

Департамент образования и науки города Москвы
Государственное автономное образовательное учреждение
высшего образования города Москвы
«Московский городской педагогический университет»
Институт цифрового образования
Департамент информатики управления и технологий

Мареев Георгий Александрович БД-241м

**Практическая работа 2-2. Создание и управление репозиториями на
GitHub. Работа с ветками, слияниями, разрешение конфликтов
Вариант 13**

Направление подготовки/специальность
38.04.05 - Бизнес-информатика
Бизнес-аналитика и большие данные
(очная форма обучения)

Руководитель дисциплины:
Босенко Т.М., доцент департамента
информатики, управления и технологий,
кандидат технических наук

Москва
2024

Введение

Цель: познакомиться с основными концепциями и командами Git, научиться использовать Git для управления версиями проекта

Задачи

1. Создание каталога, перенос его в Git, создания файлов, настройки .gitignore и загрузки в GitHub на Ubuntu 24
2. Создать новый файл и отправить изменения на удаленный репозиторий в GitHub..
3. Индивидуальное задание. Вариант 13

Основная часть

1. Создание репозитория

Создать тестовый репозиторий. Добавьте в репозиторий два файла двумя разными коммитами, файлы нужно создать, если их нет:

Файл `mgpu.txt` с текстом `Hello, MGPU!` внутри

Файл `index.html` с текстом `<h1> я коммичу</h1>` внутри

*решил не устанавливать русский язык, поэтому весь текст в файлах на английском языке

Создал директорию `test_repo`

```
george@george-VirtualBox:~/Documents/Practika-2$ mkdir test_repo
george@george-VirtualBox:~/Documents/Practika-2$ cd test_repo
```

1. Инициализация репозитория

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git init
```

hint: Using 'master' as the name for the initial branch. This default branch name

hint: is subject to change. To configure the initial branch name to use in all

hint: of your new repositories, which will suppress this warning, call:

hint:

hint: `git config --global init.defaultBranch <name>`

hint:

hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and

hint: 'development'. The just-created branch can be renamed via this command:

hint:

hint: `git branch -m <name>`

```
Initialized empty Git repository in /home/george/Documents/Practika-2/test_repo/.git/
```

2. Создание файла `mpgu.txt` с текстом `"Hello, MGPU!"`

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ echo "Hello, MGPU!" > mgpu.txt
```

3. Добавление файла в индекс и создание первого коммита

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git commit -m  
"Added mgpu.txt-Hello,MGPU!"
```

```
[master (root-commit) 4952f21] Added mgpu.txt-Hello,MGPU!
```

```
1 file changed, 1 insertion(+)
```

```
create mode 100644 mgpu.txt
```

4. Создание файла 'index.html' с текстом "<h1> я коммичу</h1>" (<h1>Me
commit</h1>)

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ echo "<h1>Me  
commit</h1>">index.html
```

*решил не устанавливать русский язык, поэтому весь текст в файлах на
английском языке

5. Добавление файла в индекс и создание второго коммита

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git add index.html
```

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git commit -m  
"Add index.html with header 'Me commit'"
```

```
[master 6e601d5] Add index.html with header 'Me commit'
```

```
1 file changed, 1 insertion(+)
```

```
create mode 100644 index.html
```

```
Oct 8 22:50
george@george-VirtualBox: ~/Documents/Practika-2/test_repo

george@george-VirtualBox:~/Documents/Practika-2$ mkdir test_repo
george@george-VirtualBox:~/Documents/Practika-2$ cd test_repo
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/george/Documents/Practika-2/test_repo/.git/
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ echo "Hello, MGPU!" > mgpu.txt
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git add mgpu.txt
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git commit -m "Added mgpu.txt-Hello,MGPU!"

[master (root-commit) 4952f21] Added mgpu.txt-Hello,MGPU!
1 file changed, 1 insertion(+)
create mode 100644 mgpu.txt
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ echo "<h1>Me commit</h1>">index.html
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git add index.html
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git commit -m "Add index.html with header 'Me commit'"

[master 6e601d5] Add index.html with header 'Me commit'
1 file changed, 1 insertion(+)
create mode 100644 index.html
george@george-VirtualBox:~/Documents/Practika-2/test_repo$
```

Рисунок 1 Этапы 1-5

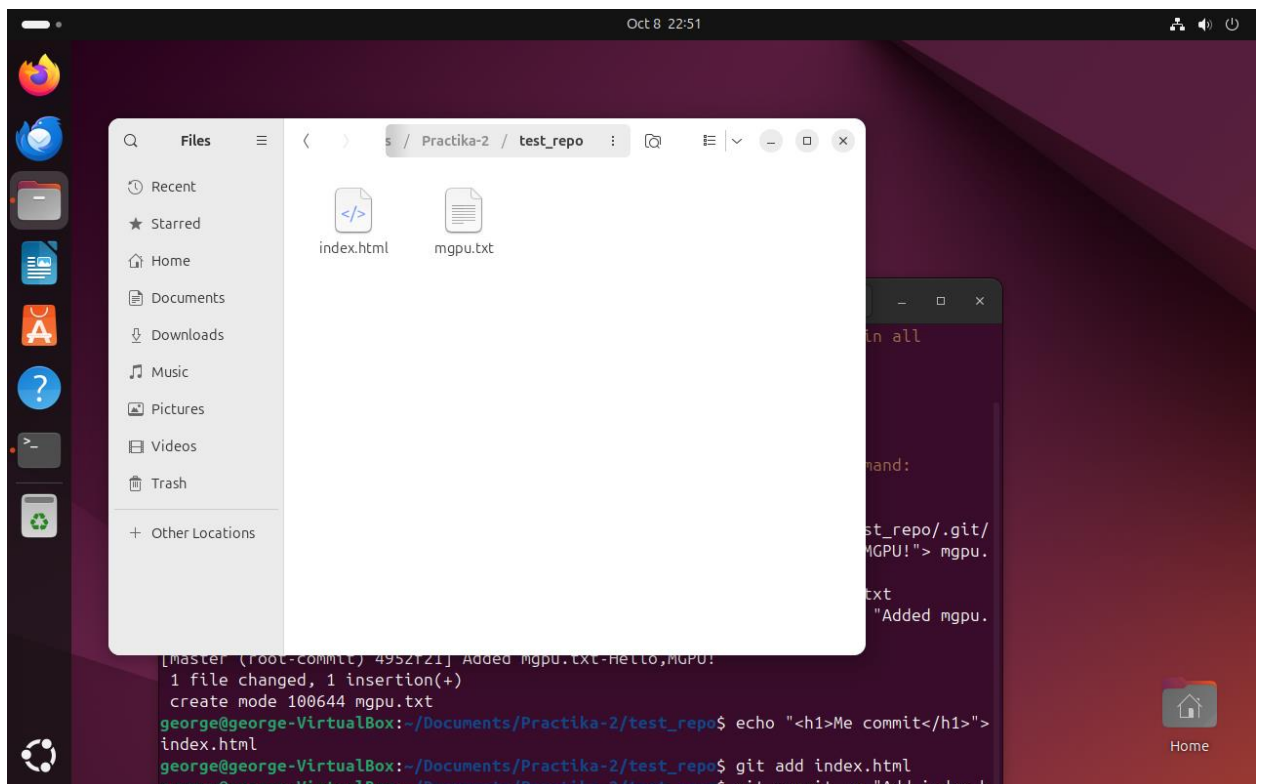


Рисунок 2 Содержание директории test_repo

6. Клонирование репо

Создал директорию code-user, куда клонировал test_repo

```
george@george-VirtualBox:~/Documents/Practika-2$ git clone
/home/george/Documents/Practika-2/test_repo /home/george/Documents/Practika-
2/code-user
```

Cloning into '/home/george/Documents/Practika-2/code-user'...

done.

```
george@george-VirtualBox:~/Documents/Practika-2$ cd code-user
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ echo "I like to  
change files">>mgpu.txt
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ nano index.html
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git commit -m "2  
files modified"
```

