

Лабораторная работа 1

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Цели и задачи работы

Цель лабораторной работы

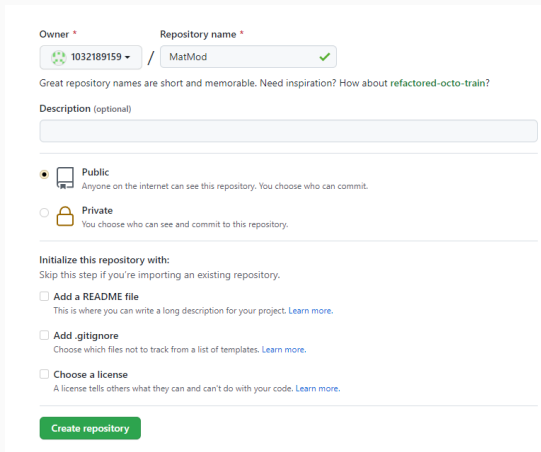
Целью данной работы является изучение идеологии и применения средств контроля версий.

Задачи лабораторной работы

1. Создать учетную запись на github.com
2. Настроить репозиторий
3. Изучить механизм управления версиями

Процесс выполнения лабораторной работы

Создаем учетную запись на github.com и репозиторий




The screenshot shows the GitHub repository creation interface. At the top, there are two input fields: 'Owner' with a dropdown menu showing '1032189159' and a green checkmark, and 'Repository name' with the text 'MatMod' and a green checkmark. Below these fields is a hint: 'Great repository names are short and memorable. Need inspiration? How about [refactored-octo-train](#)?'. A 'Description (optional)' text area is below that. The visibility section has two radio buttons: 'Public' (selected) with a globe icon and the text 'Anyone on the internet can see this repository. You choose who can commit.', and 'Private' with a lock icon and the text 'You choose who can see and commit to this repository.'. The 'Initialize this repository with:' section has three checkboxes: 'Add a README file' (with a note 'This is where you can write a long description for your project. [Learn more.](#)'), 'Add .gitignore' (with a note 'Choose which files not to track from a list of templates. [Learn more.](#)'), and 'Choose a license' (with a note 'A license tells others what they can and can't do with your code. [Learn more.](#)'). At the bottom is a green 'Create repository' button.


Owner * Repository name *

1032189159 / MatMod ✓

Great repository names are short and memorable. Need inspiration? How about [refactored-octo-train](#)?

Description (optional)

☒  **Public**
Anyone on the internet can see this repository. You choose who can commit.

☐  **Private**
You choose who can see and commit to this repository.

Initialize this repository with:
Skip this step if you're importing an existing repository.

☐ **Add a README file**
This is where you can write a long description for your project. [Learn more.](#)

☐ **Add .gitignore**
Choose which files not to track from a list of templates. [Learn more.](#)

☐ **Choose a license**
A license tells others what they can and can't do with your code. [Learn more.](#)

Create repository

Figure 1: Создание репозитория

Инициализируем локальный репозиторий

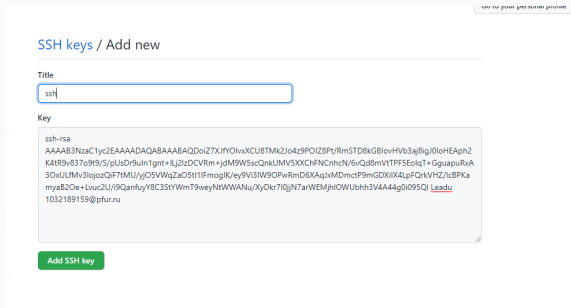
```
PS C:\Users\User\Desktop\Labs> git init
Initialized empty Git repository in C:/Users/User/Desktop/Labs/.git/
PS C:\Users\User\Desktop\Labs> echo "# лабораторные работы" >> README.md
PS C:\Users\User\Desktop\Labs> git add README.md
PS C:\Users\User\Desktop\Labs>
```

Figure 2: Инициализация репозитория

Создаем SSH-ключ

```
PS C:\Users\User\Desktop\Labs> git init
Initialized empty Git repository in C:\Users\User\Desktop\Labs\.git\
PS C:\Users\User\Desktop\Labs> echo "# написание работы" >> README.md
PS C:\Users\User\Desktop\Labs> git add README.md
PS C:\Users\User\Desktop\Labs> git config --global user.name Leadu
PS C:\Users\User\Desktop\Labs> git config --global user.email "10321891590pfur.ru"
PS C:\Users\User\Desktop\Labs> git commit -m "first commit"
[master (root-commit) f6c908b] first commit
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 README.md
PS C:\Users\User\Desktop\Labs> ssh-keygen -C "Leadu 10321891590pfur.ru"
Generating public/private rsa key pair.
Enter file in which to save the key (C:\Users\User\.ssh\id_rsa):
Created directory 'C:\Users\User\.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:\Users\User\.ssh\id_rsa.
Your public key has been saved in C:\Users\User\.ssh\id_rsa.pub.
The key fingerprint is:
SHA256:/w02j10Gm8de2828tt0czX7160511MYMt8mIO+XAS0M Leadu 10321891590pfur.ru
The key's randomart image is:
[SHA256]
-----[RSA 2048]-----
  o.O..++
  =.EO=0.=
  0.O0..+*
  ==00=+
  +S=+ 80
  . =.-0..
  . . 2..
  + +
  -----[SHA256]-----
PS C:\Users\User\Desktop\Labs> cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQBgjZ3fjF0IvXcU8THk2Jo429p0I28Pt/RmSD8kG8Tovwv3aj8jgJ01oHEAph2K4t90v837o9t9/S/g
UsD9uInIgt1LJ2J2pCVmRjdm995ScnKIMV5XXCFNcncN/6vQd8mVtTFP5Eo1qTcGuapuRxA3oXULFmV3tojo2o1f7tM0/y3o3Vwzao5t11fmpo
JK/ey3Vj3190pWm06AqJxbDnctP9mGX1X4lpQrkVHZ/1CBPKanyaB2oe+LvuCZU/19qanfuyY8C35TYWtT9weyNTWwANu/xy0kr710jJN7arWEMJh1
pWub3V4M4d0p050501 Leadu 10321891590pfur.ru
PS C:\Users\User\Desktop\Labs> =
```

