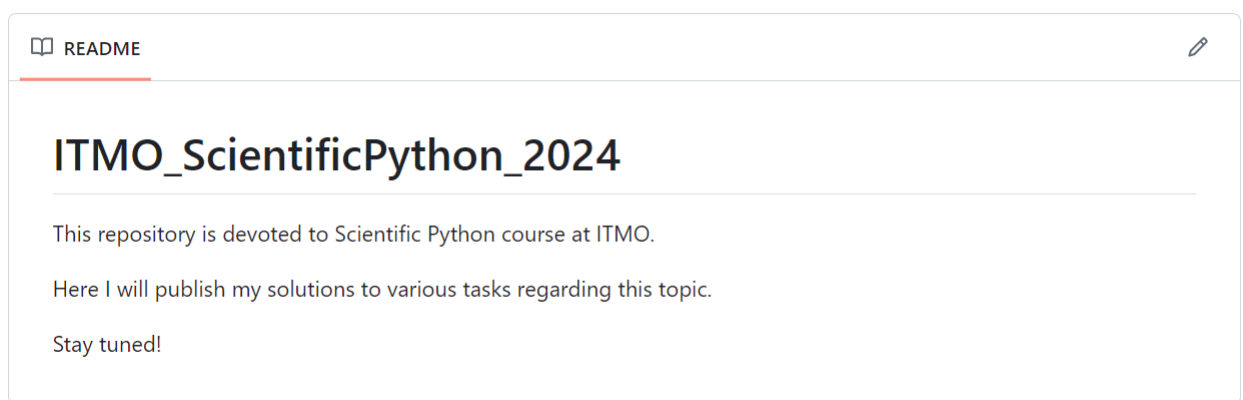**Report on HW1**

First of all, I created a GitHub account and created a repository:



I also added a README description of what this repository is about:



Then I installed git to my local machine and finished personal settings by establishing my name and email. Then it looked like that:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~
$ 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/etc/ssl/certs/ca-bundle.crt
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
user.name=Daria Ganaeva
user.email=ganaeva.dasha@gmail.com
```

I also created a folder "git_project" and initialized the work here, as well as cloned repository from GitHub:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python
$ mkdir git_project

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python
$ cd git_project/

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project
$ git init
Initialized empty Git repository in C:/Users/Dasha/Desktop/masters/2nd semester/
Scientific_Python/git_project/.git/

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project (master)
$ git clone https://github.com/GanaevaDR/ITMO_ScientificPython_2024
Cloning into 'ITMO_ScientificPython_2024'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (5/5), done.
remote: Total 9 (delta 1), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (9/9), done.
Resolving deltas: 100% (1/1), done.
```

After that I settled the remote:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project (master)
$ ls
ITMO_ScientificPython_2024/

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project (master)
$ cd ITMO_ScientificPython_2024/

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (master)
$ git remote
origin

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (master)
$ git remote show origin
* remote origin
  Fetch URL: https://github.com/GanaevaDR/ITMO_ScientificPython_2024
  Push  URL: https://github.com/GanaevaDR/ITMO_ScientificPython_2024
  HEAD branch: master
  Remote branch:
    master tracked
  Local branch configured for 'git pull':
    master merges with remote master
  Local ref configured for 'git push':
    master pushes to master (up to date)
```

Then I moved to creating a branch and filling it with files, adding, committing and pushing them:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (master)
$ git branch HW1

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (master)
$ mkdir HW1
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git add HW1

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ nano hw1.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git add hw1.txt
```

```
$ git add hw1.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ nano test_revert.txt
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git add test_revert.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ nano git_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git add git_revert_merge.txt
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git status
On branch HW1
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   git_revert_merge.txt
        new file:   hw1.txt
        new file:   test_revert.txt
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git commit -m 'Added 3 files for HW1'
[HW1 f72d290] Added 3 files for HW1
 3 files changed, 3 insertions(+)
 create mode 100644 git_revert_merge.txt
 create mode 100644 hw1.txt
 create mode 100644 test_revert.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git status
On branch HW1
nothing to commit, working tree clean
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024 HW1
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 480 bytes | 480.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'HW1' on GitHub by visiting:
remote:         https://github.com/GanaevaDR/ITMO_ScientificPython_2024/pull/new/HW
1
remote:
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024
 * [new branch]      HW1 -> HW1
branch 'HW1' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython
_2024/HW1'.
```

However, then I realized that I: a) created files not in HW1 directory; 2) Wrongly named one file.