On branch master

Your branch is up to date with 'origin/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: index.html

modified: mgpu.txt

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

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git status
```

On branch master

Your branch is up to date with 'origin/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: index.html

modified: mgpu.txt

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

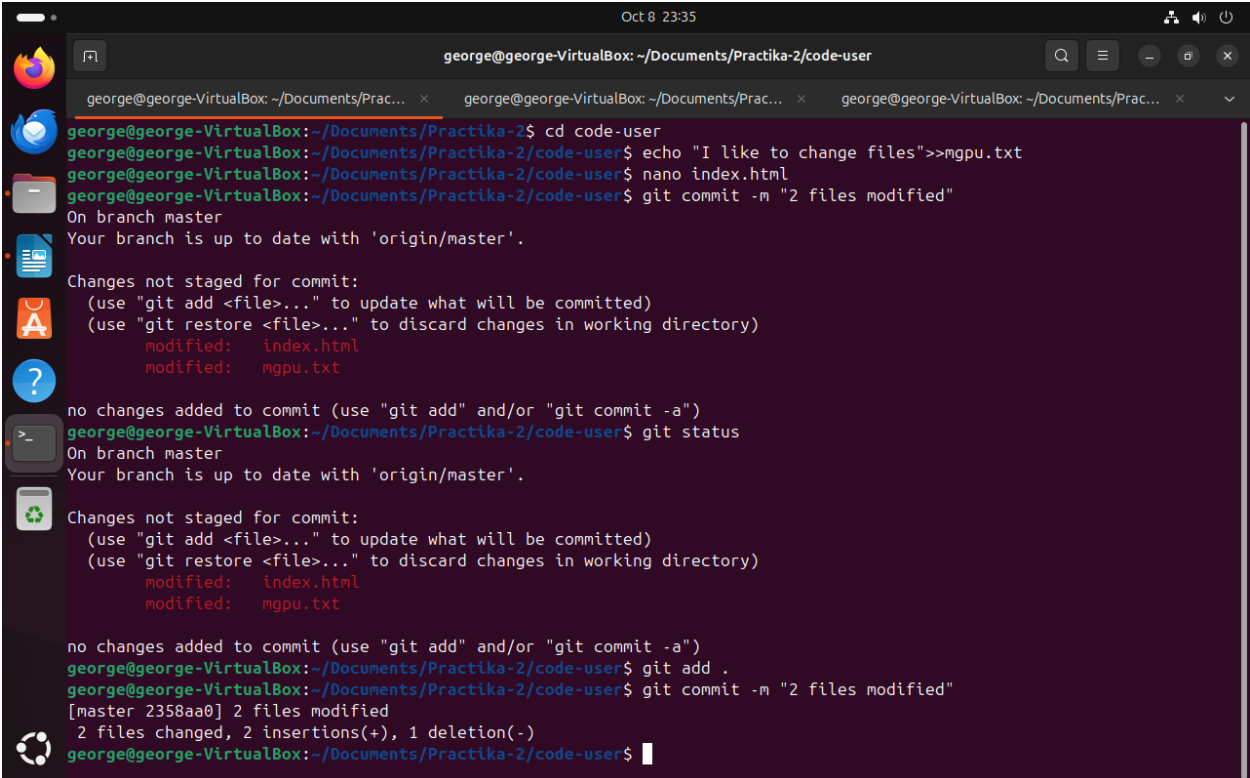
george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git add .

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git commit -m "2 files modified"

[master 2358aa0] 2 files modified

2 files changed, 2 insertions(+), 1 deletion(-)

george@george-VirtualBox:~/Documents/Practika-2/code-user\$



The screenshot shows a terminal window titled "george@george-VirtualBox: ~/Documents/Practika-2/code-user" with a dark background. The terminal displays the following sequence of commands and their outputs:

```
george@george-VirtualBox:~/Documents/Practika-2$ cd code-user
george@george-VirtualBox:~/Documents/Practika-2/code-user$ echo "I like to change files">>ngpu.txt
george@george-VirtualBox:~/Documents/Practika-2/code-user$ nano index.html
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git commit -m "2 files modified"
On branch master
Your branch is up to date with 'origin/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:   index.html
        modified:   ngpu.txt

no changes added to commit (use "git add" and/or "git commit -a")
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git status
On branch master
Your branch is up to date with 'origin/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:   index.html
        modified:   ngpu.txt

no changes added to commit (use "git add" and/or "git commit -a")
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git add .
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git commit -m "2 files modified"
[master 2358aa0] 2 files modified
 2 files changed, 2 insertions(+), 1 deletion(-)
george@george-VirtualBox:~/Documents/Practika-2/code-user$
```

Рисунок 3 Клонирование репозитория

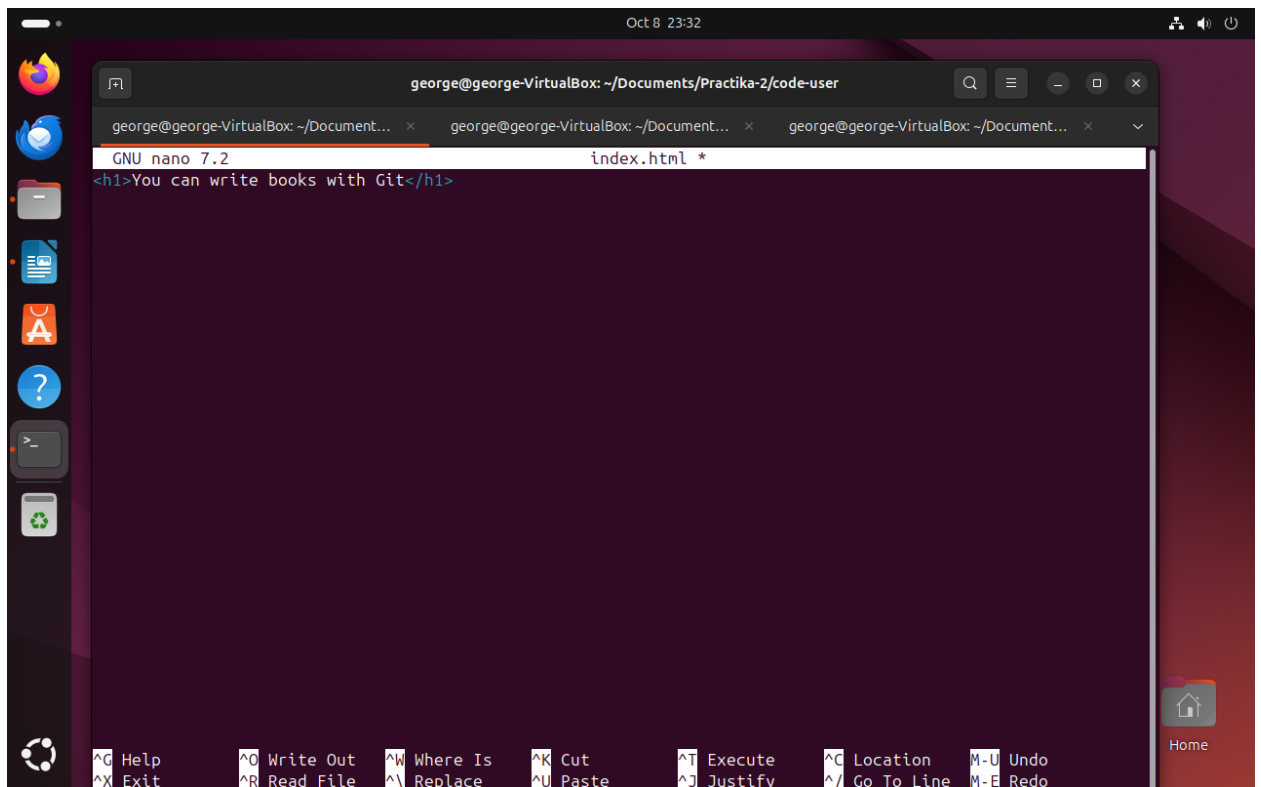


Рисунок 4 Содержание файла index.html

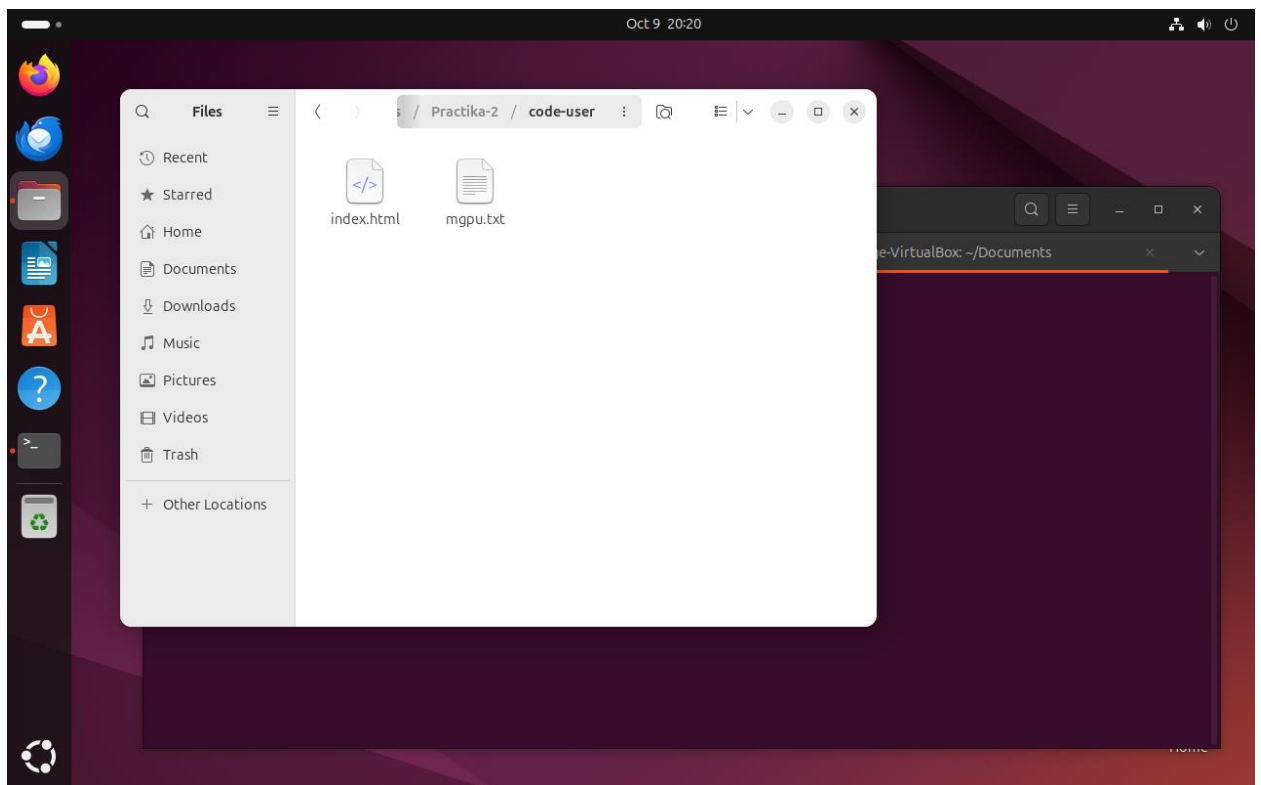


Рисунок 5 Содержание директории code-user

7. Push изменений:

Сделал push в две ветки:

Первые два файла(test_repo) -> ветка main

Вторые два файла(code-user) -> ветка code-user

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#) or [learn more about diff comparisons](#).

Showing 2 changed files with 2 additions and 1 deletion.


Split Unified

index.html

