

Продвинутое использование git

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Цели и задачи работы

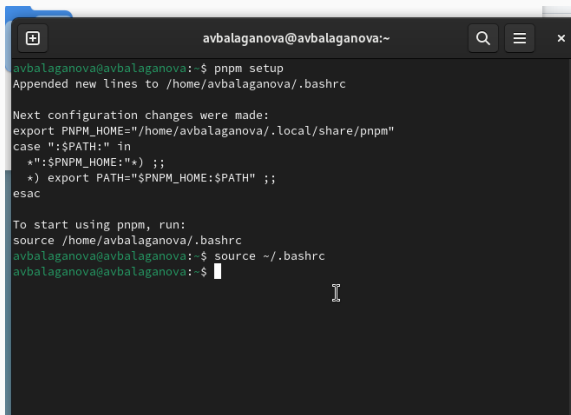
Цель лабораторной работы

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

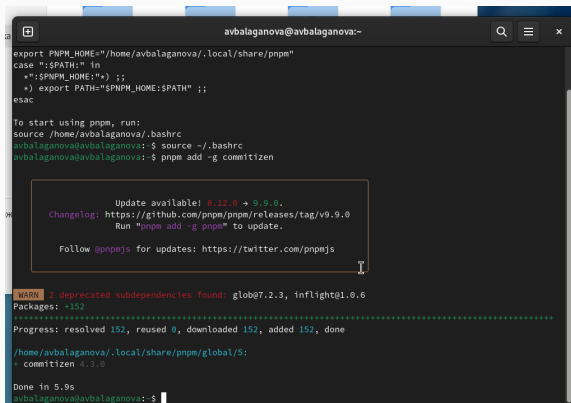
A terminal window with a dark background and light text. The window title is 'avbalaganova@avbalaganova:~'. The prompt is 'avbalaganova@avbalaganova:~\$'. The user has entered 'pnpm setup'. The output shows that new lines were appended to the .bashrc file. It then displays the configuration changes made, including setting Pnpm's home directory and updating the PATH. Finally, it instructs the user to source the .bashrc file to start using pnpm, which the user has done.

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

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

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

Рис. 1: Node.js



```
avbalaganova@avbalaganova:~  
export PNPM_HOME="/home/avbalaganova/.local/share/pnpm"  
case ":$PATH:" in  
  *:$PNPM_HOME:*) ;;  
  *) export PATH="$PNPM_HOME:$PATH" ;;  
esac  
  
To start using pnpm, run:  
source /home/avbalaganova/.bashrc  
avbalaganova@avbalaganova:~$ source ~/.bashrc  
avbalaganova@avbalaganova:~$ pnpm add -g commitizen  
  
Update available! 8.12.0 → 9.9.0.  
Changelog: https://github.com/pnpm/pnpm/releases/tag/v9.9.0  
Run "pnpm add -g pnpm" to update.  
  
Follow @pnpmjs for updates: https://twitter.com/pnpmjs  
  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +152  
Progress: resolved 152, reused 0, downloaded 152, added 152, done  
  
/home/avbalaganova/.local/share/pnpm/global/5:  
+ commitizen 4.3.0  
  
Done in 5.9s  
avbalaganova@avbalaganova:~$
```

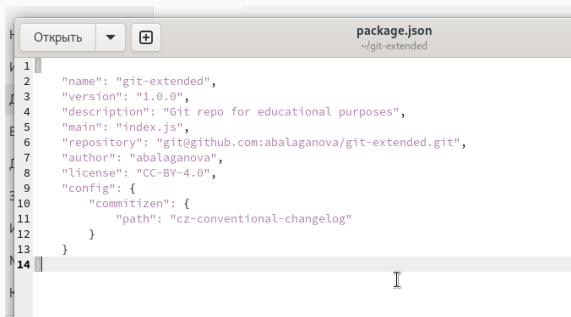
Рис. 2: установка commitizen

standard-changelog

```
avbalaganova@avbalaganova:~$  
avbalaganova@avbalaganova:~$ pnpm add -g standard-changelog  
WARN  2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +39  
Progress: resolved 191, reused 152, downloaded 39, added 39, done  
  
/home/avbalaganova/.local/share/pnpm/global/5:  
+ standard-changelog 6.0.0  
  
Done in 4.9s  
avbalaganova@avbalaganova:~$
```

Рис. 3: установка standard-changelog

package.json

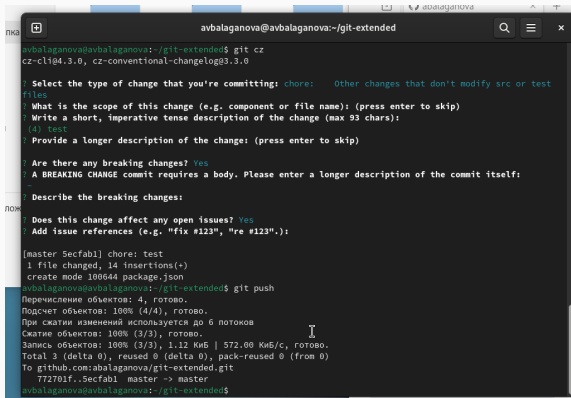


The image shows a code editor window with the title 'package.json' and the path '~/git-extended'. The editor contains the following JSON content:

