

Продвинутое использование git

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5 марта, 2024, Москва, Россия

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Цели и задачи работы

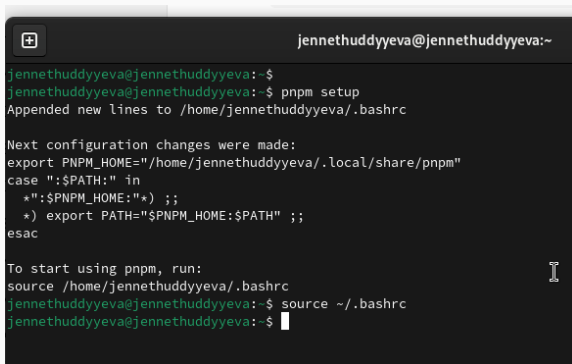
Цель лабораторной работы

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



```
jennethuddyyeva@jennethuddyyeva:~$  
jennethuddyyeva@jennethuddyyeva:~$ pnpm setup  
Appended new lines to /home/jennethuddyyeva/.bashrc  
  
Next configuration changes were made:  
export PNPM_HOME="/home/jennethuddyyeva/.local/share/pnpm"  
case ":$PATH:" in  
  *):$PNPM_HOME:*) ;;  
  *) export PATH="$PNPM_HOME:$PATH" ;;  
esac  
  
To start using pnpm, run:  
source /home/jennethuddyyeva/.bashrc  
jennethuddyyeva@jennethuddyyeva:~$ source ~/.bashrc  
jennethuddyyeva@jennethuddyyeva:~$
```

Рис. 1: Node.js

```
jennethuddyyeva@jennethuddyyeva:~$ 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
*****
Downloading 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/jennethuddyyeva/.local/share/pnpm/global/5:
+ commitizen 4.3.0

Done in 5.4s
jennethuddyyeva@jennethuddyyeva:~$
```

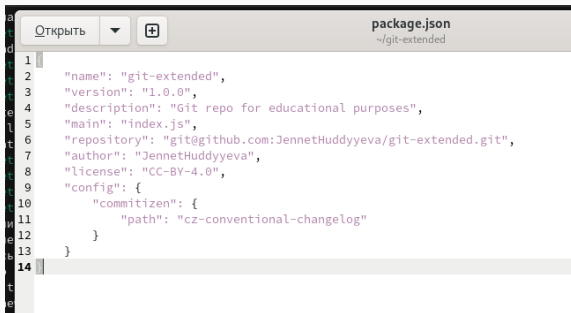
Рис. 2: установка commitizen

standard-changelog

```
jennethuddyyeva@jennethuddyyeva:~$  
jennethuddyyeva@jennethuddyyeva:~$ pnpm add -g standard-changelog  
Packages: +56  
+-----+  
Progress: resolved 208, reused 152, downloaded 56, added 56, done  
  
/home/jennethuddyyeva/.local/share/pnpm/global/5:  
+ standard-changelog 5.0.0  
  
Done in 3.6s  
jennethuddyyeva@jennethuddyyeva:~$
```

Рис. 3: установка standard-changelog

package.json



The image shows a code editor window titled "package.json" with the subtitle "~/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:JennetHuddyeva/git-extended.git",  
7  "author": "JennetHuddyeva",  
8  "license": "CC-BY-4.0",  
9  "config": {  
10    "commitizen": {  
11      "path": "cz-conventional-changelog"  
12    }  
13  }  
14
```

Рис. 4: package.json

Использование commitizen

```
{
  "name": "git-extended",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \\\"Error: no test specified\\\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}

