

# Управление версиями

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Шах Дхирадж НПИБД-02-20<sup>1</sup>

18 ноября, 2021, Москва, Россия

<sup>1</sup>Российский Университет Дружбы Народов

# Цели и задачи работы

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# 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 и организовать доступ по `ssh`
3. Изучить механизм управления версиями

# **Процесс выполнения лабораторной работы**

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# Создаем учетную запись на github.com и репозиторий


Owner <sup>\*</sup> Repository name <sup>\*</sup>


 shahdhiradj / Laboratory ✓

Great repository names are short and memorable. Need inspiration? How about [cuddly-broccoli](#)?

Description (optional)

Операционные системы

☒  **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.](#)

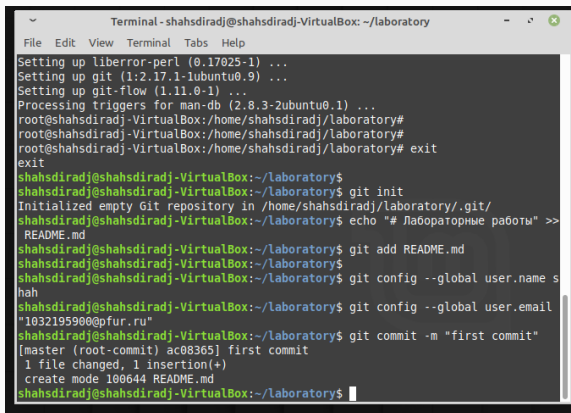
☐ **Add .gitignore**  
Choose which files not to track from a list of templates. [Learn more.](#)

☐ **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

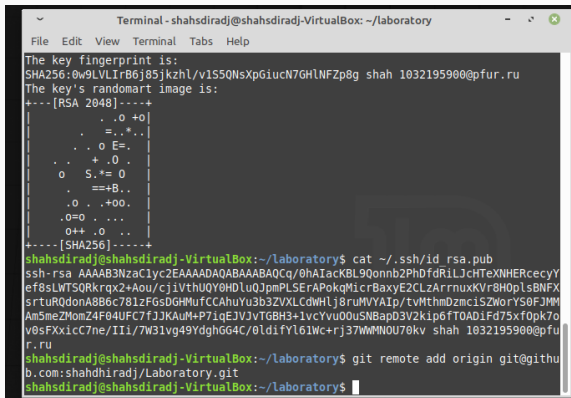
# Инициализируем локальный репозиторий



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help
Setting up liberror-perl (0.17025-1) ...
Setting up git (1:2.17.1-lubuntu0.9) ...
Setting up git-flow (1.11.0-1) ...
Processing triggers for man-db (2.8.3-2ubuntu0.1) ...
root@shahsdiradj-VirtualBox:/home/shahsdiradj/laboratory#
root@shahsdiradj-VirtualBox:/home/shahsdiradj/laboratory#
root@shahsdiradj-VirtualBox:/home/shahsdiradj/laboratory# exit
exit
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git init
Initialized empty Git repository in /home/shahsdiradj/laboratory/.git/
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ echo "# Лабораторные работы" >>
README.md
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git add README.md
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git config --global user.name s
hah
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git config --global user.email
"1032195900@pfur.ru"
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git commit -m "first commit"
[master (root-commit) ac08365] first commit
1 file changed, 1 insertion(+)
create mode 100644 README.md
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
```

Figure 2: Инициализация репозитория

# Создаем SSH-ключ



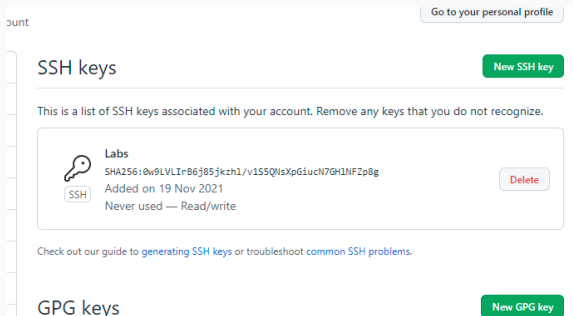
```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help

