

Продвинутое использование git

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Цели и задачи работы

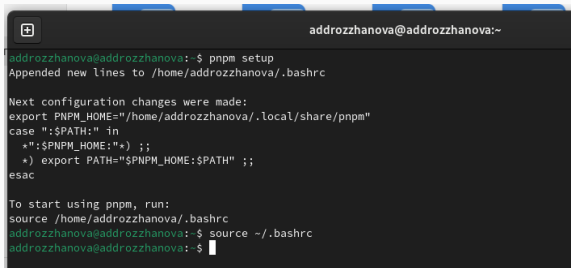
Цель лабораторной работы

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

A terminal window with a dark background and light-colored text. The window title bar shows a plus icon and the text 'addrozzhanova@addrozzhanova:~'. The terminal content shows the execution of 'pnpm setup', which appends lines to the '.bashrc' file. It then displays the configuration changes made, including setting 'PNPM_HOME' and updating the 'PATH' variable. Finally, it instructs the user to source the '.bashrc' file to start using pnpm.

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

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

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

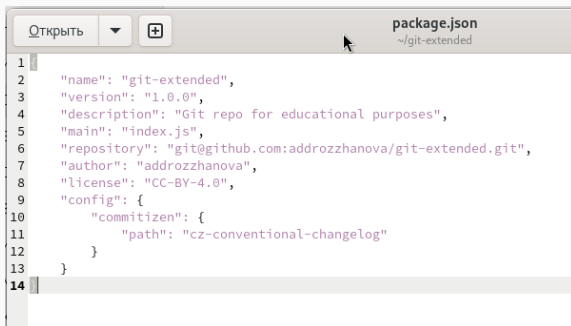
Рис. 1: Node.js

```
addrozzhanova@addrozzhanova:~$  
addrozzhanova@addrozzhanova:~$ 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/addrozzhanova/.local/share/pnpm/global/5:  
+ commitizen 4.3.0  
  
Done in 5.1s  
addrozzhanova@addrozzhanova:~$
```

Рис. 2: установка commitizen

```
addrozzhanova@addrozzhanova:~$  
addrozzhanova@addrozzhanova:~$ pnpm add -g standard-changelog  
Packages: +56  
+-----+  
Progress: resolved 208, reused 152, downloaded 56, added 56, done  
  
/home/addrozzhanova/.local/share/pnpm/global/5:  
+ standard-changelog 5.0.0  
  
Done in 4.4s  
addrozzhanova@addrozzhanova:~$
```

Рис. 3: установка standard-changelog



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

Рис. 4: package.json

Использование commitizen

```
branch master set up to track origin/master -
addrozhanova@addrozhanova:~/git-extended$ npm init
Wrote to /home/addrozhanova/git-extended/package.json

{
  "name": "git-extended",
  "version": "1.0.0",
  "description": "",
  "main": "index.js",
  "scripts": {
    "test": "echo \\\"Error: no test specified\\\" && exit 1"
  },
  "keywords": [],
  "author": "",
  "license": "ISC"
}
addrozhanova@addrozhanova:~/git-extended$ git package.json
addrozhanova@addrozhanova:~/git-extended$
addrozhanova@addrozhanova:~/git-extended$
addrozhanova@addrozhanova:~/git-extended$ git add .
addrozhanova@addrozhanova:~/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 39aaedc] chore: y
1 file changed, 14 insertions(+)
create mode 100644 package.json
addrozhanova@addrozhanova:~/git-extended$
addrozhanova@addrozhanova:~/git-extended$ git push
Перечисление объектов: 4, готово.
```

Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

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

addrozhanova@addrozhanova:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
addrozhanova@addrozhanova:~/git-extended$ git add CHANGELOG.md
addrozhanova@addrozhanova:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 7ald624] chore(site): add changelog
1 file changed, 4 insertions(+)
 create mode 100644 CHANGELOG.md
addrozhanova@addrozhanova:~/git-extended$ git flow release finish 1.0.0
Переключились на ветку «master»
```

Рис. 7: Завершение релиза

Отправим данные на github

```
addrozzhanova@addrozzhanova:~/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), 551 байт | 183.00 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:addrozzhanova/git-extended.git
  39aaede..a2f5be6  develop -> develop
  39aaede..595a672  master -> master
addrozzhanova@addrozzhanova:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 159 байтов | 159.00 КиБ/с, готово.
Всего 1 (изменений 0), повторно использовано 0 (изменений 0), повторно использовано пакетов 0
To github.com:addrozzhanova/git-extended.git
 * [new tag]          1.0.0 -> 1.0.0
addrozzhanova@addrozzhanova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/addrozzhanova/git-extended/releases/tag/v1.0.0
addrozzhanova@addrozzhanova:~/git-extended$
```

Рис. 8: Отправка

Объединение веток

```
addrozzhanova@addrozzhanova:~/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

addrozzhanova@addrozzhanova:~/git-extended$ touch test2
addrozzhanova@addrozzhanova:~/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 a2f5be6).