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

Рис. 4: package.json

Использование commitizen



```
avbalaganova@avbalaganova:~/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):
(4) test
? Provide a longer description of the change: (press enter to skip)

? Are there any breaking changes? Yes
? A BREAKING CHANGE commit requires a body. Please enter a longer description of the commit itself:

? Describe the breaking changes:

? Does this change affect any open issues? Yes
? Add issue references (e.g. "fix #123", "re #123").:

[master 5ecfab1] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
avbalaganova@avbalaganova:~/git-extended$ 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), 1,12 Киб | 572,00 Киб/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:avbalaganova/git-extended.git
 772701f..5ecfab1 master -> master
avbalaganova@avbalaganova:~/git-extended$
```

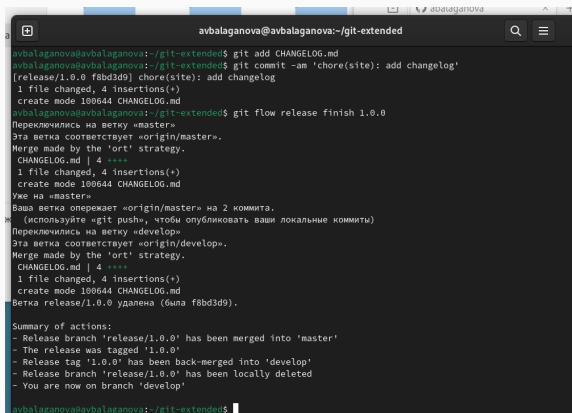
Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

A terminal window titled 'avbalaganova@avbalaganova:~/git-extended' showing the completion of a git-flow release. The user adds a changelog, commits it, and runs 'git flow release finish 1.0.0'. The terminal shows the merge of the release branch into master, tagging 1.0.0, merging back into develop, and deleting the release branch. A summary of actions is displayed at the end.

```
avbalaganova@avbalaganova:~/git-extended$ git add CHANGELOG.md
avbalaganova@avbalaganova:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 f8bd3d9] chore(site): add changelog
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
avbalaganova@avbalaganova:~/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 f8bd3d9).

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'

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

Рис. 7: Завершение релиза

Отправим данные на github

```
avbalaganova@avbalaganova:~/git-extended$
avbalaganova@avbalaganova:~/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), 2.68 КиБ | 1.34 МБ/с, готово.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:abalaganova/git-extended.git
   Secfab1..b8951fa develop -> develop
   Secfab1..1d7a83f master -> master
avbalaganova@avbalaganova:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 155 байтов | 155.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:abalaganova/git-extended.git
   * [new tag]         1.0.0 -> 1.0.0
avbalaganova@avbalaganova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/abalaganova/git-extended/releases/tag/v1.0.0
avbalaganova@avbalaganova:~/git-extended$
```

Рис. 8: Отправка

Объединение веток

```
* [new tag] 1.0.0 -> 1.0.0
avbalaganova@avbalaganova:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/avbalaganova/git-extended/releases/tag/v1.0.0
avbalaganova@avbalaganova:~/git-extended$
avbalaganova@avbalaganova:~/git-extended$
avbalaganova@avbalaganova:~/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'

ЮН Now, start committing on your feature. When done, use:

    git flow feature finish feature_branch

avbalaganova@avbalaganova:~/git-extended$ touch test2
avbalaganova@avbalaganova:~/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 b8951fa).

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'

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

Рис. 9: Объединение веток

```
avbalaganova@avbalaganova:~/git-extended
2 files changed, 5 insertions(+), 1 deletion(-)
Ветка release/1.2.3 удалена (была 7f2a691).

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'

avbalaganova@avbalaganova:~/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), 2.79 КиБ | 714.00 КиБ/с, готово.
Total 6 (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:abalaganova/git-extended.git
   b8951fa..e109537  develop -> develop
   1d7a83f..4ba79e4  master -> master
avbalaganova@avbalaganova:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 156 байтов | 156.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:abalaganova/git-extended.git
 * [new tag]      1.2.3 -> 1.2.3
avbalaganova@avbalaganova:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/abalaganova/git-extended/releases/tag/v1.2.3
avbalaganova@avbalaganova:~/git-extended$
```

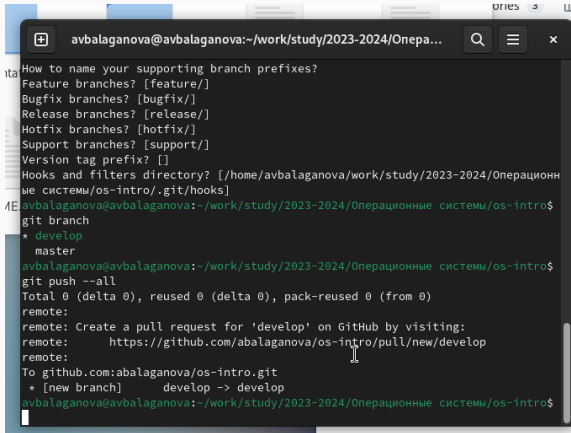
Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$  
avbalaganova@avbalaganova:~/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), 1.05 КиБ | 540.00 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:abalaganova/os-intro.git  
    d011a7d..de4adf0  master -> master  
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$  
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$  
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 11: package.json и коммит

Подготовка рабочего репозитория



```
avbalaganova@avbalaganova:~/work/study/2023-2024/Опера...
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/avbalaganova/work/study/2023-2024/Операционн
ые системы/os-intro/.git/hooks]
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$
git branch
* develop
  master
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$
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/abalaganova/os-intro/pull/new/develop
remote:
To github.com:abalaganova/os-intro.git
 * [new branch]      develop -> develop
avbalaganova@avbalaganova:~/work/study/2023-2024/Операционные системы/os-intro$
```

Рис. 12: Завершение релиза

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия с дополнительными функциями гитхаб.