

# **Шаблон отчёта по лабораторной работе**

**Простейший вариант**

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# 1 Цель работы

Изучить идеологию и применение средств контроля версий.

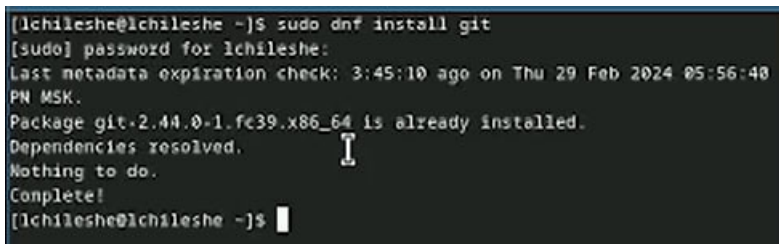
Освоить умения по работе с git.

## 2 Теоретическое введение

Установка Git служит основополагающим шагом в использовании систем контроля версий для разработки программного обеспечения, позволяя разработчикам отслеживать изменения, сотрудничать и эффективно управлять проектами. Git — это распределенная система контроля версий, то есть она сохраняет полную историю проекта на каждом компьютере разработчика. Эта архитектура гарантирует, что у каждого разработчика есть полная копия истории проекта, что позволяет им работать в автономном режиме и способствует более быстрому и надежному сотрудничеству. # Выполнение лабораторной работы

Установка git

dnf install git



```
[lchileshe@lchileshe ~]$ sudo dnf install git
[sudo] password for lchileshe:
Last metadata expiration check: 3:45:10 ago on Thu 29 Feb 2024 05:56:48 PM MSK.
Package git-2.44.0-1.fc39.x86_64 is already installed.
Dependencies resolved.
Nothing to do.
Complete!
[lchileshe@lchileshe ~]$
```

Рис. 2.1: install git

Установка gh

dnf install gh

```
[lchileshe@lchileshe ~]$ sudo dnf install gh
Last metadata expiration check: 3:45:56 ago on Thu 29 Feb 2024 05:56:48 PM MSK.
Dependencies resolved.
=====
Package      Architecture Version      Repository    Size
-----
Installing:
gh           x86_64      2.43.1-1.fc39 updates      9.1 N

Transaction Summary
=====
Install 1 Package

Total download size: 9.1 N
Installed size: 46 N
Is this ok [y/N]: y
Downloading Packages:
gh-2.43.1-1.fc39.x86_64.rpm      3.4 MB/s | 9.1 MB  00:02
-----
Total                          2.3 MB/s | 9.1 MB  00:03
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : 1/1
  Installing     : gh-2.43.1-1.fc39.x86_64 1/1
  Running scriptlet: gh-2.43.1-1.fc39.x86_64 1/1
  [ ]
```

Рис. 2.2: nstall gh

## 2.1 Базовая настройка git

Я установил имя и адрес электронной почты репозитория.

```
[lchileshe@lchileshe ~]$ git config --global user.name "LupupaChileshe"
[lchileshe@lchileshe ~]$ git config --global user.email 'vchileshe968@gnail.com'
```

Рис. 2.3: git config

- Я настроил utf-8 в выводе сообщения git
- Я установил параметр autocrlf
- Я установил параметр SafeCRLF

```
[lchileshe@lchileshe ~]$ git config --global core.quotePath false
[lchileshe@lchileshe ~]$ git config --global core.quotePath false
[lchileshe@lchileshe ~]$ git config --global core.autocrlf input
[lchileshe@lchileshe ~]$ git config --global core.safecrlf warn
[lchileshe@lchileshe ~]$
```

Рис. 2.4: параметр

## 2.2 Создание ssh-ключей

- по алгоритму rsa с ключём размером 4096 бит:

ssh-keygen -t rsa -b 4096

```
[lchileshe@lchileshe ~]$ ssh-keygen -t rsa -b 4096
Generating public/private rsa key pair.
Enter file in which to save the key (/home/lchileshe/.ssh/id_rsa):
Created directory '/home/lchileshe/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/lchileshe/.ssh/id_rsa
Your public key has been saved in /home/lchileshe/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:1FBjXpstv60YX2A51fkMuUYA8TwpRFk8zkF69KlkA8o lchileshe@lchileshe
The key's randomart image is:
+---[RSA 4096]---+
  |..*+...+|
  |=.+...+|
  |..0*...+|
  |.E . B*+...|
  | S +...+ |
  | .0* . |
  | + |
  | o o . |
  | o.o |
  +---[SHA256]---+
```