So, I had to fix this:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ ls
HW1/  README.md  git_revert_merge.txt  hw1.txt  test_revert.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git mv *txt HW1

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git commit -m "Moved files to HW1 directory"
[HW1 88b33b8] Moved files to HW1 directory
 3 files changed, 0 insertions(+), 0 deletions(-)
 rename git_revert_merge.txt => HW1/git_revert_merge.txt (100%)
 rename hw1.txt => HW1/hw1.txt (100%)
 rename test_revert.txt => HW1/test_revert.txt (100%)

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git status
On branch HW1
nothing to commit, working tree clean

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024 HW1
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 403 bytes | 403.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024
   f72d290..88b33b8  HW1 -> HW1
branch 'HW1' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython
_2024/HW1'.
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git mv git_revert_merge.txt test_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git add test_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git commit -m "changed the name of one file"
[HW1 93c8b63] changed the name of one file
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename HW1/{git_revert_merge.txt => test_revert_merge.txt} (100%)

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024 HW1
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 328 bytes | 328.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024
   dbd1201..93c8b63  HW1 -> HW1
branch 'HW1' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython_2024/HW1'.
```

Then I created testing branch:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/g
it_project/ITMO_ScientificPython_2024 (HW1)
$ git branch testing
```

Then I changed hw1.txt file:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ nano hw1.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git add hw1.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git commit -m "Modified hw1.txt file"
[HW1 dbd1201] Modified hw1.txt file
 1 file changed, 1 insertion(+)

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024 HW1
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 438 bytes | 438.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024
   88b33b8..dbd1201  HW1 -> HW1
branch 'HW1' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython_2024/HW1'.
```

Then I checkout to testing branch and modified test_revert.txt file:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git checkout testing
Switched to branch 'testing'

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ nano test_revert.txt
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git commit -m "changed one file"
[testing f52282e] changed one file
 1 file changed, 1 insertion(+)
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024 testing
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (7/7), 723 bytes | 723.00 KiB/s, done.
Total 7 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 1 local object.
remote:
remote: Create a pull request for 'testing' on GitHub by visiting:
remote:      https://github.com/GanaevaDR/ITMO_ScientificPython_2024/pull/new/testing
remote:
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024
 * [new branch]      testing -> testing
branch 'testing' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython_2024/testing'.
```

Then I moved to merging two branches:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git checkout HW1
Switched to branch 'HW1'
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git merge testing
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024/ HW1
```

For reverting changes, I used the following command:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scient
ficPython_2024/HW1 (HW1)
$ git revert -m 1 HEAD
[HW1 e42e290] Revert "updating files in HW-2"
 2 files changed, 7 deletions(-)
```

Then I went back to testing branch and made changes in test_revert_merge.txt:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git checkout testing
Already on 'testing'

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ nano test_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git add test_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git commit -m "modified the file test_revert_merge.txt"
[testing 6b9e1af] modified the file test_revert_merge.txt
 1 file changed, 1 insertion(+)
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024/ testing
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (4/4), 396 bytes | 396.00 KiB/s, done.
Total 4 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024/
   f52282e..6b9e1af  testing -> testing
branch 'testing' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython_2024//testing'.
```

Then I tried to merge two branches:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (testing)
$ git checkout HW1
Switched to branch 'HW1'

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git merge testing
Merge made by the 'ort' strategy.
 HW1/test_revert_merge.txt | 1 +
 1 file changed, 1 insertion(+)
```

However, the final files looked strange after this step:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ ls
hw1.txt  test_revert.txt  test_revert_merge.txt

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ cat hw1.txt
This is an initial file.
<<<<<<< HEAD
This is a change.
=======
>>>>>>> testing

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ cat test_revert.txt
This is a file for testing revert.
<<<<<<< HEAD
=======
This is a change.
>>>>>>> testing

Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ cat test_revert_merge.txt
This is a file for testing revert and merge.
This is a change.
```

The file test_revert_merge.txt looked okay, but I was not satisfied with the result of hw1.txt and test_revert.txt.

There probably should be an error with merging branches after reverting.

I tried to solve this problem by building a git tree (`git log --graph`) and cherry-picking the specific step where I modifed test_revert.txt, moving it to a separate branch and merging it with HW1, but it did not work out.

Therefore, I modified the files manually to the desired result and deleted testing branch at the end:

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git branch -d testing
Deleted branch testing (was 6b9e1af).
```

```
Dasha@LAPTOP-J3G5GC0B MINGW64 ~/Desktop/masters/2nd semester/Scientific_Python/git_project/ITMO_Scienti
ficPython_2024/HW1 (HW1)
$ git push -u https://github.com/GanaevaDR/ITMO_ScientificPython_2024/ HW1
Enumerating objects: 23, done.
Counting objects: 100% (23/23), done.
Delta compression using up to 8 threads
Compressing objects: 100% (14/14), done.
Writing objects: 100% (15/15), 1.85 KiB | 1.85 MiB/s, done.
Total 15 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/GanaevaDR/ITMO_ScientificPython_2024/
   bbe2f4d..64a441c  HW1 -> HW1
branch 'HW1' set up to track 'https://github.com/GanaevaDR/ITMO_ScientificPython_2024//HW1'.
```

I am new to git and, I guess, I need more time to get acquainted with some of its commands…