```
@@ -1 +1 @@
- <h1>Me commit</h1>
+ <h1>You can write books with Git</h1>
```

mgpu.txt

```
@@ -1 +1,2 @@
Hello, MGPU!
+ I like to change files
```

Так как делал push по токену, то его замазал на скриншотах, в коде заменил на  в целях безопасности

*столкнулся с такими проблемами/ошибками, как неправильно написанная команда, пушил в локальный репозиторий а не на гитхаб

```
george@george-VirtualBox:~/Documents/Practika-2/test_repo$ git push --set-upstream origin master
```

Username for 'https://github.com': GoshaMareev

Password for 'https://GoshaMareev@github.com':

Enumerating objects: 6, done.

Counting objects: 100% (6/6), done.

Delta compression using up to 2 threads

Compressing objects: 100% (3/3), done.

Writing objects: 100% (6/6), 515 bytes | 515.00 KiB/s, done.

Total 6 (delta 0), reused 0 (delta 0), pack-reused 0

remote:

remote: Create a pull request for 'master' on GitHub by visiting:

remote: <https://github.com/GoshaMareev/Practika-2/pull/new/master>

remote:

To <https://github.com/GoshaMareev/Practika-2.git>

* [new branch] master -> master

branch 'master' set up to track 'origin/master'.

george@george-VirtualBox:~/Documents/Practika-2/test_repo\$ cd ..

george@george-VirtualBox:~/Documents/Practika-2\$ cd code-user

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ 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

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git push --set-upstream origin master

Enumerating objects: 7, done.

Counting objects: 100% (7/7), done.

Delta compression using up to 2 threads

Compressing objects: 100% (2/2), done.

Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.

Total 4 (delta 0), reused 0 (delta 0), pack-reused 0

remote: error: refusing to update checked out branch: refs/heads/master

remote: error: By default, updating the current branch in a non-bare repository

remote: is denied, because it will make the index and work tree inconsistent

remote: with what you pushed, and will require 'git reset --hard' to match

remote: the work tree to HEAD.

remote:

remote: You can set the 'receive.denyCurrentBranch' configuration variable

remote: to 'ignore' or 'warn' in the remote repository to allow pushing into

remote: its current branch; however, this is not recommended unless you

remote: arranged to update its work tree to match what you pushed in some
remote: other way.

remote:

remote: To squelch this message and still keep the default behaviour, set

remote: 'receive.denyCurrentBranch' configuration variable to 'refuse'.

To /home/george/Documents/Practika-2/test_repo

! [remote rejected] master -> master (branch is currently checked out)

error: failed to push some refs to '/home/george/Documents/Practika-2/test_repo'

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git checkout -b
code-user_branch

Switched to a new branch 'code-user_branch'

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git push push
origin master

fatal: 'push' does not appear to be a git repository

fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git push origin
master

Enumerating objects: 7, done.

Counting objects: 100% (7/7), done.

Delta compression using up to 2 threads

Compressing objects: 100% (2/2), done.

Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.

Total 4 (delta 0), reused 0 (delta 0), pack-reused 0

remote: error: refusing to update checked out branch: refs/heads/master

remote: error: By default, updating the current branch in a non-bare repository

remote: is denied, because it will make the index and work tree inconsistent

remote: with what you pushed, and will require 'git reset --hard' to match

remote: the work tree to HEAD.

remote:

remote: You can set the 'receive.denyCurrentBranch' configuration variable

remote: to 'ignore' or 'warn' in the remote repository to allow pushing into

remote: its current branch; however, this is not recommended unless you

remote: arranged to update its work tree to match what you pushed in some

remote: other way.

remote:

remote: To squelch this message and still keep the default behaviour, set

remote: 'receive.denyCurrentBranch' configuration variable to 'refuse'.

To /home/george/Documents/Practika-2/test_repo

! [remote rejected] master -> master (branch is currently checked out)

error: failed to push some refs to '/home/george/Documents/Practika-2/test_repo'

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git push origin
code-user_branch

Enumerating objects: 7, done.

Counting objects: 100% (7/7), done.

Delta compression using up to 2 threads

Compressing objects: 100% (2/2), done.

Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.

Total 4 (delta 0), reused 0 (delta 0), pack-reused 0

To /home/george/Documents/Practika-2/test_repo

* [new branch] code-user_branch -> code-user_branch

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git remote -v

origin /home/george/Documents/Practika-2/test_repo (fetch)

origin /home/george/Documents/Practika-2/test_repo (push)

george@george-VirtualBox:~/Documents/Practika-2/code-user\$ git push origin
code-user_branch

Everything up-to-date

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git remote set-url  
origin https://🔑@github.com/GoshaMareev/Practika-2.git
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git remote -v  
origin https://🔑@github.com/GoshaMareev/Practika-2.git (fetch)
```

```
origin https://🔑@github.com/GoshaMareev/Practika-2.git (push)
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin  
code-user_branch          Enumerating objects: 7, done.
```

```
Counting objects: 100% (7/7), done.
```

```
Delta compression using up to 2 threads
```

```
Compressing objects: 100% (2/2), done.
```

```
Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.
```

```
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
```

```
remote:
```

```
remote: Create a pull request for 'code-user_branch' on GitHub by visiting:
```

```
remote:   https://github.com/GoshaMareev/Practika-2/pull/new/code-user_branch
```

```
remote:
```

```
To https://github.com/GoshaMareev/Practika-2.git
```

```
* [new branch]   code-user_branch -> code-user_branch
```

```
george@george-VirtualBox:~/Documents/Practika-2/code-user$
```