jennethuddyyeva@jennethuddyyeva:~/git-extended$ gedit package.json
jennethuddyyeva@jennethuddyyeva:~/git-extended$
jennethuddyyeva@jennethuddyyeva:~/git-extended$
jennethuddyyeva@jennethuddyyeva:~/git-extended$ git add .
jennethuddyyeva@jennethuddyyeva:~/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):
(1) y
? 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 1e49087] chore: y
1 file changed, 14 insertions(+)
create mode 100644 package.json
jennethuddyyeva@jennethuddyyeva:~/git-extended$ git push
Перечисление объектов: 4, готово.
```

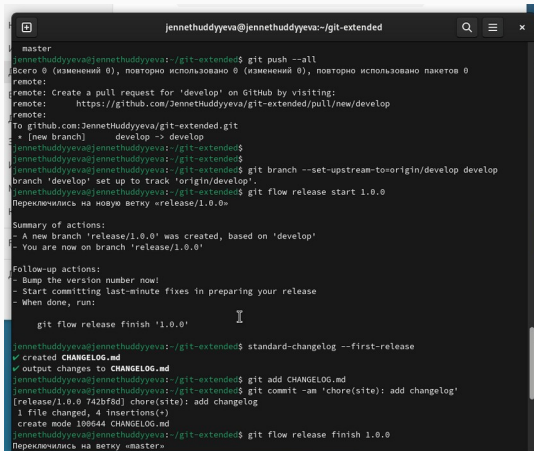
Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'jennethuddyeva@jennethuddyeva:~/git-extended' showing the final steps of a git-flow release. The user is on the 'release/1.0.0' branch. They run 'git push --all', which creates a pull request on GitHub. Then they run 'git branch --set-upstream-to=origin/develop develop', setting the upstream for the 'develop' branch. Finally, they run 'git flow release finish 1.0.0', which completes the release process. The terminal output shows a summary of actions, follow-up actions, and the creation of a changelog. The user then runs 'standard-changelog --first-release', which creates a 'CHANGELOG.md' file. They commit this change and finally run 'git flow release finish 1.0.0' again, which switches them back to the 'master' branch.

```
jennethuddyeva@jennethuddyeva:~/git-extended
master
jennethuddyeva@jennethuddyeva:~/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/JennethUddyeva/git-extended/pull/new/develop
remote:
To github.com:JennethUddyeva/git-extended.git
 * [new branch]      develop -> develop
jennethuddyeva@jennethuddyeva:~/git-extended$
jennethuddyeva@jennethuddyeva:~/git-extended$
jennethuddyeva@jennethuddyeva:~/git-extended$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
jennethuddyeva@jennethuddyeva:~/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'

jennethuddyeva@jennethuddyeva:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
jennethuddyeva@jennethuddyeva:~/git-extended$ git add CHANGELOG.md
jennethuddyeva@jennethuddyeva:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 742bf8d] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
jennethuddyeva@jennethuddyeva:~/git-extended$ git flow release finish 1.0.0
Переключились на ветку «master»
```

Рис. 7: Завершение релиза

Отправим данные на github

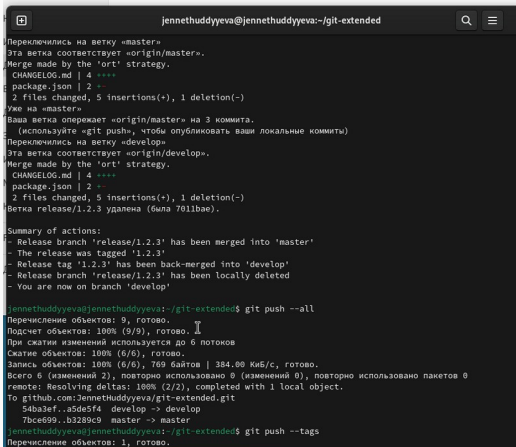
```
jennethuddyeva@jennethuddyeva:~/git-extended$
jennethuddyeva@jennethuddyeva:~/git-extended$ git push --all
Перечисление объектов: 6, готово.
Подсчет объектов: 100% (6/6), готово.
При сжатии изменений используется до 6 потоков
Сжатие объектов: 100% (4/4), готово.
Запись объектов: 100% (5/5), 555 байтов | 185.00 КиБ/с, готово.
Всего 5 (изменений 2), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
remote: Resolving deltas: 100% (2/2), done.
To github.com:JennethUddyeva/git-extended.git
   1e49087..54ba3ef develop -> develop
   1e49087..7bce699 master -> master
jennethuddyeva@jennethuddyeva:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 160 байтов | 160.00 КиБ/с, готово.
Всего 1 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
To github.com:JennethUddyeva/git-extended.git
 * [new tag]         1.0.0 -> 1.0.0
jennethuddyeva@jennethuddyeva:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/JennethUddyeva/git-extended/releases/tag/v1.0.0
jennethuddyeva@jennethuddyeva:~/git-extended$
```

Рис. 8: Отправка

Объединение веток

