

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

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

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

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

Рис. 1: Node.js

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

```
Update available! 9.13.0 → 10.15.1.  
Changelog: https://github.com/pnpm/pnpm/releases/tag/v10.15.1  
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/khaledsamoura/.local/share/pnpm/global/5:
```

```
+ commitizen 4.3.1
```

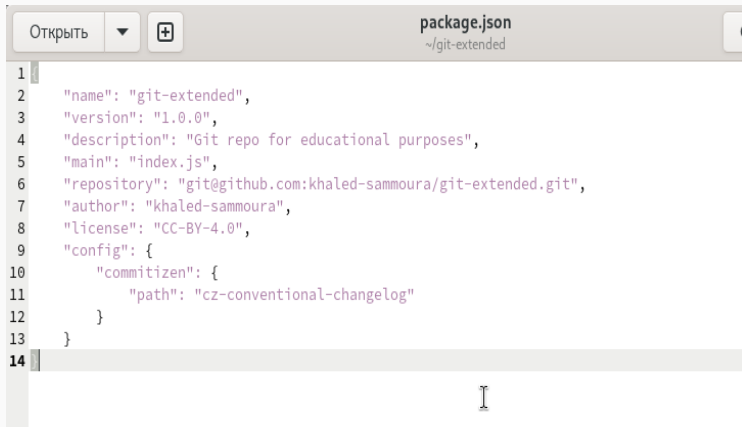
```
Done in 2.7s
```

```
khaledsamoura@khaledsamoura:~$
```

Рис. 2: установка commitizen

```
khaledsammoura@khaledsammoura:~$  
khaledsammoura@khaledsammoura:~$ pnpm add -g standard-changelog  
WARN 2 deprecated subdependencies found: glob@7.2.3, inflight@1.0.6  
Packages: +34  
+++++  
Progress: resolved 185, reused 151, downloaded 34, added 34, done  
  
/home/khaledsammoura/.local/share/pnpm/global/5:  
+ standard-changelog 7.0.1  
  
Done in 3.4s  
khaledsammoura@khaledsammoura:~$
```

Рис. 3: установка standard-changelog



The image shows a code editor window with a title bar that reads "package.json" and a subtitle "~git-extended". The editor contains a JSON object with the following fields: "name", "version", "description", "main", "repository", "author", "license", and "config". The "config" field contains a "commitizen" object with a "path" field. The code is displayed in a light gray background with line numbers on the left. A cursor is visible at the end of line 14.

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

Рис. 4: package.json

Использование commitizen

```
khaledsammoura@khaledsammoura:~/git-extended$ git add .
khaledsammoura@khaledsammoura:~/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 20c0b42] chore: test
 1 file changed, 14 insertions(+)
 create mode 100644 package.json
khaledsammoura@khaledsammoura:~/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), 1.12 КиБ | 1.12 МиБ/с, готово.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:khaled-sammoura/git-extended.git
 49785de..20c0b42  master -> master
khaledsammoura@khaledsammoura:~/git-extended$
```

Рис. 5: Отправка

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

Рис. 6: Инициализация и загрузка изменений

```
khaledsamoura@khaledsamoura:~/git-extended$ standard-changelog --first-release
khaledsamoura@khaledsamoura:~/git-extended$ git add CHANGELOG.md
khaledsamoura@khaledsamoura:~/git-extended$ git commit -am 'chore(site): add changelog'
[release/1.0.0 782ef53] chore(site): add changelog
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
khaledsamoura@khaledsamoura:~/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 782ef53).

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'

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

Рис. 7: Завершение релиза

Отправим данные на github

```
khaledsammoura@khaledsammoura:~/git-extended$  
khaledsammoura@khaledsammoura:~/git-extended$  
khaledsammoura@khaledsammoura:~/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), 2.68 КиБ | 2.68 МиБ/с, готово.  
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:khaled-sammoura/git-extended.git  
  20c0b42..78e2cd3  develop -> develop  
  20c0b42..98609ce  master -> master  
khaledsammoura@khaledsammoura:~/git-extended$ git push --tags  
Перечисление объектов: 1, готово.  
Подсчет объектов: 100% (1/1), готово.  
Запись объектов: 100% (1/1), 157 байтов | 157.00 КиБ/с, готово.  
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)  
To github.com:khaled-sammoura/git-extended.git  
  * [new tag]          1.0.0 -> 1.0.0  
khaledsammoura@khaledsammoura:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md  
https://github.com/khaled-sammoura/git-extended/releases/tag/v1.0.0  
khaledsammoura@khaledsammoura:~/git-extended$
```

Рис. 8: Отправка

```
khaledsammoura@khaledsammoura:~/git-extended$  
khaledsammoura@khaledsammoura:~/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  
  
khaledsammoura@khaledsammoura:~/git-extended$ touch test2  
khaledsammoura@khaledsammoura:~/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 78e2cd3).  
  
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'  
  
khaledsammoura@khaledsammoura:~/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'

khaledsamoura@khaledsamoura:~/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), 2.79 КиБ | 2.79 МиБ/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:khaled-sammoura/git-extended.git
   78e2cd3..2a2815d  develop -> develop
   98609ce..3411b50  master -> master
khaledsamoura@khaledsamoura:~/git-extended$ git push --tags
Перечисление объектов: 1, готово.
Подсчет объектов: 100% (1/1), готово.
Запись объектов: 100% (1/1), 157 байтов | 157.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:khaled-sammoura/git-extended.git
   * [new tag]       1.2.3 -> 1.2.3
khaledsamoura@khaledsamoura:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/khaled-sammoura/git-extended/releases/tag/v1.2.3
khaledsamoura@khaledsamoura:~/git-extended$
```

Рис. 10: Завершение релиза

Подготовка рабочего репозитория

```
? 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 eaa3063] chore: test
1 file changed, 14 insertions(+)
create mode 100644 package.json
khaledsamoura@khaledsamoura:~/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), 1.11 КиБ | 1.11 МБ/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:khaled-samoura/os-intro.git
6c6500a..eaa3063 master -> master
khaledsamoura@khaledsamoura:~/work/study/2024-2025/Операционные системы/os-intro$ 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/khaledsamoura/work/study/2024-2025/Операционные системы/os-intro/.git/hooks]
khaledsamoura@khaledsamoura:~/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'

khaledsamoura@khaledsamoura:~/work/study/2024-2025/Операционные системы/os-intro$ git push --all
Перечисление объектов: 6, готово.
Подсчет объектов: 100% (6/6), готово.
При сжатии изменений используется до 4 потоков
Сжатие объектов: 100% (5/5), готово.
Запись объектов: 100% (5/5), 2.83 КиБ | 2.83 МиБ/с, готово.
Total 5 (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:khaled-sammoura/os-intro.git
   eaa3063..217c3b0  develop -> develop
   eaa3063..3306fd9  master -> master
khaledsamoura@khaledsamoura:~/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), 159 байтов | 159.00 КиБ/с, готово.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:khaled-sammoura/os-intro.git
 * [new tag]         1.0.0 -> 1.0.0
khaledsamoura@khaledsamoura:~/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.