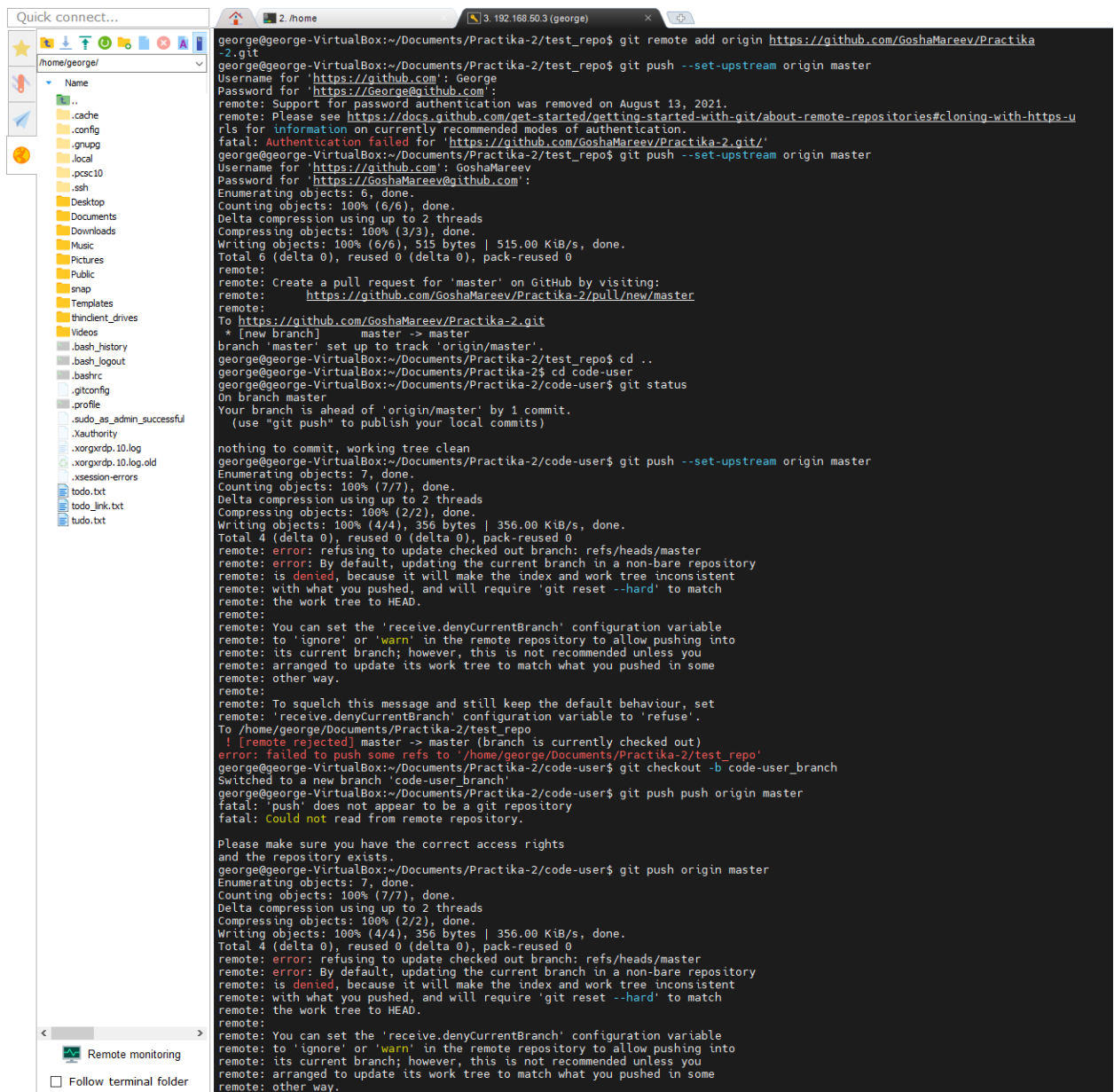
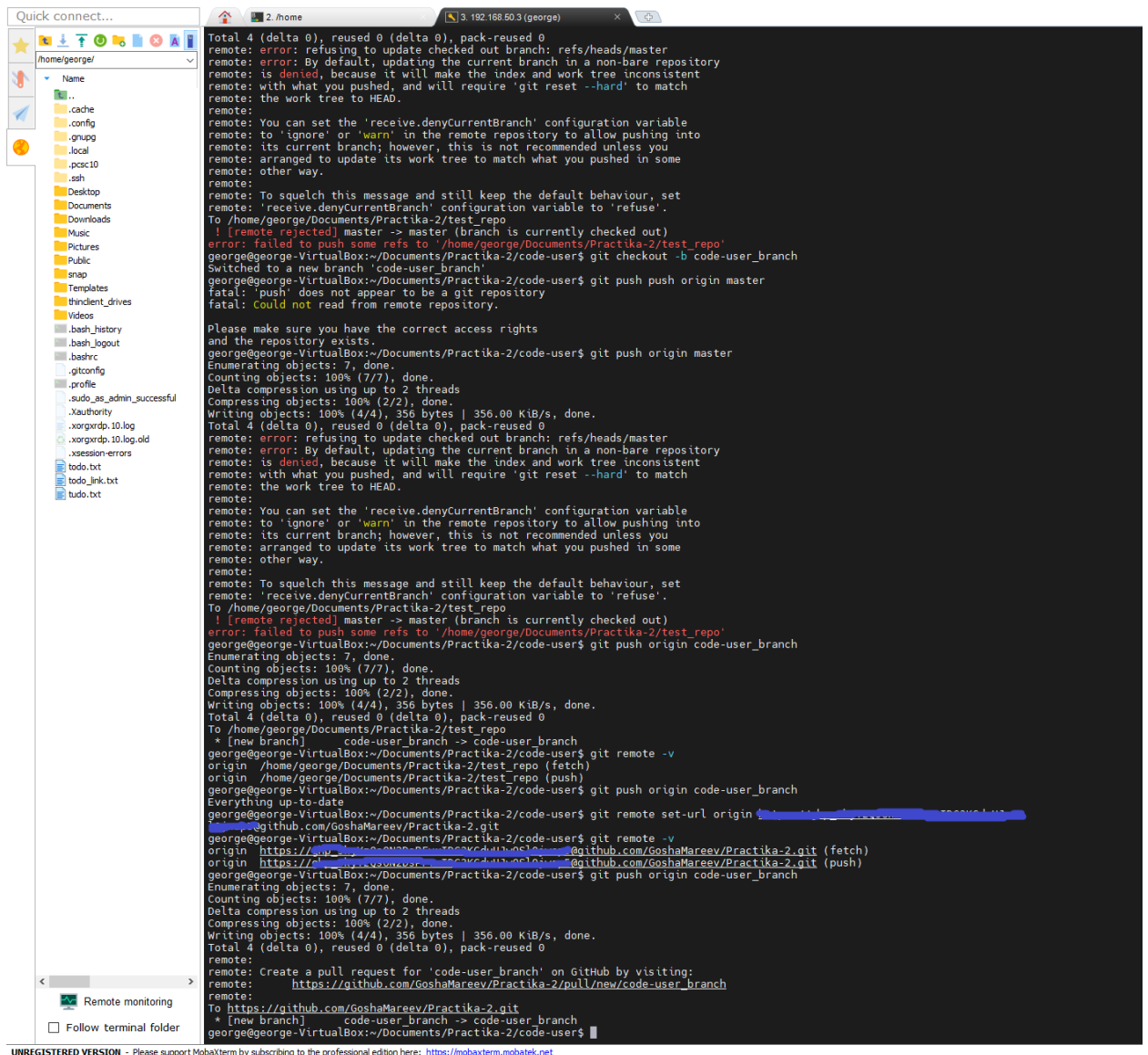