Figure 3: Создание SSH-ключа



SSH keys / Add new

Title

ssh

Key

```
ssh-rsa
AAAAB3NzaC1yc2EAAAADAQABAAQDoIzTXjY0IvXCU8TMk2Jo4z9POIZ8Pt/RmSTD8kGBlovHvb3aj8lgJ0loHEAph2
K4tR9v837o9t9/S/pUsDr9uln1gnt+ILj2lzDCVRm+jdM9W5scQnkUMV5XXChFNCnheN/6vQd8mVtTPF5EoIqT+GguapuRxA
3OxULfMv3lojozQlF7tMU/jyOSVWqZaO5t11fmgogIK/ey9V3IW9OPwRmD6XAqixMDmctP9mGDxiOX4LpFQrkVHZ/lcBPKa
myaB2Oe+lvuc2U/i9QanfuyY8C3StYWmT9weyNkWWANu/XyDkr7l0jN7arWEMjhIOWUlbhh3V4A44g0i095QJ Leadu
1032189159@pfur.ru
```

Add SSH key

Figure 4: Добавление ключа на github.com

Загружаем служебные файлы

```
PS C:\Users\User\Desktop\Labs> git remote add origin git@github.com:1032189159/MatMod.git
PS C:\Users\User\Desktop\Labs> wget https://creativecommons.org/licenses/by/4.0/legalcode.txt -O LICENSE
PS C:\Users\User\Desktop\Labs> wget https://www.toptal.com/developers/gitignore/api/python -O .gitignore
PS C:\Users\User\Desktop\Labs> git add .
warning: LF will be replaced by CRLF in .gitignore.
The file will have its original line endings in your working directory
warning: LF will be replaced by CRLF in LICENSE.
The file will have its original line endings in your working directory
PS C:\Users\User\Desktop\Labs> git commit -am "add license"
[master e46e37c] add license
2 files changed, 555 insertions(+)
create mode 100644 .gitignore
create mode 100644 LICENSE
PS C:\Users\User\Desktop\Labs> git push -u origin master
The authenticity of host 'github.com [140.82.121.4]' can't be established.
ED25519 key fingerprint is SHA256:+D1Y3wvvV6TulJhbpZisF/zLDA0zPMSvHdkr4UvCoQU.
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.
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (7/7), 7.70 KiB | 1.92 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:1032189159/MatMod.git
 * [new branch] master -> master
branch 'master' set up to track 'origin/master'.
PS C:\Users\User\Desktop\Labs> git push
Everything up-to-date
PS C:\Users\User\Desktop\Labs>
```

Figure 5: Загрузка файлов лицензии и gitignore

Использование системы управления версиями

```
PS C:\Users\User\Desktop\Labs> echo "1.0.0" >> version
PS C:\Users\User\Desktop\Labs> git add .
PS C:\Users\User\Desktop\Labs> git commit -am "chore(main): add version"
[release/1.0.0 dace0c0] chore(main): add version
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 version
PS C:\Users\User\Desktop\Labs> git flow release finish -m "ver 1" 1.0.0
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
Merge made by the 'ort' strategy.
version | Bin 0 -> 16 bytes
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 version
Already on 'master'
Your branch is ahead of 'origin/master' by 2 commits.
(use "git push" to publish your local commits)
Switched to branch 'develop'
Merge made by the 'ort' strategy.
version | Bin 0 -> 16 bytes
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 version
Deleted branch release/1.0.0 (was dace0c0).

Summary of actions:
- Release branch 'release/1.0.0' has been merged into 'master'
- The release was tagged 'v1.0.0'
- Release tag 'v1.0.0' has been back-merged into 'develop'
- Release branch 'release/1.0.0' has been locally deleted
- You are now on branch 'develop'

PS C:\Users\User\Desktop\Labs> _
```

Figure 6: Инициализация git-flow и создание релиза

Использование системы управления версиями

```
PS C:\Users\User\Desktop\Labs> git push --all
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 473 bytes | 236.00 KiB/s, done.
Total 5 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (3/3), completed with 1 local object.
To github.com:1032189159/MatMod.git
   e46c57c..0c3ebfb master -> master
   * [new branch]      develop -> develop
PS C:\Users\User\Desktop\Labs> git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 157 bytes | 157.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:1032189159/MatMod.git
   * [new tag]         v1.0.0 -> v1.0.0
PS C:\Users\User\Desktop\Labs>
```

Figure 7: Отправка изменений в сетевой репозиторий

Выполним объединение веток

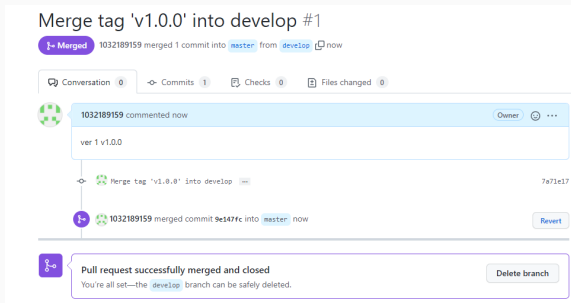


Figure 8: Объединение веток в сетевом репозитории

Выводы по проделанной работе

Мы приобрели практические навыки работы с системой контроля версий git и создали свой репозиторий