

# **Операционные системы**

Продвинутое использование git

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Фатима Халилова

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## **1. Цели и задачи работы**

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## 1.1 Цель лабораторной работы

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Получение навыков правильной работы с репозиториями git.

## 1.2 Задачи лабораторной работы

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- 1 Выполнить работу для тестового репозитория.
- 2 Преобразовать рабочий репозиторий в репозиторий с git-flow и conventional commits.

## **2. Процесс выполнения лабораторной работы**

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## 2.1 Node.js

```
frhalolova@frhalilova:~$ pnpm setup
Appended new lines to /home/frhalolova/.bashrc

Next configuration changes were made:
export PNPM_HOME="/home/frhalolova/.local/share/pnpm"
case ":$PATH:" in
  *":$PNPM_HOME:*") ;;
  *) export PATH="$PNPM_HOME:$PATH" ;;
esac

To start using pnpm, run:
source /home/frhalolova/.bashrc
frhalolova@frhalilova:~$ source ~/.bashrc
frhalolova@frhalilova:~$ █
```

Рисунок 1: Node.js

## 2.2 commitizen

```
frhalolova@frhalilova:~$  
frhalolova@frhalilova:~$ pnpm add -g commitizen  
  
Update available! 10.9.0 → 10.22.0.  
Changelog: https://pnpm.io/v/10.22.0  
To update, run: pnpm self-update  
  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +151  
+-----+  
Progress: resolved 151, reused 0, downloaded 151, added 151, done  
  
/home/frhalolova/.local/share/pnpm/global/5:  
+ commitizen 4.3.1  
  
Done in 2.7s using pnpm v10.9.0  
frhalolova@frhalilova:~$ █
```

Рисунок 2: установка commitizen

## 2.3 standard-changelog

```
frhalolova@frhalilova:~$ pnpm add -g standart-changelog
ERR_PNPM_FETCH_404  GET https://registry.npmjs.org/standart-changelog: Not Found - 404
```

This error happened while installing a direct dependency of /home/frhalolova/.local/share/pnpm/global/5

standart-changelog is not in the npm registry, or you have no permission to fetch it.

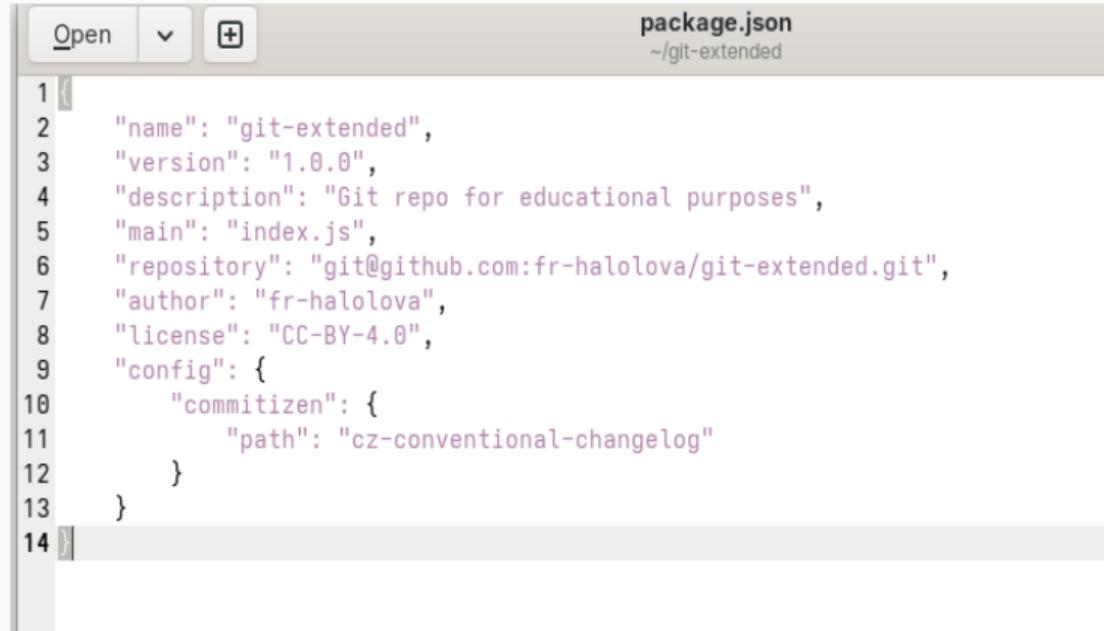
No authorization header was set for the request.