Рисунок 6 Push1



```
Quick connect...
/home/george/
Name
.
.cache
.config
.config
.local
.pcs10
.ssh
Desktop
Documents
Downloads
Music
Pictures
Public
snap
Templates
thunderbird_drives
Videos
.bash_history
.bash_logout
.bashrc
.gitconfig
.profile
.sudo_as_admin_successful
.xauthority
.xorgxrdp.10.log
.xorgxrdp.10.log.old
.xsession-errors
todo.txt
todo_link.txt
todo.txt

Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
remote: error: refusing to update checked out branch: refs/heads/master
remote: error: By default, updating the current branch in a non-bare repository
remote: is denied, because it will make the index and work tree inconsistent
remote: with what you pushed, and will require 'git reset --hard' to match
remote: the work tree to HEAD.
remote:
remote: You can set the 'receive.denyCurrentBranch' configuration variable
remote: to 'ignore' or 'warn' in the remote repository to allow pushing into
remote: its current branch; however, this is not recommended unless you
remote: arranged to update its work tree to match what you pushed in some
remote: other way.
remote:
remote: To squelch this message and still keep the default behaviour, set
remote: 'receive.denyCurrentBranch' configuration variable to 'refuse'.
To /home/george/Documents/Practika-2/test_repo
! [remote rejected] master -> master (branch is currently checked out)
error: failed to push some refs to '/home/george/Documents/Practika-2/test_repo'
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git checkout -b code-user_branch
Switched to a new branch 'code-user_branch'
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin master
fatal: 'push' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin master
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
remote: error: refusing to update checked out branch: refs/heads/master
remote: error: By default, updating the current branch in a non-bare repository
remote: is denied, because it will make the index and work tree inconsistent
remote: with what you pushed, and will require 'git reset --hard' to match
remote: the work tree to HEAD.
remote:
remote: You can set the 'receive.denyCurrentBranch' configuration variable
remote: to 'ignore' or 'warn' in the remote repository to allow pushing into
remote: its current branch; however, this is not recommended unless you
remote: arranged to update its work tree to match what you pushed in some
remote: other way.
remote:
remote: To squelch this message and still keep the default behaviour, set
remote: 'receive.denyCurrentBranch' configuration variable to 'refuse'.
To /home/george/Documents/Practika-2/test_repo
! [remote rejected] master -> master (branch is currently checked out)
error: failed to push some refs to '/home/george/Documents/Practika-2/test_repo'
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin code-user_branch
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
To /home/george/Documents/Practika-2/test_repo
* [new branch] code-user_branch -> code-user_branch
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git remote -v
origin /home/george/Documents/Practika-2/test_repo (fetch)
origin /home/george/Documents/Practika-2/test_repo (push)
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin code-user_branch
Everything up-to-date
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git remote set-url origin https://github.com/GoshaMareev/Practika-2.git
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git remote -v
origin https://github.com/GoshaMareev/Practika-2.git (fetch)
origin https://github.com/GoshaMareev/Practika-2.git (push)
george@george-VirtualBox:~/Documents/Practika-2/code-user$ git push origin code-user_branch
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 356 bytes | 356.00 KiB/s, done.
Total 4 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'code-user_branch' on GitHub by visiting:
remote: https://github.com/GoshaMareev/Practika-2/pull/new/code-user_branch
remote:
To https://github.com/GoshaMareev/Practika-2.git
* [new branch] code-user_branch -> code-user_branch
george@george-VirtualBox:~/Documents/Practika-2/code-user$
```

UNREGISTERED VERSION - Please support MobaxTerm by subscribing to the professional edition here: <https://mobaxterm.mobatek.net>

Рисунок 7 Push2

Варианты заданий. Для всех вариантов

Заданий 1. Создание каталога, перенос его в Git, создание файлов, настройки .gitignore и загрузки в GitHub на Ububnrtu 24:

1. Создание каталога:

```
george@george-VirtualBox:~/Documents/Practika-2$ mkdir my_project
george@george-VirtualBox:~/Documents/Practika-2$ cd my_project
```

2. Инициализация Git репозитория:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To conРисунок the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
```

hint:

```
hint: git config --global init.defaultBranch <name>
```

hint:

```
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
```

```
hint: 'development'. The just-created branch can be renamed via this command:
```

hint:

```
hint: git branch -m <name>
```

```
Initialized empty Git repository in /home/george/Documents/Practika-
2/my_project/.git/
```

3. Создание файлов

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ touch
README.md
```

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ touch main.py
```

4. Создание .gitignore:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ nano .gitignore
```

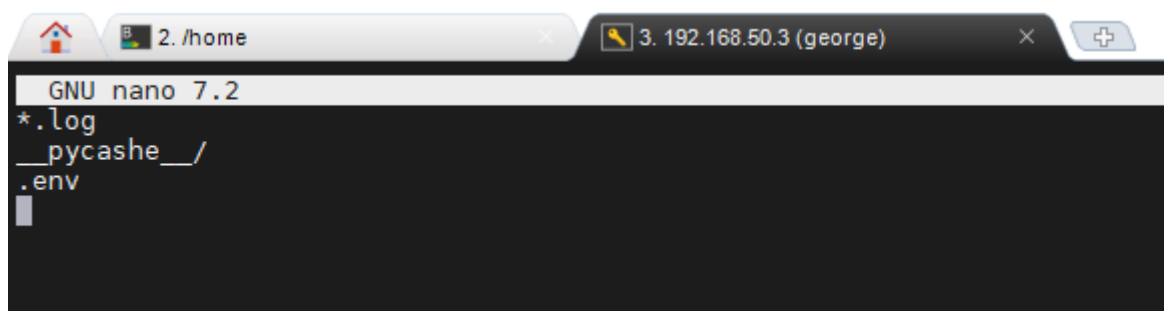


Рисунок 8.gitignore

5. Добавление файлов в Git:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git add .
```

6. Создание первого коммита:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git commit -m
"Initial commit"
```

```
[master (root-commit) 19e46c7] Initial commit
```

```
3 files changed, 3 insertions(+)
```

```
create mode 100644 .gitignore
```

```
create mode 100644 README.md
```

```
create mode 100644 main.py
```

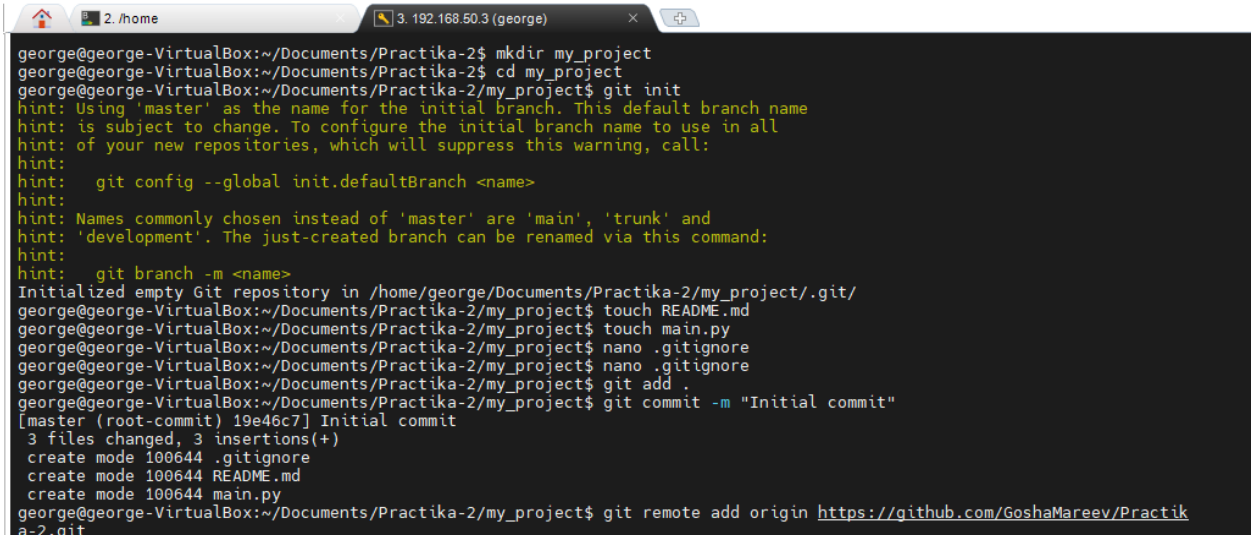

7. Создание репозитория на GitHub:

Репозиторий уже создан:

<https://github.com/GoshaMareev/Practika-2>

8. Связывание локального репозитория с GitHub:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote  
add origin https://github.com/GoshaMareev/Practika-2.git
```