The key fingerprint is:
SHA256:0w9LVLIrB6j85jkzh/v1S5QNsXpGiucN7GHlNFZp8g shah 1032195900@pfur.ru
The key's randomart image is:
+---[RSA 2048]----+
|      . . 0 +o |
|      . =.*.. |
|      . . 0 E=. |
|      . + .0 . |
|      o S.*= 0 |
|      . ==+B.. |
|      .0 . .+oo. |
|      .0=0 . ... |
|      o++ .0 .. |
+-----[SHA256]-----+
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ cat ~/.ssh/id_rsa.pub
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQACq/0hAIacKBL90onnb2PhDfdRiLJcHteXNHERcecyY
ef8sLWTSQRkrqx2+Aou/cjiVthUQY0HDLuQJpmPLSErAPokqMicrBaxyE2CLzArrnuxKvr8H0plsBNFX
srtuRQdonA8B6c781zFGsDGHMufCCAhuYu3b3ZVXLCdwHlj8ruMVYAIP/tvMthmDzmciSZworYS0FJMM
AmSmeZMom24F04UFC7fJJKAuM+P7iqEJVJvTGBH3+1vcYvu00uSNBapD3V2kip6fTOADiFd75xf0pk7o
v0sFXxic7ne/IIi/7W31vg49YdghGG4C/0ldifYl61Wc+rj37WMN0U70kv shah 1032195900@pfu
r.ru
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git remote add origin git@github
b.com:shahdhiradj/Laboratory.git
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
```

Figure 3: Создание SSH-ключа

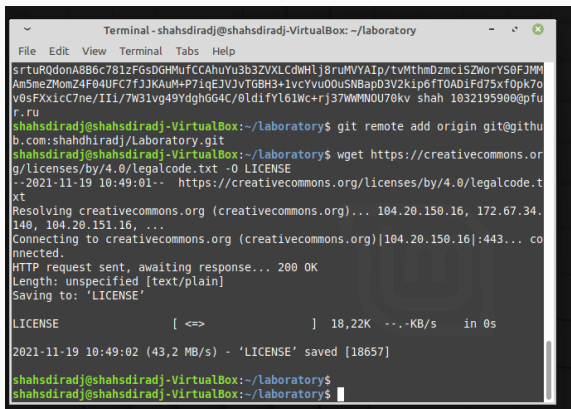


# Создаем SSH-ключ



**Figure 4:** Добавление ключа на github.com

# Загружаем служебные файлы



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help
srtuRQdonA8B6c781zFGsDGHMufCCAhuYu3b3ZVXLCdWHlj8ruMVYAip/tvMthmDzmc1SZworYS0FJMM
Am5meZMomZ4F04UFC7fJJKAuM+p7iqEJVJvTGBH3+1vcYvu00uSNBapD3V2kip6ftOAdiFd75xf0pk7o
v0sFXxicC7ne/IIIi/7W31vg49YdghGG4C/0ldifYl61Wc+rj37WMMNOU70kv shah 1032195900@pfu
r.ru
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git remote add origin git@github
b.com:shahdhiradj/Laboratory.git
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ wget https://creativecommons.or
g/licenses/by/4.0/legalcode.txt -O LICENSE
--2021-11-19 10:49:01-- https://creativecommons.org/licenses/by/4.0/legalcode.t
xt
Resolving creativecommons.org (creativecommons.org)... 104.20.150.16, 172.67.34.
140, 104.20.151.16, ...
Connecting to creativecommons.org (creativecommons.org)|104.20.150.16|:443... co
nnected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/plain]
Saving to: 'LICENSE'

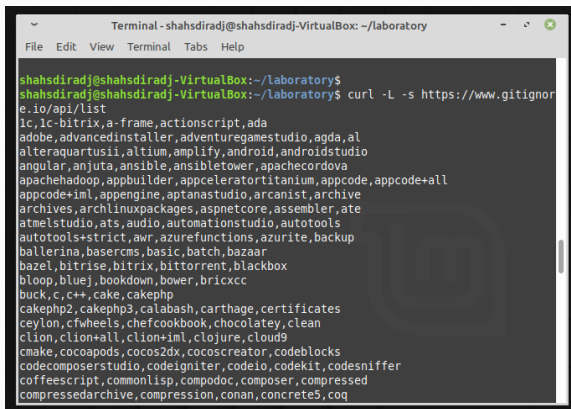
LICENSE                                     [ <=>          ] 18,22K  --.-KB/s   in 0s

2021-11-19 10:49:02 (43,2 MB/s) - 'LICENSE' saved [18657]

shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
```

