

# Продвинутое использование git

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2 марта, 2024, Москва, Россия

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# Цели и задачи работы

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## Цель лабораторной работы

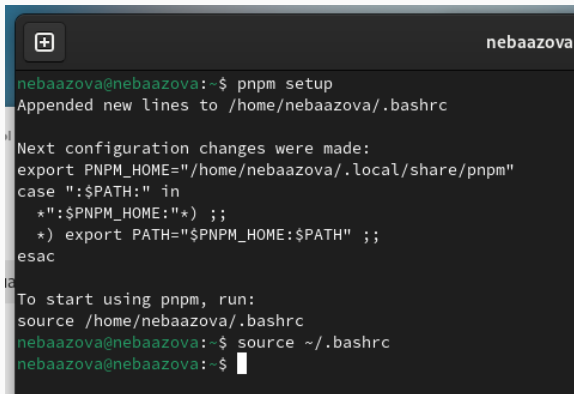
Получение навыков правильной работы с репозиториями git.

# Задачи лабораторной работы

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

# **Процесс выполнения лабораторной работы**

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A terminal window with a dark background. The title bar shows a plus icon in a square and the username 'nebaazova'. The terminal text shows the command 'pnpm setup' being executed, followed by instructions to append lines to '.bashrc' and the specific configuration changes for PATH. The user then sources the file and the prompt returns.

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

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

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

Рис. 1: Node.js

```
nebaazova@nebaazova:~$ pnpm add -g commitizen
```

Update available! 8.12.0 → 8.15.4.  
Changelog: <https://github.com/pnpm/pnpm/releases/tag/v8.15.4>  
Run "pnpm add -g pnpm" to update.  
  
Follow @pnpmjs for updates: <https://twitter.com/pnpmjs>

```
Packages: +152
Download registry.npmjs.org/typescript/5.3.3: 5,76 MB/5,76 MB, done
Progress: resolved 152, reused 0, downloaded 152, added 152, done

/home/nebaazova/.local/share/pnpm/global/5:
+ commitizen 4.3.0

Done in 5.8s
nebaazova@nebaazova:~$
```

Рис. 2: установка commitizen

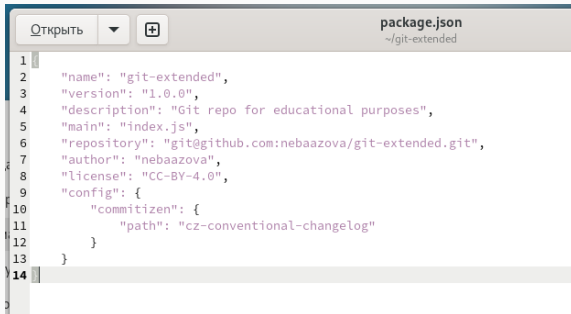
# standard-changelog

```
nebaazova@nebaazova:~$ pnpm add -g standard-changelog
Packages: +56
Progress: resolved 208, reused 152, downloaded 56, added 56, done
/home/nebaazova/.local/share/pnpm/global/5:
+ standard-changelog 5.0.0

Done in 5.2s
nebaazova@nebaazova:~$
```

Рис. 3: установка standard-changelog





The image shows a code editor window with the title "package.json" and the path "~/git-extended". The editor contains the following JSON code:

```
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:nebaazova/git-extended.git",  
7   "author": "nebaazova",  
8   "license": "CC-BY-4.0",  
9   "config": {  
10     "commitizen": {  
11       "path": "cz-conventional-changelog"  
12     }  
13   }  
14
```

Рис. 4: package.json

# Использование commitizen

```
nebaazova@nebaazova:~/git-extended$ git add .
nebaazova@nebaazova:~/git-extended$ git cz
cz-cli@4.3.0, 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):
  () t
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? No
? Does this change affect any open issues? No
[master 682f7b4] chore: t
1 file changed, 14 insertions(+)
create mode 100644 package.json
nebaazova@nebaazova:~/git-extended$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 475 байтов | 237.00 КиБ/с, готово.
Всего 3 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
To github.com:nebaazova/git-extended.git
 52213e0..682f7b4  master -> master
nebaazova@nebaazova:~/git-extended$
```