```
george@george-VirtualBox:~/Documents/Practika-2$ mkdir my_project  
george@george-VirtualBox:~/Documents/Practika-2$ cd my_project  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git init  
hint: Using 'master' as the name for the initial branch. This default branch name  
hint: is subject to change. To configure the initial branch name to use in all  
hint: of your new repositories, which will suppress this warning, call:  
hint:  
hint: git config --global init.defaultBranch <name>  
hint:  
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and  
hint: 'development'. The just-created branch can be renamed via this command:  
hint:  
hint: git branch -m <name>  
Initialized empty Git repository in /home/george/Documents/Practika-2/my_project/.git/  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ touch README.md  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ touch main.py  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ nano .gitignore  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git add .  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git commit -m "Initial commit"  
[master (root-commit) 19e46c7] Initial commit  
3 files changed, 3 insertions(+)  
create mode 100644 .gitignore  
create mode 100644 README.md  
create mode 100644 main.py  
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote add origin https://github.com/GoshaMareev/Practika-2.git
```

Рисунок 9. Этапы 1-8

9. Отправка изменений на GitHub

На данном этапе столкнулся с ошибками. Как я понял, это было связано с тем, что локальная ветка main и удаленная ветка main имеют разные истории изменений. Поэтому решил слить merge эти ветки

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote add  
origin https://github.com/GoshaMareev/Practika-2.git
```

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u  
origin main
```

error: src refspec main does not match any

error: failed to push some refs to '<https://github.com/GoshaMareev/Practika-2.git>'

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git branch
```

* master

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git checkout -b  
main
```

Switched to a new branch 'main'

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u  
origin main
```

Username for '<https://github.com/>': GoshaMareev

Password for '<https://GoshaMareev@github.com/>':

To <https://github.com/GoshaMareev/Practika-2.git>

! [rejected] main -> main (fetch first)

error: failed to push some refs to '<https://github.com/GoshaMareev/Practika-2.git>'

hint: Updates were rejected because the remote contains work that you do not

hint: have locally. This is usually caused by another repository pushing to

hint: the same ref. If you want to integrate the remote changes, use

hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project\$ git pull origin
main
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 998 bytes | 998.00 KiB/s, done.
From https://github.com/GoshaMareev/Practika-2
* branch main -> FETCH_HEAD
* [new branch] main -> origin/main
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint: git config pull.rebase false # merge
hint: git config pull.rebase true # rebase
hint: git config pull.ff only # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configuration default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.
george@george-VirtualBox:~/Documents/Practika-2/my_project\$ git push -u
origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
! [rejected] main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project\$ git pull origin
main --no-rebase
From https://github.com/GoshaMareev/Practika-2
* branch main -> FETCH_HEAD
fatal: refusing to merge unrelated histories
george@george-VirtualBox:~/Documents/Practika-2/my_project\$ git push -u
origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':

```

To https://github.com/GoshaMareev/Practika-2.git
! [rejected]      main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin
main --allow-unrelated-histories
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint: git config pull.rebase false # merge
hint: git config pull.rebase true  # rebase
hint: git config pull.ff only      # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configuration default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin
main --allow-unrelated-histories --no-rebase
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
Auto-merging README.md
Merge made by the 'ort' strategy.
 README.md | 2 ++
 1 file changed, 2 insertions(+)
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u
origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 617 bytes | 617.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/GoshaMareev/Practika-2.git
 c76ce2f..aaa6794 main -> main
branch 'main' set up to track 'origin/main'.

```

```

george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
error: src refspec main does not match any
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git branch
* master
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git checkout -b main
Switched to a new branch 'main'
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
 ! [rejected]        main -> main (fetch first)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 998 bytes | 998.00 KiB/s, done.
From https://github.com/GoshaMareev/Practika-2
 * branch            main      -> FETCH_HEAD
 * [new branch]      main      -> origin/main
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint:   git config pull.rebase false  # merge
hint:   git config pull.rebase true   # rebase
hint:   git config pull.ff only       # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configured default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main --no-rebase
From https://github.com/GoshaMareev/Practika-2
 * branch            main      -> FETCH_HEAD
fatal: refusing to merge unrelated histories
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main --allow-unrelated-histories
From https://github.com/GoshaMareev/Practika-2
 * branch            main      -> FETCH_HEAD
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint:   git config pull.rebase false  # merge
hint:   git config pull.rebase true   # rebase
hint:   git config pull.ff only       # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configured default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.

```

Рисунок 10 Git push

```

remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 998 bytes | 998.00 KiB/s, done.
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
 * [new branch] main      -> origin/main
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint:   git config pull.rebase false  # merge
hint:   git config pull.rebase true   # rebase
hint:   git config pull.ff only       # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configured default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main --no-rebase
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
fatal: refusing to merge unrelated histories
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
To https://github.com/GoshaMareev/Practika-2.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/GoshaMareev/Practika-2.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main --allow-unrelated-histories
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
hint: You have divergent branches and need to specify how to reconcile them.
hint: You can do so by running one of the following commands sometime before
hint: your next pull:
hint:
hint:   git config pull.rebase false  # merge
hint:   git config pull.rebase true   # rebase
hint:   git config pull.ff only       # fast-forward only
hint:
hint: You can replace "git config" with "git config --global" to set a default
hint: preference for all repositories. You can also pass --rebase, --no-rebase,
hint: or --ff-only on the command line to override the configured default per
hint: invocation.
fatal: Need to specify how to reconcile divergent branches.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git pull origin main --allow-unrelated-histories --no-rebase
From https://github.com/GoshaMareev/Practika-2
 * branch      main      -> FETCH_HEAD
Auto-merging README.md
Merge made by the 'ort' strategy.
 README.md | 2 ++
 1 file changed, 2 insertions(+)
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push -u origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 2 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 617 bytes | 617.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/GoshaMareev/Practika-2.git
 c76ce2f..aaa6794  main -> main
branch 'main' set up to track 'origin/main'.

```

Рисунок 11. Git push

Practika-2Public

PinUnwatch1Fork0Star0

main3 Branches0 Tags

Go to file

Add fileCode

George Merge branch 'main' of <https://github.com/GoshaMareev/Practika-2>aaa6794 · 35 minutes ago3 Commits

.gitignore	Initial commit	43 minutes ago
README.md	Initial commit	1 hour ago
main.py	Initial commit	43 minutes ago

README

Practika-2

Практическая работа 2.2. Создание и управление репозиториями на GitHub. Работа с ветками, слияниями, разрешение конфликтов

About

Практическая работа 2.2. Создание и управление репозиториями на GitHub. Работа с ветками, слияниями, разрешение конфликтов

ReadmeActivity0 stars1 watching0 forks

Releases

No releases published
[Create a new release](#)

Packages

No packages published
[Publish your first package](#)

Рисунок 1 Статус репозитория на GitHub

Настройка SSH для GitHub

1. Проверьте наличие существующих SSH-ключей

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ls -al ~/.ssh
total 16
drwx----- 2 george george 4096 Oct  1 20:46 .
drwxr-x--- 18 george george 4096 Oct  9 17:00 ..
-rw----- 1 george george  0 Oct  1 18:04 authorized_keys
-rw----- 1 george george 978 Oct  1 20:46 known_hosts
-rw-r--r-- 1 george george 142 Oct  1 20:46 known_hosts.old
```

2. Если нет SSH-ключа, создайте новый:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh-keygen -t
ed25519 -C "zhoraproover999@gmail.com"
Generating public/private ed25519 key pair.
```

3. Когда попросят ввести файл для сохранения ключа, нажмите Enter для использования расположения по умолчанию.

Enter file in which to save the key (/home/george/.ssh/id_ed25519):

4. Введите пароль для ключа (рекомендуется) или оставьте поле пустым.

Enter passphrase (empty for no passphrase):

Enter same passphrase again:

Your identification has been saved in /home/george/.ssh/id_ed25519

Your public key has been saved in /home/george/.ssh/id_ed25519.pub

5. Запустите SSH-агент:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ eval
"$(ssh-agent -s)"
Agent pid 4506
```

6. Добавьте ваш SSH-ключ в ssh-agent:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh-add
~/.ssh/id_ed25519
Enter passphrase for /home/george/.ssh/id_ed25519:
Identity added: /home/george/.ssh/id_ed25519 (zhoraproover999@gmail.com)
george@george-VirtualBox:~/Documents/Practika-2/my_project$ cat
~/.ssh/id_ed25519.pub
```

7. Скопируйте ваш публичный SSH-ключ в буфер обмена:

8. Перейдите на GitHub:

9. Вставьте ваш ключ в поле "Key".

10. Определить название ключа в поле "Title".


11. Нажмите "Add SSH key".

SSH keys

[New SSH key](#)

This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.