```
jennethuddyeva@jennethuddyeva:~/git-extended$  
jennethuddyeva@jennethuddyeva:~/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  
  
jennethuddyeva@jennethuddyeva:~/git-extended$ touch test2  
jennethuddyeva@jennethuddyeva:~/git-extended$ git flow feature finish feature_branch  
Переключились на ветку «develop»  
Эта ветка соответствует «origin/develop».  
Уже актуально.
```

Рис. 9: Объединение веток

A terminal window titled 'jennethuddyeva@jennethuddyeva:~/git-extended' showing the final steps of a git-flow release. The terminal output includes messages about merging 'release/1.2.3' into 'master', tagging '1.2.3', merging back into 'develop', and deleting the release branch. It then shows the execution of 'git push --all' and 'git push --tags', along with progress bars for object counting and pushing. The terminal text is as follows:

```
jennethuddyeva@jennethuddyeva:~/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 7d11bae).

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'

jennethuddyeva@jennethuddyeva:~/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), 769 байтов | 384.00 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:JennethUddyeva/git-extended.git
  54ba3ef..a3de5f4  develop -> develop
  7bce699..b3289c9  master -> master
jennethuddyeva@jennethuddyeva:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

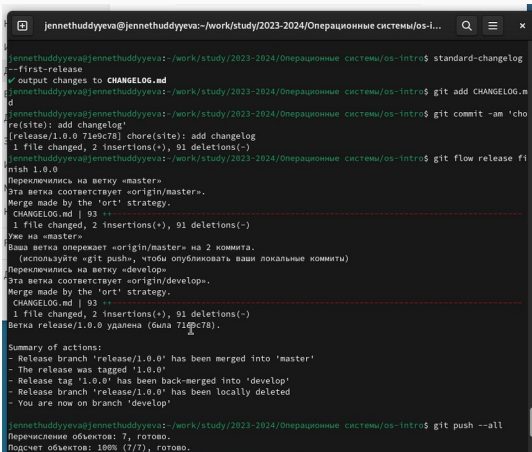
```
"license": "ISC"
}
jennethuddyyeva@jennethuddyyeva:~/work/study/2023-2024/Операционные системы/os-intro$ gedit package.json
jennethuddyyeva@jennethuddyyeva:~/work/study/2023-2024/Операционные системы/os-intro$ git add .
jennethuddyyeva@jennethuddyyeva:~/work/study/2023-2024/Операционные системы/os-intro$ 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):
  (2) yt
? 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 b8aab39] chore: yt
1 file changed, 14 insertions(+)
create mode 100644 package.json
jennethuddyyeva@jennethuddyyeva:~/work/study/2023-2024/Операционные системы/os-intro$ 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), 481 байт | 240.00 КиБ/с, готово.
Всего 3 (изменений 1), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:jennethuddyyeva/os-intro.git
 e05d256..b8aab39 master -> master
jennethuddyyeva@jennethuddyyeva:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория



```
jennethuddyeva@jennethuddyeva:~/work/study/2023-2024/Операционные системы/os-Intro$ standard-changelog
--first-release
✓ output changes to CHANGELOG.md
jennethuddyeva@jennethuddyeva:~/work/study/2023-2024/Операционные системы/os-Intro$ git add CHANGELOG.m
d
jennethuddyeva@jennethuddyeva:~/work/study/2023-2024/Операционные системы/os-Intro$ git commit -am 'cho
re(site): add changelog'
[release/1.0.0 71e9c78] chore(site): add changelog
1 file changed, 2 insertions(+), 91 deletions(-)
jennethuddyeva@jennethuddyeva:~/work/study/2023-2024/Операционные системы/os-Intro$ git flow release fi
nish 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(+), 91 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(+), 91 deletions(-)
Ветка release/1.0.0 удалена (была 71e9c78).

Summary of actions:
- Release branch 'release/1.0.0' has been merged into 'master'
- The release is 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'

jennethuddyeva@jennethuddyeva:~/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

Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.