Рис. 2.5: rsa 4096

- по алгоритму ed25519:

ssh-keygen -t ed25519



```

[Ichileshe@Ichileshe ~]$ ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/Ichileshe/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/Ichileshe/.ssh/id_ed25519
Your public key has been saved in /home/Ichileshe/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:8zLzgmpJVTO9R4MVc@iKBwNphP3htD8ujlu00941fYk Ichileshe@Ichileshe
The key's randomart image is:
+--[ED25519 256]--+
|      +oo*. +oo.  |
|      .o*o.o.+o   |
|      .B.+oo. .   |
|      ..B.o. .    |
|      ...o$       |
|      ...*..      |
|      .+ oo.E.o   |
|      o.+..o...   |
|      .-oo. .    |
+-----[SHA256]-----+
[Ichileshe@Ichileshe ~]$

```

Рис. 2.6: ed25519

## 2.3 Создание ключей ргр

- Генерируем ключ

gpg --full-generate-key

```

[lchileshe@lchileshe ~]$ gpg --full-generate-key
gpg (GnuPG) 2.4.3; Copyright (C) 2023 g10 Code GmbH
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

Please select what kind of key you want:
  (1) RSA and RSA
  (2) DSA and Elgamal
  (3) DSA (sign only)
  (4) RSA (sign only)
  (9) ECC (sign and encrypt) *default*
 (10) ECC (sign only)
 (14) Existing key from card
Your selection? 1
RSA keys may be between 1024 and 4096 bits long.
What keysize do you want? (3072) 4096
Requested keysize is 4096 bits
Please specify how long the key should be valid.
    0 = key does not expire
    <n> = key expires in n days
    <n>w = key expires in n weeks
    <n>m = key expires in n months
    <n>y = key expires in n years
Key is valid for? (0) 0
Key does not expire at all
Is this correct? (y/N) y

GnuPG needs to construct a user ID to identify your key.

Real name: Lupupa Chileshe
Email address: vchileshe988@gmail.com
Comment:
You selected this USER-ID:
    "Lupupa Chileshe <vchileshe988@gmail.com>"

Change (N)ame, (C)omment, (E)mail or (O)kay/(Q)uit? o
We need to generate a lot of random bytes. It is a good idea to perform

```

Рис. 2.7: generate-key

## 2.4 Настройка автоматических подписей коммитов git

Я использовал введенный адрес электронной почты, скажите Git использовать его при подключении коммитов:

```
git config --global user.signingkey git config --global commit.gpgsign true git config --global gpg.program $(which gpg2)
```

```
[lchileshe@lchileshe ~]$ git config --global user.signingkey vchilehe988@gmail.com
[lchileshe@lchileshe ~]$ git config --global commit.gpgsign true
[lchileshe@lchileshe ~]$ git config --global gpg.program $(which gpg2)
[lchileshe@lchileshe ~]$ gh auth login
? What account do you want to log into? GitHub.com
? What is your preferred protocol for Git operations on this host? SSH
? Upload your SSH public key to your GitHub account? /home/lchileshe/.ssh/id_rsa.pub
? Title for your SSH key: GitHub CLI
? How would you like to authenticate GitHub CLI? Login with a web browser

| First copy your one-time code: 4124-3F4F
Press Enter to open github.com in your browser...
✓ Authentication complete.
- gh config set -h github.com git_protocol ssh
✓ Configured git protocol
✓ Uploaded the SSH key to your GitHub account: /home/lchileshe/.ssh/id_rsa.pub
✓ Logged in as LupupaChileshe
[lchileshe@lchileshe ~]$
```

## 2.5 Создание репозитория курса на основе шаблона

создал шаблон рабочего пространства

```
mkdir -p ~/work/study/2022-2023/"Операционные системы" cd ~/work/study/2022-2023/"Операционные системы" gh repo create study_2022-2023_os-intro --template=yamadharma/course-directory-student-template --public
```

```
[lchileshe@lchileshe ~]$ mkdir -p ~/work/study/2022-2023/"Операционные системы"
[lchileshe@lchileshe ~]$ cd ~/work/study/2022-2023/"Операционные системы"
[lchileshe@lchileshe Операционные системы]$ gh repo create study_2022-2023_os-intro --template=yamadharma/course-directory-student-template --public
'--public', '--private', or '--internal' required when not running interactively
Usage: gh repo create [name] [flags]

Flags:
  --add-readme      Add a README file to the new repository
  -c, --clone       Clone the new repository to the current directory
  -d, --description string Description of the repository
  --disable-issues  Disable issues in the new repository
  --disable-wiki    Disable wiki in the new repository
  -g, --gitignore string Specify a gitignore template for the repository
  -h, --homepage URL Repository home page URL
  --include-all-branches Include all branches from template repository
  --internal        Make the new repository internal
```

