

# Операционные системы

Продвинутое использование git

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Фахми Джакси Гамал Адли

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Российский университет дружбы народов, Москва, Россия

## Цели и задачи работы

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Получение навыков правильной работы с репозиториями git.

- 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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```
jaksigamal@jaksigamal:~$ pnpm setup

Appended new lines to /home/jaksigamal/.bashrc

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

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

Рис. 1: Node.js

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

Update available! 9.13.0 → 10.3.0.  
Changelog: <https://github.com/pnpm/pnpm/releases/tag/v10.3.0>  
Run "pnpm self-update" to update.

Follow @pnpmjs for updates: <https://x.com/pnpmjs>

```
  
[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/jaksigamal/.local/share/pnpm/global/5:  
+ commitizen 4.3.1  
  
Done in 3.6s  
jaksigamal@jaksigamal:~$
```

Рис. 2: установка commitizen

```
jaksigamal@jaksigamal:~$ pnpm add -g standard-changelog
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6
Packages: +39
+++++
Progress: resolved 190, reused 151, downloaded 39, added 39, done

/home/jaksigamal/.local/share/pnpm/global/5:
+ standard-changelog 6.0.0

Done in 3.8s
jaksigamal@jaksigamal:~$
```

Рис. 3: установка standard-changelog



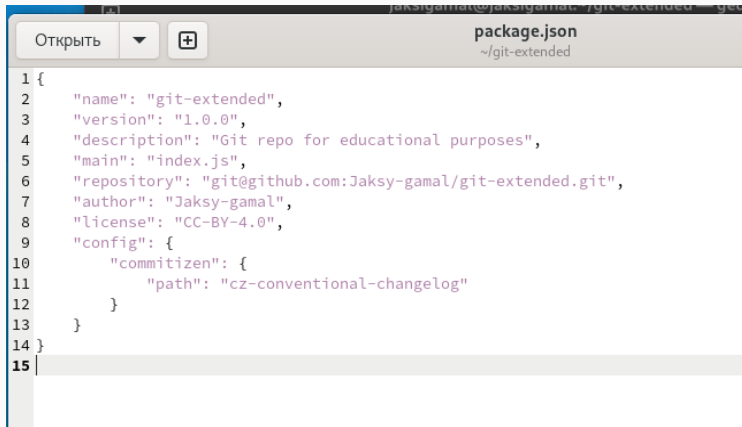


Рис. 4: package.json

# Использование commitizen

```
jaksigamal@jaksigamal:~/git-extended$ gedit package.json
jaksigamal@jaksigamal:~/git-extended$ git add .
jaksigamal@jaksigamal:~/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? No
? Does this change affect any open issues? No
[master aa0005b] chore: test
1 file changed, 15 insertions(+)
create mode 100644 package.json
jaksigamal@jaksigamal:~/git-extended$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 494 байта | 494.00 КиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:Jaksy-gamal/git-extended.git
7ea076b..aa0005b master -> master
jaksigamal@jaksigamal:~/git-extended$
```

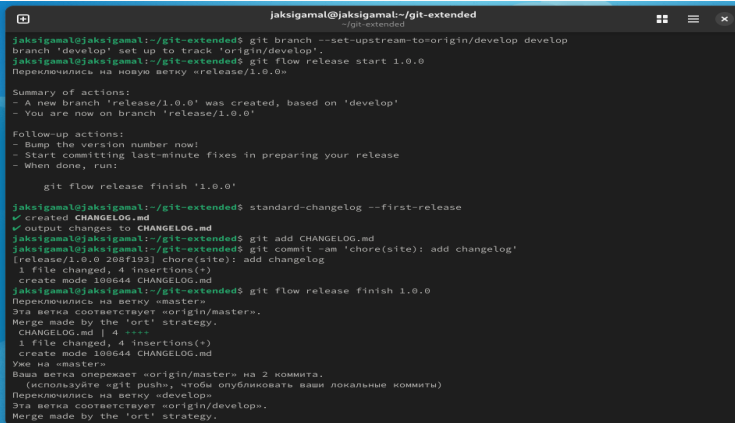
Рис. 5: Отправка

```
jaksigamal@jaksigamal: ~/git-extended
jaksigamal@jaksigamal:~/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/jaksigamal/git-extended/.git/hooks]
jaksigamal@jaksigamal:~/git-extended$ git branch
* develop
  master
jaksigamal@jaksigamal:~/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/Jaksy-gamal/git-extended/pull/new/develop
remote:
To github.com:Jaksy-gamal/git-extended.git
 * [new branch]      develop -> develop
jaksigamal@jaksigamal:~/git-extended$
```