Progress: resolved 1, reused 1, downloaded 0, added 0

```
frhalolova@frhalilova:~$
```

**Рисунок 3:** установка standard-changelog

## 2.4 package.json



The screenshot shows a code editor window with the title bar "package.json" and the path "~/git-extended". The editor has an "Open" button and a "+" icon. The code itself is a JSON object with the following structure:

```
1 {
2   "name": "git-extended",
3   "version": "1.0.0",
4   "description": "Git repo for educational purposes",
5   "main": "index.js",
6   "repository": "git@github.com:fr-halolova/git-extended.git",
7   "author": "fr-halolova",
8   "license": "CC-BY-4.0",
9   "config": {
10     "commitizen": {
11       "path": "cz-conventional-changelog"
12     }
13   }
14 }
```

Рисунок 4: package.json

## 2.5 Использование commitizen

```
frhalolova@frhalilova:~/git-extended$ git add .
frhalolova@frhalilova:~/git-extended$ git cz
cz-cli@4.3.1, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: chore: Other changes that don't
modify src or test files
? What is the scope of this change (e.g. component or file name): (press enter to skip)
? Write a short, imperative tense description of the change (max 93 chars):
(4) test
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? Yes
? A BREAKING CHANGE commit requires a body. Please enter a longer description of the commit
itself:
-
? Describe the breaking changes:

? Does this change affect any open issues? No
[master 84cb114] chore: test
 1 file changed, 14 insertions(+)
  create mode 100644 package.json
frhalolova@frhalilova:~/git-extended$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 479 bytes | 479.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:fr-halolova/git-extended.git
  9b85038..84cb114  master -> master
frhalolova@frhalilova:~/git-extended$ █
```

Рисунок 5: Отправка

## 2.6 git-flow

```
frhalolova@frhalilova:~/git-extended$  
frhalolova@frhalilova:~/git-extended$ 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/frhalolova/git-extended/.git/hooks]  
frhalolova@frhalilova:~/git-extended$ git branch  
* develop  
  master  
frhalolova@frhalilova:~/git-extended$ git push --all  
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
remote:  
remote: Create a pull request for 'develop' on GitHub by visiting:  
remote:     https://github.com/fr-halolova/git-extended/pull/new/develop  
remote:  
To github.com:fr-halolova/git-extended.git  
 * [new branch]      develop -> develop  
frhalolova@frhalilova:~/git-extended$ █
```

Рисунок 6: Инициализация и загрузка изменений

## 2.7 git-flow

```
frhalolova@frhalilova:~/git-extended$ standard-changelog --first-release
frhalolova@frhalilova:~/git-extended$ git add CHANGELOG.md
frhalolova@frhalilova:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 6c37f18] chore(site): add changelog
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
frhalolova@frhalilova:~/git-extended$ git flow release finish 1.0.0
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 +++
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
Already on 'master'
Your branch is ahead of 'origin/master' by 2 commits.
  (use "git push" to publish your local commits)
```