Рис. 2.8: шаблон рабочего пространства

```
[lchileshe@lchileshe Операционные системы]$ gh repo create study_2022-2023_
os-intro --template=yanadharna/course-directory-student-template --public
✓ Created repository LupupaChileshe/study_2022-2023_os-intro on GitHub
```

git clone --recursive git@github.com:/study\_2022-2023\_os-intro.git os-intro

```
[lchileshe@lchileshe Операционные системы]$ git clone --recursive git@github.com:
LupupaChileshe/study_2023-2024_os-intro.git os-intro
Cloning into 'os-intro'...
remote: Enumerating objects: 32, done.
remote: Counting objects: 100% (32/32), done.
remote: Compressing objects: 100% (31/31), done.
remote: Total 32 (delta 1), reused 18 (delta 0), pack-reused 0
Receiving objects: 100% (32/32), 18.60 KiB | 3.72 MiB/s, done.
Resolving deltas: 100% (1/1), done.
Submodule 'template/presentation' (https://github.com/yanadharna/academic-present
ation-markdown-template.git) registered for path 'template/presentation'
Submodule 'template/report' (https://github.com/yanadharna/academic-laboratory-re
port-template.git) registered for path 'template/report'
Cloning into '/home/lchileshe/work/study/2023-2024/Операционные системы/os-intro/t
emplate/presentation'...
remote: Enumerating objects: 95, done.
remote: Counting objects: 100% (95/95), done.
remote: Compressing objects: 100% (67/67), done.
remote: Total 95 (delta 34), reused 87 (delta 26), pack-reused 0
Receiving objects: 100% (95/95), 96.99 KiB | 928.00 KiB/s, done.
Resolving deltas: 100% (34/34), done.
Cloning into '/home/lchileshe/work/study/2023-2024/Операционные системы/os-intro/t
emplate/report'...
remote: Enumerating objects: 126, done.
remote: Counting objects: 100% (126/126), done.
remote: Compressing objects: 100% (87/87), done.
remote: Total 126 (delta 52), reused 108 (delta 34), pack-reused 0
Receiving objects: 100% (126/126), 335.80 KiB | 1.53 MiB/s, done.
```

Рис. 2.9: git clone

## 2.6 Настройка каталога курса

- Зашёл в каталог курса
- Удалил ненужные файлы
- создал необходимые каталоги

```

[ichileshe@ichileshe Операционные системы]$ cd os-intro
[ichileshe@ichileshe os-intro]$ ls
CHANGELOG.md  LICENSE      README.en.md  template
config        Makefile     README.git-flow.md
COURSE        package.json README.md
[ichileshe@ichileshe os-intro]$ rm package.json
[ichileshe@ichileshe os-intro]$ ls
CHANGELOG.md  LICENSE      README.git-flow.md
config        Makefile     README.md
COURSE        README.en.md template
[ichileshe@ichileshe os-intro]$ echo os-intro > COURSE
[ichileshe@ichileshe os-intro]$ make
Usage:
  make <target>

Targets:
  list          List of courses
  prepare       Generate directories structure
  submodule     Update submodules

```

Рис. 2.10: каталога курса

- Отправил файлы на сервер

The screenshot shows a GitHub repository page for 'LupupaChileshe' with the commit message 'feat(main): make course structure'. The repository has 481 commits, 2 days ago, and 3 commits. The commit history table lists the following files and their commit dates:

File	Commit Message	Commit Date
config	Initial commit	2 days ago
labs	feat(main): make course structure	2 days ago
presentation	feat(main): make course structure	2 days ago
project-personal	feat(main): make course structure	2 days ago
template	Initial commit	2 days ago
.gitattributes	Initial commit	2 days ago
.gitignore	Initial commit	2 days ago
.gitmodules	Initial commit	2 days ago
CHANGELOG.md	Initial commit	2 days ago
COURSE	feat(main): make course structure	2 days ago
LICENSE	Initial commit	2 days ago
Makefile	Initial commit	2 days ago
README.en.md	Initial commit	2 days ago
README.git-flow.md	Initial commit	2 days ago

The right sidebar shows repository statistics: No description, website, or topics provided. Readme, CC-BY-4.0 license, Activity, 0 stars, 1 watching, 0 forks. Releases: No releases published. Packages: No packages published. Languages: Python 95.4%, TeX 3.3%, Makefile 1.2%, Other 0.1%. Suggested workflows: Based on your tech stack.

## 3 Выводы

Я узнал, как установить git и все необходимые файлы, которые ему нужны для запуска.

## **Список литературы**