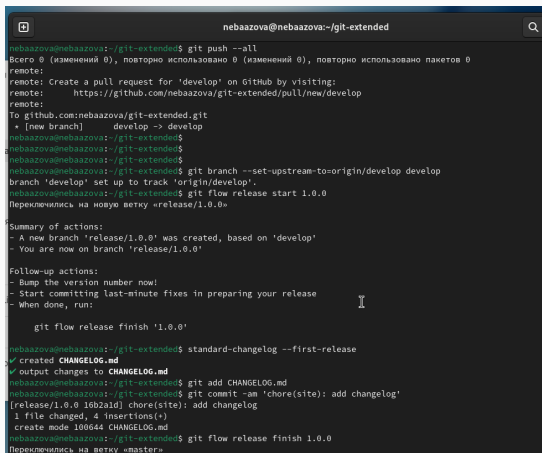
Рис. 5: Отправка

```
nebaazova@nebaazova:~/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? []
Hooks and filters directory: [/home/nebaazova/git-extended/.git/hooks]
nebaazova@nebaazova:~/git-extended$ git branch
* develop
  master
nebaazova@nebaazova:~/git-extended$ git push --all
Всего 0 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:   https://github.com/nebaazova/git-extended/pull/new/develop
remote:
To github.com:nebaazova/git-extended.git
 * [new branch]   develop -> develop
nebaazova@nebaazova:~/git-extended$
```

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'nebaazova@nebaazova:~/git-extended' showing the execution of git-flow release. The terminal output includes: 'git push --all', a GitHub pull request creation message, 'git branch --set-upstream-to=origin/develop develop', 'git flow release start 1.0.0', a summary of actions (new branch 'release/1.0.0' created), follow-up actions (bump version, commit fixes), 'standard-changelog --first-release' output, 'git add CHANGELOG.md', 'git commit -am "chore(site): add changelog"', and 'git flow release finish 1.0.0'. The terminal ends with 'Переключились на ветку «master»'.

```
nebaazova@nebaazova:~/git-extended$ git push --all
Всего 0 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:   https://github.com/nebaazova/git-extended/pull/new/develop
remote:
To github.com:nebaazova/git-extended.git
 * [new branch]      develop -> develop
nebaazova@nebaazova:~/git-extended$
nebaazova@nebaazova:~/git-extended$
nebaazova@nebaazova:~/git-extended$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
nebaazova@nebaazova:~/git-extended$ git flow release start 1.0.0
Переключились на новую ветку «release/1.0.0»

Summary of actions:
- A new branch 'release/1.0.0' was created, based on 'develop'
- You are now on branch 'release/1.0.0'

Follow-up actions:
- Bump the version number now!
- Start committing last-minute fixes in preparing your release
- When done, run:

    git flow release finish '1.0.0'

nebaazova@nebaazova:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
nebaazova@nebaazova:~/git-extended$ git add CHANGELOG.md
nebaazova@nebaazova:~/git-extended$ git commit -am "chore(site): add changelog"
[release/1.0.0 16b2a1d] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
nebaazova@nebaazova:~/git-extended$ git flow release finish 1.0.0
Переключились на ветку «master»
```

Рис. 7: Завершение релиза

# Отправим данные на github

```
nebaazova@nebaazova:~/git-extended
remote: Resolving deltas: 100% (2/2), done.
To github.com:nebaazova/git-extended.git
   682f7b4..f3d5d26  develop -> develop
   682f7b4..0b8df66  master -> master
nebaazova@nebaazova:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 155 байтов | 155.00 КиБ/с, готово.
Всего 1 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
To github.com:nebaazova/git-extended.git
   1.0.0 -> 1.0.0
nebaazova@nebaazova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/nebaazova/git-extended/releases/tag/v1.0.0
nebaazova@nebaazova:~/git-extended$ git flow feature start feature_branch
Переключились на новую ветку «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

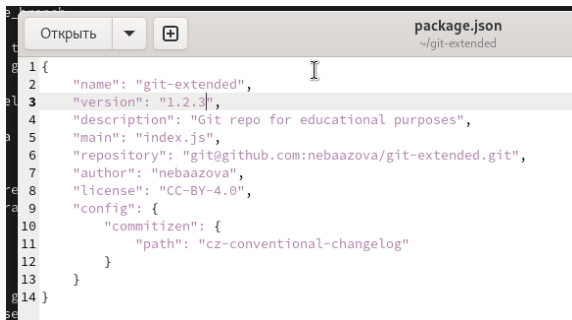
nebaazova@nebaazova:~/git-extended$ touch test
nebaazova@nebaazova:~/git-extended$ git flow feature finish feature_branch
Переключились на ветку «develop»
Эта ветка соответствует «origin/develop».
Уже актуально.
Ветка feature/feature_branch удалена (6wla f3d5d26).

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'

nebaazova@nebaazova:~/git-extended$
```

Рис. 8: Отправка

# Объединение веток



The image shows a code editor window with a title bar that includes a button labeled 'Открыть' (Open), a dropdown arrow, and a plus icon. The file name 'package.json' and its path '~/git-extended' are displayed on the right. The editor contains the following JSON code:

```
1 {  
2   "name": "git-extended",  
3   "version": "1.2.3",  
4   "description": "Git repo for educational purposes",  
5   "main": "index.js",  
6   "repository": "git@github.com:nebaazova/git-extended.git",  
7   "author": "nebaazova",  
8   "license": "CC-BY-4.0",  
9   "config": {  
10    "commitizen": {  
11      "path": "cz-conventional-changelog"  
12    }  
13  }  
14 }
```