**Рисунок 7:** Завершение релиза

## 2.8 Отправим данные на github

```
frhalolova@frhalilova:~/git-extended$ git push --all
frhalolova@frhalilova:~/git-extended$ git push --all
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 550 bytes | 550.00 KiB/s, done.
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), done.
To github.com:fr-halolova/git-extended.git
  84cb114..31faf4a  develop -> develop
  84cb114..834b2a4  master -> master
frhalolova@frhalilova:~/git-extended$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 156 bytes | 156.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:fr-halolova/git-extended.git
 * [new tag]      v1.0.0 -> v1.0.0
frhalolova@frhalilova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/fr-halolova/git-extended/releases/tag/v1.0.0
frhalolova@frhalilova:~/git-extended$ █
```

Рисунок 8: Отправка

## 2.9 Объединение веток

```
frhalolova@frhalilova:~/git-extended$ git flow feature start feature_branch
Switched to a new branch 'feature/feature_branch'

Summary of actions:
- A new branch 'feature/feature_branch' was created, based on 'develop'
- You are now on branch 'feature/feature_branch'

Now, start committing on your feature. When done, use:

    git flow feature finish feature_branch

frhalolova@frhalilova:~/git-extended$ touch test2
frhalolova@frhalilova:~/git-extended$ git flow feature finish feature_branch
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.
Already up to date.
Deleted branch feature/feature_branch (was 31faf4a).

Summary of actions:
- The feature branch 'feature/feature_branch' was merged into 'develop'
- Feature branch 'feature/feature_branch' has been locally deleted
- You are now on branch 'develop'

frhalolova@frhalilova:~/git-extended$
```

**Рисунок 9:** Объединение веток

## 2.10 git-flow

```
Summary of actions:
- Release branch 'release/1.2.3' has been merged into 'master'
- The release was tagged 'v1.2.3'
- Release tag 'v1.2.3' has been back-merged into 'develop'
- Release branch 'release/1.2.3' has been locally deleted
- You are now on branch 'develop'

frhalolova@frhalilova:~/git-extended$ git push --all
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 751 bytes | 751.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To github.com:fr-halolova/git-extended.git
  31faf4a..0f6efd0  develop -> develop
  834b2a4..d753501  master -> master
frhalolova@frhalilova:~/git-extended$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 158 bytes | 158.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:fr-halolova/git-extended.git
 * [new tag]      v1.2.3 -> v1.2.3
frhalolova@frhalilova:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/fr-halolova/git-extended/releases/tag/v1.2.3
frhalolova@frhalilova:~/git-extended$
```

Рисунок 10: Завершение релиза

## 2.11 Подготовка рабочего репозитория

```
frhalolova@frhalilova:~/git-extended$  
frhalolova@frhalilova:~/git-extended$ cd  
frhalolova@frhalilova:~$ cd work/study/2025-2026/Операционные\ системы/os-intro/  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ pnpm init  
ERR_PNPM_PACKAGE_JSON_EXISTS package.json already exists  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ gedit package.js  
on  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ git add .  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ git cz  
No files added to staging! Did you forget to run git add?  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ git push  
Everything up-to-date  
frhalolova@frhalilova:~/work/study/2025-2026/Операционные\ системы/os-intro$ █
```

Рисунок 11: package.json и коммит

## 2.12 Подготовка рабочего репозитория

```
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'

frhalolova@frhalilova:~/work/study/2025-2026/Операционные системы/os-intro$ git push --all
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 4 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (5/5), 672 bytes | 672.00 KiB/s, done.
Total 5 (delta 3), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (3/3), completed with 1 local object. ▶
To github.com:fr-halolova/os-intro.git
  462464b..4d36806  develop -> develop
  462464b..893ee13  master -> master
frhalolova@frhalilova:~/work/study/2025-2026/Операционные системы/os-intro$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 158 bytes | 158.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:fr-halolova/os-intro.git
 * [new tag]           v1.0.0 -> v1.0.0
frhalolova@frhalilova:~/work/study/2025-2026/Операционные системы/os-intro$ ▶
```

Рисунок 12: Завершение релиза

### **3. Выводы по проделанной работе**

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### 3.1 Вывод

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Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.