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'

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

Рис. 9: Объединение веток

```

addrozhanova@addrozhanova: ~/git-extended$ gedit package.json
addrozhanova@addrozhanova: ~/git-extended$ standard-changelog
✓ output changes to CHANGELOG.md
addrozhanova@addrozhanova: ~/git-extended$ git add CHANGELOG.md
addrozhanova@addrozhanova: ~/git-extended$ git commit -am 'chore(site): update changelog'
[release/1.2.3 1bbf8de] chore(site): update changelog
2 files changed, 5 insertions(+), 1 deletion(-)
addrozhanova@addrozhanova: ~/git-extended$ git flow release finish 1.2.3

Переключились на ветку «master»
Эта ветка соответствует «origin/master».
iv 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 1bbf8de).

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'

addrozhanova@addrozhanova: ~/git-extended$ git push --all

```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
addr0zzhanova@addr0zzhanova: ~/work/study/2023-2024/Операционные системы/os-intro/
addr0zzhanova@addr0zzhanova: $ cd work/study/2023-2024/Операционные системы/os-intro/
addr0zzhanova@addr0zzhanova: ~/work/study/2023-2024/Операционные системы/os-intro$ npm init
Wrote to /home/addr0zzhanova/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"
}

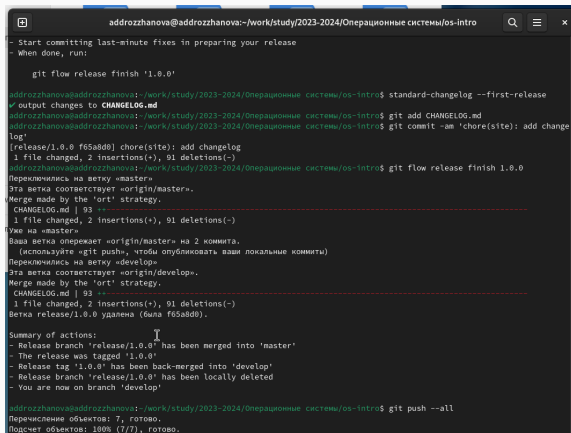
addr0zzhanova@addr0zzhanova: ~/work/study/2023-2024/Операционные системы/os-intro$ gedit package.json
addr0zzhanova@addr0zzhanova: ~/work/study/2023-2024/Операционные системы/os-intro$ git add .
addr0zzhanova@addr0zzhanova: ~/work/study/2023-2024/Операционные системы/os-intro$ git cz
cz-cli@4.3.0, cz-conventional-changelog@3.3.0

? 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) 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 2e3190c] chore: y
1 file changed, 14 insertions(+)
 create mode 100644 package.json
addr0zzhanova@addr0zzhanova: ~/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



```
addrzhanova@addrzhanova:~/work/study/2023-2024/Операционные системы/os-intro$
- Start committing last-minute fixes in preparing your release
- When done, run:

    git flow release finish '1.0.0'

addrzhanova@addrzhanova:~/work/study/2023-2024/Операционные системы/os-intro$ standard-changelog --first-release
✓ output changes to CHANGELOG.md
addrzhanova@addrzhanova:~/work/study/2023-2024/Операционные системы/os-intro$ git add CHANGELOG.md
addrzhanova@addrzhanova:~/work/study/2023-2024/Операционные системы/os-intro$ git commit -am 'chore(site): add change
log'
[release/1.0.0 f65a8d0] chore(site): add changelog
1 file changed, 2 insertions(+), 0 deletions(-)
addrzhanova@addrzhanova:~/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(+), 0 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(+), 0 deletions(-)
Ветка release/1.0.0 удалена (была f65a8d0).

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'

addrzhanova@addrzhanova:~/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.