Authentication keys



Practika-2
Added on Oct 9, 2024
Never used — Read/write

Delete

Рисунок 12. GitHub SSH-key

12. Проверьте подключение:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh -T  
git@github.com  
The authenticity of host 'github.com (140.82.121.3)' can't be established.  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added 'github.com' (ED25519) to the list of known  
hosts.  
Hi GoshaMareev! You've successfully authenticated, but GitHub does not  
provide shell access.
```

13. Убедитесь, что находитесь в директории вашего Git-репозитория:

14. Проверьте статус ваших файлов:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git status  
On branch main  
Your branch is up to date with 'origin/main'.
```

nothing to commit, working tree clean

15. Добавьте файлы, которые хотите отправить, в индекс Git:

16. Создайте коммит с описанием изменений:

17. Убедитесь, что ваш удаленный репозиторий на GitHub настроен с использованием SSH. Проверьте это командой:

18. Если удаленный репозиторий еще не настроен или настроен на HTTPS, измените его на SSH

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote -v  
origin https://github.com/GoshaMareev/Practika-2.git (fetch)  
origin https://github.com/GoshaMareev/Practika-2.git (push)
```

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote set-  
url origin git@github.com:GoshaMareev/Practika-2.git
```

19. Отправьте ваши изменения на GitHub:


```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push
origin main
Everything up-to-date
```

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote -v
origin https://github.com/GoshaMareev/Practika-2.git (fetch)
origin https://github.com/GoshaMareev/Practika-2.git (push)
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ^C
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git remote set-url origin git@github.com:GoshaMareev/Practika-2.git
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push origin main
Everything up-to-date
george@george-VirtualBox:~/Documents/Practika-2/my_project$
```

Рисунок 13 Проверка SSH

20. Если это ваш первый push в репозиторий, используйте команду:
Пуши уже были, изменения на github уже отправлял, поэтому пункты с коммитами и пушами пропустил

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ls -al ~/.ssh
total 16
drwx----- 2 george george 4096 Oct 1 20:46 .
drwxr-x--- 18 george george 4096 Oct 9 17:00 ..
-rw----- 1 george george 0 Oct 1 18:04 authorized_keys
-rw----- 1 george george 978 Oct 1 20:46 known_hosts
-rw-r--r-- 1 george george 142 Oct 1 20:46 known_hosts.old
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh-keygen -t ed25519 -C "zhoraproover999@gmail.com"
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/george/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/george/.ssh/id_ed25519
Your public key has been saved in /home/george/.ssh/id_ed25519.pub
The key's fingerprint is:
[redacted] zhoraproover999@gmail.com
The key's randomart image is:
[redacted]
+-----[SHA256]-----
george@george-VirtualBox:~/Documents/Practika-2/my_project$ eval "$(ssh-agent -s)"
Agent pid 4506
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh-add ~/.ssh/id_ed25519
Enter passphrase for /home/george/.ssh/id_ed25519:
Bad passphrase, try again for /home/george/.ssh/id_ed25519:
Identity added: /home/george/.ssh/id_ed25519 (zhoraproover999@gmail.com)
george@george-VirtualBox:~/Documents/Practika-2/my_project$ cat ~/.ssh/id_ed25519.pub
ssh-ed25519 AAAAC3NzaC1lbnRpdjE9zhoraproover999@gmail.com
george@george-VirtualBox:~/Documents/Practika-2/my_project$ ssh -T git@github.com
The authenticity of host 'github.com (140.82.121.3)' can't be established.
ED25519 key fingerprint is [redacted]
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
Hi GoshaMareev! You've successfully authenticated, but GitHub does not provide shell access.
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
george@george-VirtualBox:~/Documents/Practika-2/my_project$
```

Рисунок 14 Настройка SSH

Задание 2. Создать новый файл и отправить изменения на удаленный репозиторий в GitHub

1. Перейдите в директорию вашего локального Git-репозитория:
2. Создайте новый файл (например, test.txt):

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ touch test.txt
```

george@george-VirtualBox:~/Documents/Practika-2/my_project\$ nano test.txt
Добавьте содержимое в файл (например, с помощью редактора nano):



Рисунок 15 Содержание test.txt

3. Проверьте статус репозитория:

4. Добавьте файл в индекс Git:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git add  
test.txt
```

5. Создайте коммит:

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git  
commit -m "Added test.txt"
```

6. Отправьте изменения на GitHub

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ git push origin  
main
```

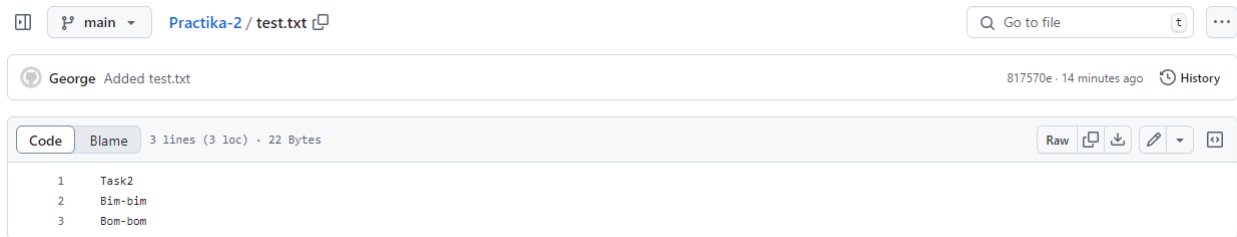


Рисунок 16 Статус на GitHub

Индивидуальное задание. Вариант 13

Работа с тегами и релизами:

1. Создайте репозиторий, имитирующий разработку программного продукта.

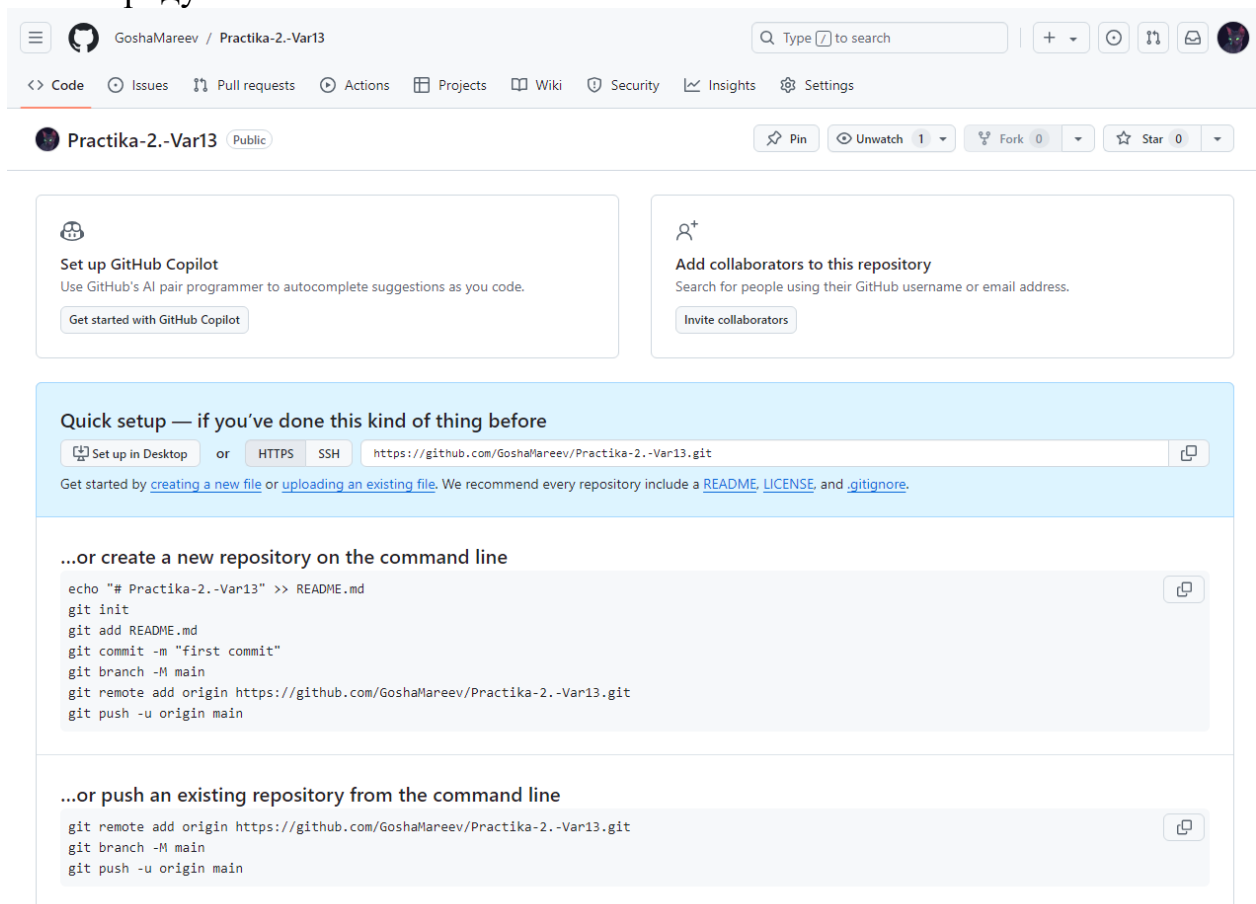


Рисунок 17 Репозиторий для индивидуального задания

Клоинровал репозиторий на Ubuntu

```
george@george-VirtualBox:~/Documents/Practika-2/my_project$ cd ..
```

```
george@george-VirtualBox:~/Documents/Practika-2$ git clone
```

```
https://github.com/GoshaMareev/Practika-2.-Var13.git
```