Figure 5: Загрузка файлов

# Загружаем служебные файлы

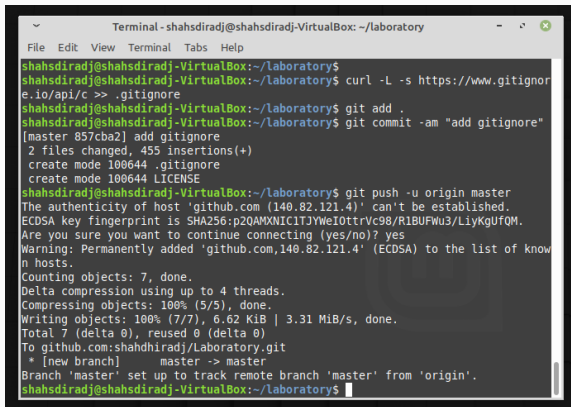
A terminal window titled "Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The terminal shows a command prompt "shahsdiradj@shahsdiradj-VirtualBox:~/laboratory\$" followed by the command "curl -L -s https://www.gitignor". The output is a long list of project names from the GitHub API, including "e.io/api/list", "lc,lc-bitrix", "a-frame", "actionscript", "ada", "adobe", "advancedinstaller", "adventuregamestudio", "agda", "al", "alteraquartusii", "altium", "amplify", "android", "androidstudio", "angular", "anjuta", "ansible", "ansibletower", "apachecordova", "apachehadoop", "appbuilder", "appcelerator", "titanium", "appcode", "appcode+all", "appcode+iml", "appengine", "aptanastudio", "arcanist", "archive", "archives", "archlinuxpackages", "aspnetcore", "assembler", "ate", "atmelstudio", "ats", "audio", "automationstudio", "autotools", "autotools+strict", "awr", "azurefunctions", "azurite", "backup", "ballerina", "basercms", "basic", "batch", "bazaar", "bazel", "bitrise", "bitrix", "bittorrent", "blackbox", "bloop", "bluej", "bookdown", "bower", "bricxcc", "buck", "c", "c++", "cake", "cakephp", "cakephp2", "cakephp3", "calabash", "carthage", "certificates", "ceylon", "cfwheels", "chefcookbook", "chocolatey", "clean", "clion", "clion+all", "clion+iml", "clojure", "cloud9", "cmake", "cocoapods", "cocos2dx", "cocoscreator", "codeblocks", "codecomposerstudio", "codeigniter", "codeio", "codekit", "codesniffer", "coffeescript", "commonlisp", "compodoc", "composer", "compressed", "compressedarchive", "compression", "conan", "concrete5", "coq".

```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help

shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ curl -L -s https://www.gitignor
e.io/api/list
lc,lc-bitrix,a-frame,actionscript,ada
adobe,advancedinstaller,adventuregamestudio,agda,al
alteraquartusii,altium,amplify,android,androidstudio
angular,anjuta,ansible,ansibletower,apachecordova
apachehadoop,appbuilder,appcelerator,titanium,appcode,appcode+all
appcode+iml,appengine,aptanastudio,arcanist,archive
archives,archlinuxpackages,aspnetcore,assembler,ate
atmelstudio,ats,audio,automationstudio,autotools
autotools+strict,awr,azurefunctions,azurite,backup
ballerina,basercms,basic,batch,bazaar
bazel,bitrise,bitrix,bittorrent,blackbox
bloop,bluej,bookdown,bower,bricxcc
buck,c,c++,cake,cakephp
cakephp2,cakephp3,calabash,carthage,certificates
ceylon,cfwheels,chefcookbook,chocolatey,clean
clion,clion+all,clion+iml,clojure,cloud9
cmake,cocoapods,cocos2dx,cocoscreator,codeblocks
codecomposerstudio,codeigniter,codeio,codekit,codesniffer
coffeescript,commonlisp,compodoc,composer,compressed
compressedarchive,compression,conan,concrete5,coq
```

