

Презентация к лабораторной работе 4

Операционные системы

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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.

Выполнение лабораторной работы

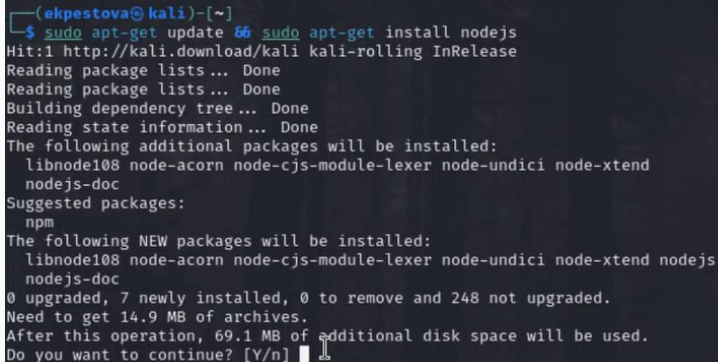
- я устанавливаю git-flow (рис. 1).

```
(ekpestova@kali)-[~]
$ sudo apt-get update && sudo apt-get install git-flow
Hit:1 http://mirror.truenetwork.ru/kali kali-rolling InRelease
Reading package lists... Done
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  git-flow
0 upgraded, 1 newly installed, 0 to remove and 248 not upgraded.
Need to get 47.2 kB of archives.
After this operation, 329 kB of additional disk space will be used.
Get:1 http://kali.download/kali kali-rolling/main amd64 git-flow all 1.12.3-3
[47.2 kB]
Fetched 47.2 kB in 1s (35.6 kB/s)
Selecting previously unselected package git-flow.
(Reading database ... 630724 files and directories currently installed.)
Preparing to unpack .../git-flow_1.12.3-3_all.deb ...
Unpacking git-flow (1.12.3-3) ...
Setting up git-flow (1.12.3-3) ...
Processing triggers for kali-menu (2023.4.7) ...
```

Рис. 1: git-flow

Выполнение лабораторной работы

- устанавливаю node.js и npm (рис. 2)

A terminal window with a dark background and light-colored text. The prompt is '(ekpestova@kali)-[~]'. The user enters '\$ sudo apt-get update' followed by '\$ sudo apt-get install nodejs'. The terminal shows the output of the update and install commands, including package lists, dependency trees, and disk space requirements. The user is prompted to continue with '[Y/n]' and presses the 'Y' key.

```
(ekpestova@kali)-[~]  
$ sudo apt-get update  
Hit:1 http://kali.download/kali kali-rolling InRelease  
Reading package lists... Done  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following additional packages will be installed:  
  libnode108 node-acorn node-cjs-module-lexer node-undici node-xtend  
  nodejs-doc  
Suggested packages:  
  npm  
The following NEW packages will be installed:  
  libnode108 node-acorn node-cjs-module-lexer node-undici node-xtend nodejs  
  nodejs-doc  
0 upgraded, 7 newly installed, 0 to remove and 248 not upgraded.  
Need to get 14.9 MB of archives.  
After this operation, 69.1 MB of additional disk space will be used.  
Do you want to continue? [Y/n] Y
```

Рис. 2: node.js

Выполнение лабораторной работы

- и устанавливаю pnpm (рис. 3).

```
(ekpestova@kali)-[~]
$ wget -qO- https://get.pnpm.io/install.sh | sh -
⇒ Downloading pnpm binaries 8.15.4
WARN using --force I sure hope you know what you are doing
Copying pnpm CLI from /tmp/tmp.WFAGkWRBVx/pnpm to /home/ekpestova/.local/share/pnpm/pnpm
Appended new lines to /home/ekpestova/.zshrc

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

To start using pnpm, run:
source /home/ekpestova/.zshrc

(ekpestova@kali)-[~]
$ source /home/ekpestova/.zshrc
```

Рис. 3: pnpm

Выполнение лабораторной работы

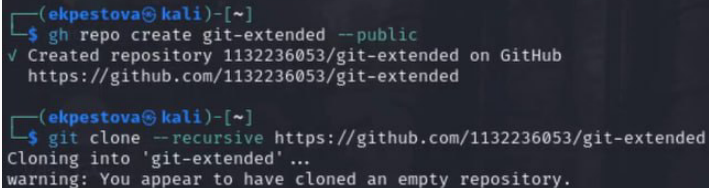
- запускаю программы для помощи в форматировании коммитов и помощи в создании логов (рис. 4).

```
(ekpestova@kali)-[~]  
$ source ~/.zshrc  
  
(ekpestova@kali)-[~]  
$ pnpm add -g commitizen  
Already up to date  
Progress: resolved 152, reused 152, downloaded 0, added 0, done  
Done in 8.9s  
  
(ekpestova@kali)-[~]  
$ pnpm add -g standard-changelog  
Packages: +56  
+-----+  
Progress: resolved 208, reused 152, downloaded 56, added 56, done  
  
/home/ekpestova/.local/share/pnpm/global/5:  
+ standard-changelog 5.0.0  
  
Done in 6.1s
```