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'jaksigamal@jaksigamal:~/git-extended' with a dark background and light green text. The window shows the execution of 'git flow release start 1.0.0', which creates a new 'release/1.0.0' branch. The user then runs 'git flow release finish 1.0.0', which creates a 'CHANGELOG.md' file, commits it, and merges the release back to 'develop'. The terminal output includes instructions and status messages in both English and Russian.

```
jaksigamal@jaksigamal:~/git-extended$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
jaksigamal@jaksigamal:~/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'

jaksigamal@jaksigamal:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
jaksigamal@jaksigamal:~/git-extended$ git add CHANGELOG.md
jaksigamal@jaksigamal:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 208f193] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
jaksigamal@jaksigamal:~/git-extended$ git flow release finish 1.0.0
Переключились на ветку «master»
Эта ветка соответствует «origin/master».
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 ++++
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
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.
```

Рис. 7: Завершение релиза

## Отправим данные на github

```
jaksigamal@jaksigamal:~/git-extended$  
jaksigamal@jaksigamal:~/git-extended$ git push --all  
Перечисление объектов: 6, готово.  
Подсчет объектов: 100% (6/6), готово.  
При сжатии изменений используется до 4 потоков  
Сжатие объектов: 100% (4/4), готово.  
Запись объектов: 100% (5/5), 563 байта | 563.00 КиБ/с, готово.  
Total 5 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)  
remote: Resolving deltas: 100% (2/2), done.  
To github.com:Jaksy-gamal/git-extended.git  
    aa0005b..3f011ac  develop -> develop  
    aa0005b..775ba27  master -> master  
jaksigamal@jaksigamal:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 164 байта | 164.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:Jaksy-gamal/git-extended.git  
    * [new tag]          1.0.0 -> 1.0.0  
jaksigamal@jaksigamal:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/Jaksy-gamal/git-extended/releases/tag/v1.0.0  
jaksigamal@jaksigamal:~/git-extended$
```

Рис. 8: Отправка

```
jaksigamal@jaksigamal:~/git-extended$ git flow feature start feature_branch
jaksigamal@jaksigamal:~/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

jaksigamal@jaksigamal:~/git-extended$ touch test2
jaksigamal@jaksigamal:~/git-extended$ git flow feature finish feature_branch
Переключились на ветку «develop»
Эта ветка соответствует «origin/develop».
Уже актуально.
Ветка feature/feature_branch удалена (была 3f011ac).

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'

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

Рис. 9: Объединение веток

```

(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 cbed68b).

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'

jaksigamal@jaksigamal:~/git-extended$ git push --all
Перечисление объектов: 9, готово.
Подсчет объектов: 100% (9/9), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (6/6), готово.
Запись объектов: 100% (6/6), 777 байтов | 777.00 КиБ/с, готово.
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:Jaksy-gamal/git-extended.git
  3f011ac..9e0c6e1  develop -> develop
  775ba27..da63876  master -> master

jaksigamal@jaksigamal:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 165 байтов | 165.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:Jaksy-gamal/git-extended.git
 * [new tag]          1.2.3 -> 1.2.3

jaksigamal@jaksigamal:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/Jaksy-gamal/git-extended/releases/tag/v1.2.3
jaksigamal@jaksigamal:~/git-extended$

```

Рис. 10: Завершение релиза

# Подготовка рабочего репозитория

```
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ pnpm init
Wrote to /home/jaksigamal/work/study/2024-2025/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"
}
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ 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? No
? Does this change affect any open issues? No
[master 3f120a3] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит



## Подготовка рабочего репозитория

```
merge made by the user strategy.
CHANGELOG.md | 112 ++-----
1 file changed, 2 insertions(+), 110 deletions(-)
Ветка release/1.0.0 удалена (была de61ef8).

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'

jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ git push --all
Перечисление объектов: 7, готово.
Подсчет объектов: 100% (7/7), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (5/5), готово.
Запись объектов: 100% (5/5), 631 байт | 631.00 КиБ/с, готово.
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:Jaksy-gamal/os-intro.git
   3f120a3..2e0b05d  develop -> develop
   3f120a3..c209c2b  master -> master
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 164 байта | 164.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:Jaksy-gamal/os-intro.git
 * [new tag]         1.0.0 -> 1.0.0
jaksigamal@jaksigamal:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

## Выводы по проделанной работе

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Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.