

Операционные системы

Продвинутое использование git

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Цели и задачи работы

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

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

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

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

Рис. 1: Node.js

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

```
Update available! 9.13.0 → 10.5.2.  
Changelog: https://github.com/pnpm/pnpm/releases/tag/v10.5.2  
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/tdbabudzhyan/.local/share/pnpm/global/5:
```

```
+ commitizen 4.3.1
```

```
Done in 3.8s
```

```
tdbabudzhyan@tdbabudzhyan:~$
```

Рис. 2: установка commitizen

```
tdbabudzhyan@tdbabudzhyan:~$  
tdbabudzhyan@tdbabudzhyan:~$ 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/tdbabudzhyan/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 1.9s  
tdbabudzhyan@tdbabudzhyan:~$
```

Рис. 3: установка standard-changelog

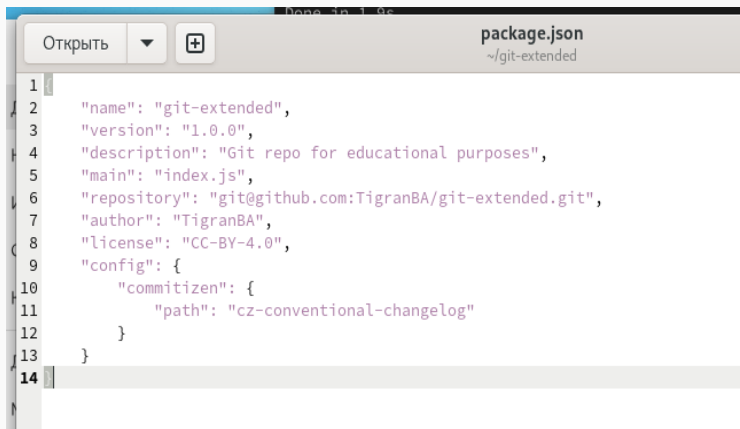


Рис. 4: package.json

Использование commitizen

```
tdbabudzhyan@tdbabudzhyan:~/git-extended$
tdbabudzhyan@tdbabudzhyan:~/git-extended$ git add .
tdbabudzhyan@tdbabudzhyan:~/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 a79e4e5] chore: test
 1 file changed, 14 insertions(+)
 create mode 100644 package.json
tdbabudzhyan@tdbabudzhyan:~/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), 487 байтов | 487.00 КиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:TigranBA/git-extended.git
   fd4b19c..a79e4e5 master -> master
tdbabudzhyan@tdbabudzhyan:~/git-extended$
```

Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

```

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

tdbabudzhyan@tdbabudzhyan:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
tdbabudzhyan@tdbabudzhyan:~/git-extended$ git add CHANGELOG.md
tdbabudzhyan@tdbabudzhyan:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 f94b5de] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
tdbabudzhyan@tdbabudzhyan:~/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.
 CHANGELOG.md | 4 ++++
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
Ветка release/1.0.0 удалена (была f94b5de).

```

Рис. 7: Завершение релиза

Отправим данные на github

```
tdbabudzhyan@tdbabudzhyan:~/git-extended$  
tdbabudzhyan@tdbabudzhyan:~/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), 554 байта | 554.00 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:TigranBA/git-extended.git  
  a79e4e5..293151a  develop -> develop  
  a79e4e5..5627489  master -> master  
tdbabudzhyan@tdbabudzhyan:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 161 байт | 161.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:TigranBA/git-extended.git  
  * [new tag]      1.0.0 -> 1.0.0  
tdbabudzhyan@tdbabudzhyan:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/TigranBA/git-extended/releases/tag/v1.0.0  
tdbabudzhyan@tdbabudzhyan:~/git-extended$
```

Рис. 8: Отправка

```
tdbabudzhyan@tdbabudzhyan:~/git-extended$  
tdbabudzhyan@tdbabudzhyan:~/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  
  
tdbabudzhyan@tdbabudzhyan:~/git-extended$ touch test2  
tdbabudzhyan@tdbabudzhyan:~/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 293151a).  
  
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'  
  
tdbabudzhyan@tdbabudzhyan:~/git-extended$
```

Рис. 9: Объединение веток

```
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'

tdbabudzhyan@tdbabudzhyan:~/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), 768 байтов | 768.00 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:TigranBA/git-extended.git
   293151a..343ed09  develop -> develop
   5627489..466b215  master -> master

tdbabudzhyan@tdbabudzhyan:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 162 байта | 162.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:TigranBA/git-extended.git
 * [new tag]         1.2.3 -> 1.2.3

tdbabudzhyan@tdbabudzhyan:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/TigranBA/git-extended/releases/tag/v1.2.3
tdbabudzhyan@tdbabudzhyan:~/git-extended$
```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
tdbabudzhyan@tdbabudzhyan:~/work/study/2024~2025/Операционные системы/os-intro$ gedit package.json
tdbabudzhyan@tdbabudzhyan:~/work/study/2024~2025/Операционные системы/os-intro$ git add .
tdbabudzhyan@tdbabudzhyan:~/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 df92a1d] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
tdbabudzhyan@tdbabudzhyan:~/work/study/2024~2025/Операционные системы/os-intro$ 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), 482 байта | 482.00 КиБ/с, готово.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:TigranBA/os-intro.git
  2a8aee9..df92a1d  master -> master
tdbabudzhyan@tdbabudzhyan:~/work/study/2024~2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория

```
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'

tdbabudzhyan@tdbabudzhyan:~/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), 625 байтов | 625.00 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:TigranBA/os-intro.git
   df92a1d..6b10869  develop -> develop
   df92a1d..9f5ddc3  master -> master
tdbabudzhyan@tdbabudzhyan:~/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), 162 байта | 162.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:TigranBA/os-intro.git
 * [new tag]         1.0.0 -> 1.0.0
tdbabudzhyan@tdbabudzhyan:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.