Рис. 9: Объединение веток

```

nebaazova@nebaazova:~/git-extended
Переключились на ветку «master»
Эта ветка соответствует «origin/master».
Merge made by the 'ort' strategy.
  CHANGELOG.md | 4 ++++
  package.json | 2 +-
  2 files changed, 5 insertions(+), 1 deletion(-)
Уже на «master»
Ваша ветка опережает «origin/master» на 3 коммита.
(используйте «git push», чтобы опубликовать ваши локальные коммиты)
Переключились на ветку «develop»
Эта ветка соответствует «origin/develop».
Merge made by the 'ort' strategy.
  CHANGELOG.md | 4 ++++
  package.json | 2 +-
  2 files changed, 5 insertions(+), 1 deletion(-)
Ветка release/1.2.3 удалена (была 34ce80a).

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

nebaazova@nebaazova:~/git-extended$ git push --all
Перечисление объектов: 9, готово.
Подсчет объектов: 100% (9/9), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (6/6), готово.
Запись объектов: 100% (6/6), 750 байтов | 187.00 КиБ/с, готово.
Всего 6 (изменений 2), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To github.com:nebaazova/git-extended.git
  f3d5d26..7cbbc6f develop -> develop
  0b8df66..e3f31c8 master -> master
nebaazova@nebaazova:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.

```

Рис. 10: Завершение релиза

# Подготовка рабочего репозитория

```
nebaazova@nebaazova:~$ cd work/study/2023-2024/Операционные\ системы/os-intro/
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ npm init
Wrote to /home/nebaazova/work/study/2023-2024/Операционные системы/os-intro/package.json

{
  "name": "os-intro",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \"Error: no test specified\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ gedit package.json
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git add .
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git cz
cz-cli@4.3.0, cz-conventional-changelog@3.3.0

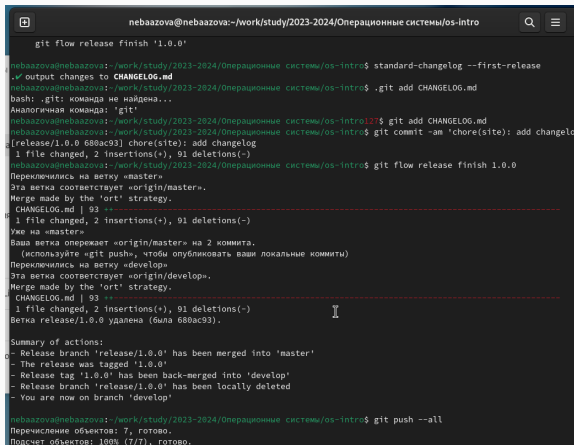
? Select the type of change that you're committing: chore:   Other changes that don't modify src or test files
? What is the scope of this change (e.g. component or file name): (press enter to skip)
? Write a short, imperative tense description of the change (max 93 chars):
(1) t
? Provide a longer description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

? Are there any breaking changes? No
? Does this change affect any open issues? No
[master fb449d4] chore: t
1 file changed, 14 insertions(+)
Create mode 100644 package.json
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
```

Рис. 11: package.json и коммит



# Подготовка рабочего репозитория



```
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git flow release finish '1.0.0'
```

```
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ standard-changelog --first-release
✓ output changes to CHANGELOG.md
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ .git add CHANGELOG.md
bash: .git: команда не найдена...
Аналогичная команда: 'git'
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git add CHANGELOG.md
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git commit -am 'chore(site): add changelog
[release/1.0.0 680ac93] chore(site): add changelog
1 file changed, 2 insertions(+), 0 deletions(-)
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git flow release finish 1.0.0
```

```
Переключились на ветку «master»
Эта ветка соответствует «origin/master».
Merge made by the 'ort' strategy.
CHANGELOG.md | 93 ++-----
1 file changed, 2 insertions(+), 01 deletions(-)
Уже на «master»
Ваша ветка опережает «origin/master» на 2 коммита.
(используйте «git push», чтобы опубликовать ваши локальные коммиты)
Переключились на ветку «develop»
Эта ветка соответствует «origin/develop».
Merge made by the 'ort' strategy.
CHANGELOG.md | 93 ++-----
1 file changed, 2 insertions(+), 01 deletions(-)
Ветка release/1.0.0 удалена (была 680ac93).
```

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

```
nebaazova@nebaazova:~/work/study/2023-2024/Операционные системы/os-intro$ git push --all
Перечисление объектов: 7, готово.
Подсчет объектов: 100% (7/7), готово.
```

Рис. 12: Завершение релиза

## **Выводы по проделанной работе**

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Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.