Figure 6: Загрузка файлов

# Отправляем файлы в репозиторий

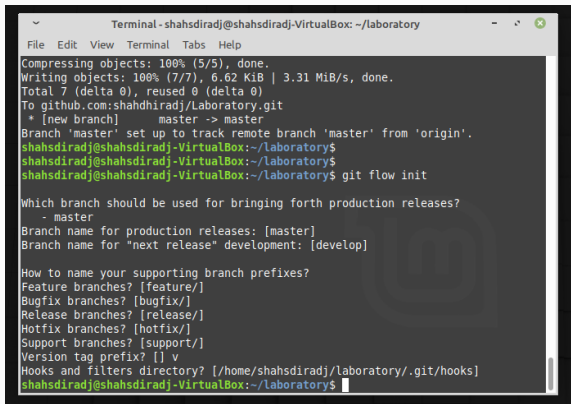


```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help

shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$ curl -L -s https://www.gitignore
e.io/api/c >> .gitignore
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$ git add .
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$ git commit -am "add gitignore"
[master 857cba2] add gitignore
2 files changed, 455 insertions(+)
create mode 100644 .gitignore
create mode 100644 LICENSE
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$ git push -u origin master
The authenticity of host 'github.com (140.82.121.4)' can't be established.
ECDSA key fingerprint is SHA256:p2QAMXNIC1TJYWeI0ttrVc98/R1BUFWu3/LiyKGufoM.
Are you sure you want to continue connecting (yes/no)? yes
Warning: Permanently added 'github.com,140.82.121.4' (ECDSA) to the list of know
n hosts.
Counting objects: 7, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (5/5), done.
Writing objects: 100% (7/7), 6.62 KiB | 3.31 MiB/s, done.
Total 7 (delta 0), reused 0 (delta 0)
To github.com:shahdhiradj/Laboratory.git
 * [new branch]      master -> master
Branch 'master' set up to track remote branch 'master' from 'origin'.
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$
```

Figure 7: Отправка в сетевой репозиторий по SSH

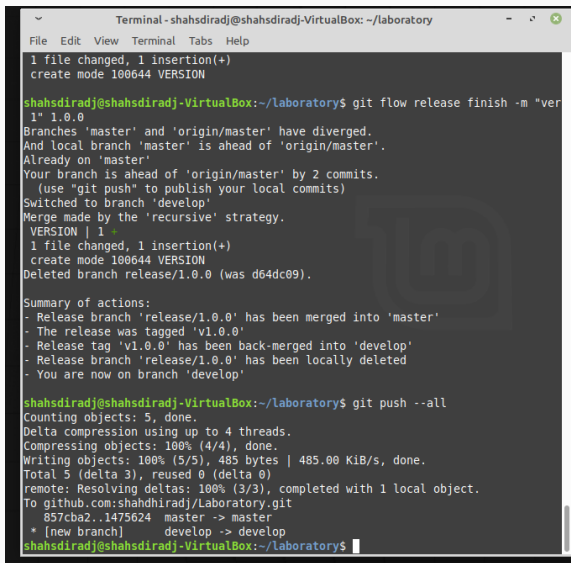
# Использование системы управления версиями

A screenshot of a terminal window titled "Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory". The terminal shows the output of a git commit, followed by the command "git flow init". It then prompts the user to select a branch for production releases (defaulting to master) and a branch for the next release (defaulting to develop). Finally, it asks for prefixes for various branch types (feature, bugfix, release, hotfix, support) and a version tag prefix (defaulting to v). The terminal ends with the prompt "shahsdiradj@shahsdiradj-VirtualBox: ~/Laboratory\$".

```
~  
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory  
File Edit View Terminal Tabs Help  
Compressing objects: 100% (5/5), done.  
Writing objects: 100% (7/7), 6.62 KiB | 3.31 MiB/s, done.  
Total 7 (delta 0), reused 0 (delta 0)  
To github.com:shahdhiradj/Laboratory.git  
* [new branch] master -> master  
Branch 'master' set up to track remote branch 'master' from 'origin'.  
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$  
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$  
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$ git flow init  
  
Which branch should be used for bringing forth production releases?  
- master  
Branch name for production releases: [master]  
Branch name for "next release" development: [develop]  
  
How to name your supporting branch prefixes?  
Feature branches? [feature/]   
Bugfix branches? [bugfix/]   
Release branches? [release/]   
Hotfix branches? [hotfix/]   
Support branches? [support/]   
Version tag prefix? [] v   
Hooks and filters directory? [/home/shahsdiradj/laboratory/.git/hooks]  
shahsdiradj@shahsdiradj-VirtualBox:~/Laboratory$
```

