

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

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

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

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

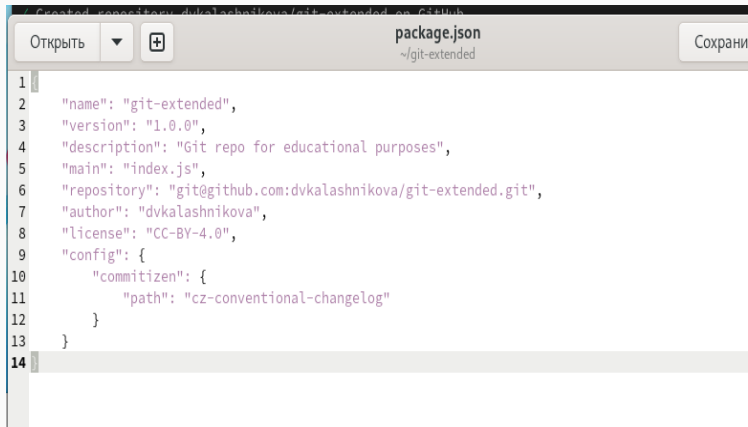
Рис. 1: Node.js

```
dvkashnikova@dvkashnikova:~$  
dvkashnikova@dvkashnikova:~$ 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/dvkalashnikova/.local/share/pnpm/global/5:  
+ commitizen 4.3.1  
  
Done in 5.7s  
dvkashnikova@dvkashnikova:~$
```

Рис. 2: установка commitizen

```
dvkashnikova@dvkashnikova:~$  
dvkashnikova@dvkashnikova:~$ 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/dvkashnikova/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 4.8s  
dvkashnikova@dvkashnikova:~$
```

Рис. 3: установка standard-changelog



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

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

Рис. 4: package.json

Использование commitizen

```
dvkalashnikova@dvkalashnikova:~/git-extended$
dvkalashnikova@dvkalashnikova:~/git-extended$ git add .
dvkalashnikova@dvkalashnikova:~/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 0ef97df] chore: test
 1 file changed, 14 insertions(+)
  create mode 100644 package.json
dvkalashnikova@dvkalashnikova:~/git-extended$ git push
Перечисление объектов: 4, готово.
Подсчет объектов: 100% (4/4), готово.
При сжатии изменений используется до 8 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 493 байта | 246.00 КиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:dvkalashnikova/git-extended.git
   fed98e5..0ef97df  master -> master
dvkalashnikova@dvkalashnikova:~/git-extended$
```

Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

```

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

dvkashnikova@dvkashnikova:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
dvkashnikova@dvkashnikova:~/git-extended$ git add CHANGELOG.md
dvkashnikova@dvkashnikova:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 b3703ee] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
dvkashnikova@dvkashnikova:~/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.

```

Рис. 7: Завершение релиза

Отправим данные на github

```
dvkashnikova@dvkashnikova:~/git-extended$  
dvkashnikova@dvkashnikova:~/git-extended$ git push --all  
Перечисление объектов: 6, готово.  
Подсчет объектов: 100% (6/6), готово.  
При сжатии изменений используется до 8 потоков  
Сжатие объектов: 100% (4/4), готово.  
Запись объектов: 100% (5/5), 564 байта | 564.00 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:dvkashnikova/git-extended.git  
    0ef97df..b5b296c  develop -> develop  
    0ef97df..f4a0f11  master -> master  
dvkashnikova@dvkashnikova:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 163 байта | 163.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:dvkashnikova/git-extended.git  
    * [new tag]          1.0.0 -> 1.0.0  
dvkashnikova@dvkashnikova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/dvkashnikova/git-extended/releases/tag/v1.0.0  
dvkashnikova@dvkashnikova:~/git-extended$
```

Рис. 8: Отправка

```
dvkashnikova@dvkashnikova:~/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

dvkashnikova@dvkashnikova:~/git-extended$ touch test2
dvkashnikova@dvkashnikova:~/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 b5b296c).

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'

dvkashnikova@dvkashnikova:~/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'

dvkashnikova@dvkashnikova:~/git-extended$ git push --all
Перечисление объектов: 9, готово.
Подсчет объектов: 100% (9/9), готово.
При сжатии изменений используется до 8 потоков
Сжатие объектов: 100% (6/6), готово.
Запись объектов: 100% (6/6), 778 байтов | 259.00 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:dvkashnikova/git-extended.git
   b5b296c..02d5a49  develop -> develop
   f4a0f11..c96823d  master -> master
dvkashnikova@dvkashnikova:~/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:dvkashnikova/git-extended.git
 * [new tag]         1.2.3 -> 1.2.3
dvkashnikova@dvkashnikova:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/dvkashnikova/git-extended/releases/tag/v1.2.3
dvkashnikova@dvkashnikova:~/git-extended$
```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
dvkalashnikova@dvkalashnikova:~/work/study/2024-2025/Операционные системы/os-intro$ gedit package.json
dvkalashnikova@dvkalashnikova:~/work/study/2024-2025/Операционные системы/os-intro$ git add .
dvkalashnikova@dvkalashnikova:~/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 310fda5] chore: test
 1 file changed, 14 insertions(+)
 create mode 100644 package.json
dvkalashnikova@dvkalashnikova:~/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 8 потоков
Сжатие объектов: 100% (3/3), готово.
Запись объектов: 100% (3/3), 485 байтов | 485.00 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:dvkalashnikova/os-intro.git
 f579379..310fda5  master -> master
dvkalashnikova@dvkalashnikova:~/work/study/2024-2025/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит


```
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'

dvkalashnikova@dvkalashnikova:~/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 8 потоков
Сжатие объектов: 100% (5/5), готово.
Запись объектов: 100% (5/5), 630 байтов | 210.00 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:dvkalashnikova/os-intro.git
   310fda5..6c1d076  develop -> develop
   310fda5..317663d  master -> master

dvkalashnikova@dvkalashnikova:~/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:dvkalashnikova/os-intro.git
 * [new tag]         1.0.0 -> 1.0.0
dvkalashnikova@dvkalashnikova:~/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.