Cloning into 'Practika-2.-Var13'...

warning: You appear to have cloned an empty repository.

```
george@george-VirtualBox:~/Documents/Practika-2$ cd 'Practika-2.-Var13'
```

```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$
```

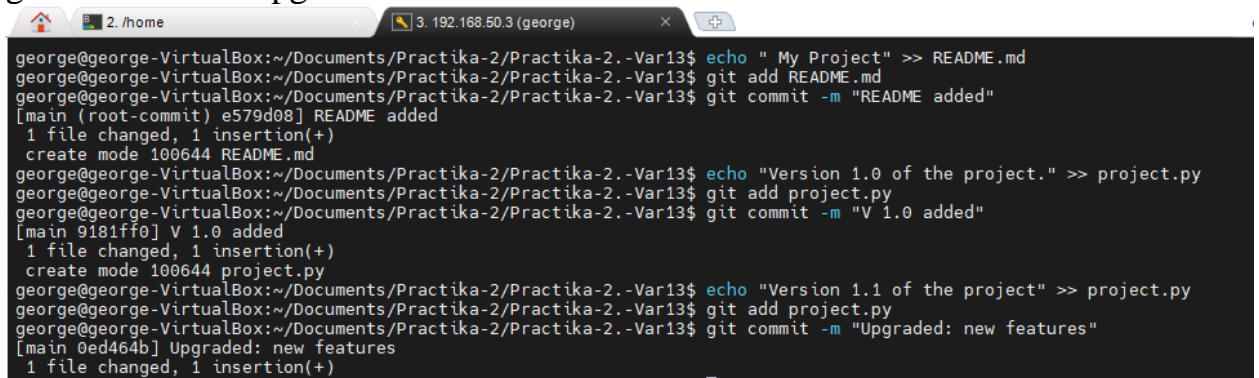
2. Добавьте несколько коммитов, представляющих различные этапы разработки.

1. Добавил файл README.md


```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ echo "
My Project" >> README.md
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git add
README.md
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git
commit -m "README added"
[main (root-commit) e579d08] README added
1 file changed, 1 insertion(+)
create mode 100644 README.md
```
2. Добавил файл project.py


```
echo "Version 1.0 of the project." >> project.py
git add project.py
git commit -m "V 1.0 added"
```
3. Внес изменения в файл project.py


```
echo "Version 1.1 of the project" >> project.py
git add project.py
git commit -m "Upgraded: new features"
```



```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ echo " My Project" >> README.md
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git add README.md
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git commit -m "README added"
[main (root-commit) e579d08] README added
1 file changed, 1 insertion(+)
create mode 100644 README.md
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ echo "Version 1.0 of the project." >> project.py
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git add project.py
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git commit -m "V 1.0 added"
[main 9181ff0] V 1.0 added
1 file changed, 1 insertion(+)
create mode 100644 project.py
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ echo "Version 1.1 of the project" >> project.py
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git add project.py
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git commit -m "Upgraded: new features"
[main 0ed464b] Upgraded: new features
1 file changed, 1 insertion(+)
```

Рисунок 18 Имитация разработки программного продукта

3. Используйте git tag для маркировки важных точек (например, версий).
Создайте релиз на GitHub, используя один из тегов
 1. Создание тега для версии. Тег первого релиза


```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git tag -a
v1.0 -m "Version 1.0"
```
 2. Дополнительный тег для будущих версий


```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git tag -a
v1.1 -m "Version 1.1 new features"
```
 3. Отправка изменений и тегов на GitHub


```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git push
origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
```

Delta compression using up to 2 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 772 bytes | 386.00 KiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/GoshaMareev/Practika-2.-Var13.git
* [new branch] main -> main
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13\$ git push
origin --tags
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 2, done.
Counting objects: 100% (2/2), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 212 bytes | 212.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/GoshaMareev/Practika-2.-Var13.git
* [new tag] v1.0 -> v1.0
* [new tag] v1.1 -> v1.1

```
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git push origin main
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 2 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (9/9), 772 bytes | 386.00 KiB/s, done.
Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/GoshaMareev/Practika-2.-Var13.git
* [new branch] main -> main
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$ git push origin --tags
Username for 'https://github.com': GoshaMareev
Password for 'https://GoshaMareev@github.com':
Enumerating objects: 2, done.
Counting objects: 100% (2/2), done.
Delta compression using up to 2 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 212 bytes | 212.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/GoshaMareev/Practika-2.-Var13.git
* [new tag] v1.0 -> v1.0
* [new tag] v1.1 -> v1.1
george@george-VirtualBox:~/Documents/Practika-2/Practika-2.-Var13$
```

Рисунок 19 Отправка изменений на GitHub

4. Создание релиза на GitHub

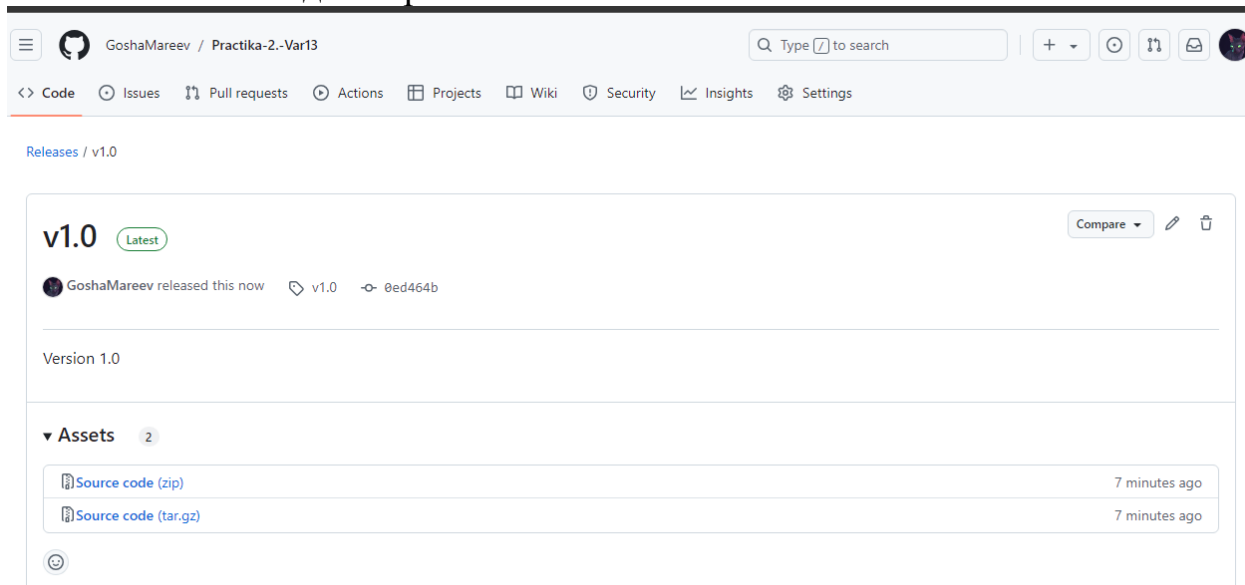


Рисунок 20 Создание релиза на GitHub

<https://github.com/GoshaMareev/Practika-2.-Var13>

Заключение

В результате выполнения данной работы, были получены практические и теоретические навыки по работе с виртуальной машиной на базе Ubuntu 24, bash, git и GitHub.