Figure 8: Инициализация git-flow

# Использование системы управления версиями



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help
1 file changed, 1 insertion(+)
create mode 100644 VERSION

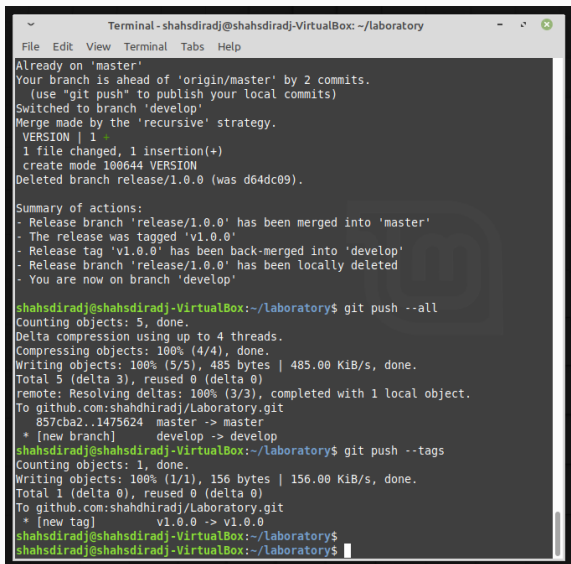
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git flow release finish -m "ver
1" 1.0.0
Branches 'master' and 'origin/master' have diverged.
And local branch 'master' is ahead of 'origin/master'.
Already on 'master'
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)
Switched to branch 'develop'
Merge made by the 'recursive' strategy.
  VERSION | 1 +
  1 file changed, 1 insertion(+)
  create mode 100644 VERSION
Deleted branch release/1.0.0 (was d64dc09).

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'

shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git push --all
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 485 bytes | 485.00 KiB/s, done.
Total 5 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 1 local object.
To github.com:shahdhiradj/Laboratory.git
   857cba2..1475624  master -> master
   * [new branch]      develop -> develop
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
```

Figure 9: Завершение релиза

# Использование системы управления версиями



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~/laboratory
File Edit View Terminal Tabs Help

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 'recursive' strategy.
VERSION | 1 +
1 file changed, 1 insertion(+)
create mode 100644 VERSION
Deleted branch release/1.0.0 (was d64dc09).

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'

shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git push --all
Counting objects: 5, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 485 bytes | 485.00 KiB/s, done.
Total 5 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 1 local object.
To github.com:shahdhiradj/Laboratory.git
  857cba2..1475624  master -> master
  * [new branch]      develop -> develop
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$ git push --tags
Counting objects: 1, done.
Writing objects: 100% (1/1), 156 bytes | 156.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0)
To github.com:shahdhiradj/Laboratory.git
  * [new tag]         v1.0.0 -> v1.0.0
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
shahsdiradj@shahsdiradj-VirtualBox:~/laboratory$
```

Figure 10: Отправка изменений в сетевой репозиторий

# Выполним объединение веток

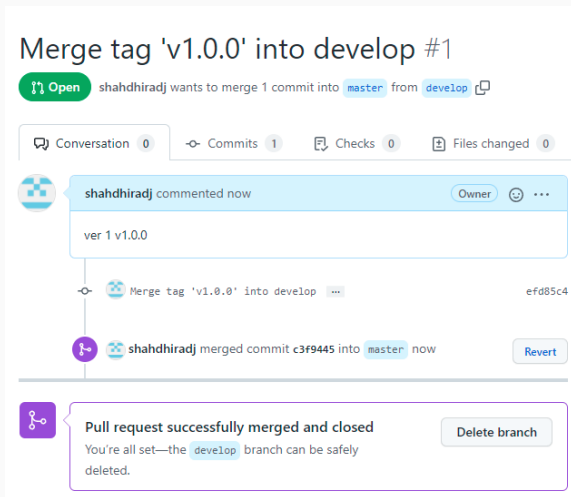


Figure 11: Объединение веток в сетевом репозитории



## **Выводы по проделанной работе**

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