Рис. 4: настройка

Выполнение лабораторной работы

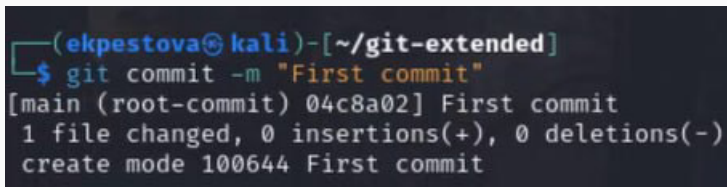
Создаю и клонирую репозиторий на github и называю его git-extended (рис. 5).



```
(ekpestova@kali)-[~]  
$ gh repo create git-extended --public  
✓ Created repository 1132236053/git-extended on GitHub  
https://github.com/1132236053/git-extended  
  
(ekpestova@kali)-[~]  
$ git clone --recursive https://github.com/1132236053/git-extended  
Cloning into 'git-extended' ...  
warning: You appear to have cloned an empty repository.
```

Рис. 5: новый репозиторий

Делаю первый коммит и выкладываю на github (рис. 6).

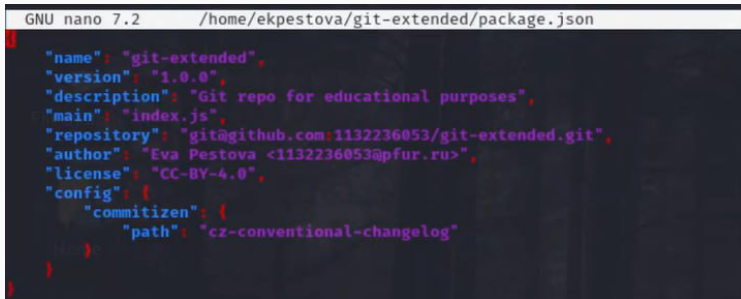
A terminal window with a dark background. The prompt is (ekpestova@kali)-[~/git-extended]. The user enters the command \$ git commit -m "First commit". The output shows the commit is created on the main branch with hash 04c8a02, indicating 1 file changed with no insertions or deletions.

```
(ekpestova@kali)-[~/git-extended]  
$ git commit -m "First commit"  
[main (root-commit) 04c8a02] First commit  
1 file changed, 0 insertions(+), 0 deletions(-)  
create mode 100644 First commit
```

Рис. 6: создание коммита

Выполнение лабораторной работы

- немного меняю конфигурацию коммитов: меняя файл package.json (рис. 7).

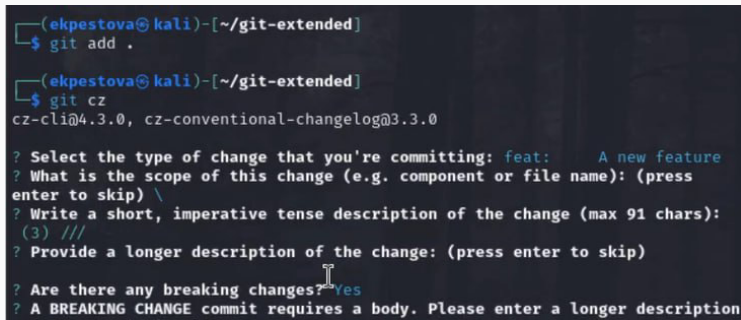
A screenshot of a terminal window with a dark background. At the top, a light-colored status bar shows 'GNU nano 7.2' and the file path '/home/ekpestova/git-extended/package.json'. The main area displays the content of the package.json file in a monospaced font with syntax highlighting. The JSON object includes fields for name, version, description, main, repository, author, license, and a config object for commitizen.

```
GNU nano 7.2 /home/ekpestova/git-extended/package.json
{
  "name": "git-extended",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:1132236053/git-extended.git",
  "author": "Eva Pestova <1132236053@pfur.ru>",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

Рис. 7: конфигурация

Выполнение лабораторной работы

- затем, добавляю новые файлы и выполняю коммит (рис. 8).



```
(ekpestova@kali)-[~/git-extended]
$ git add .

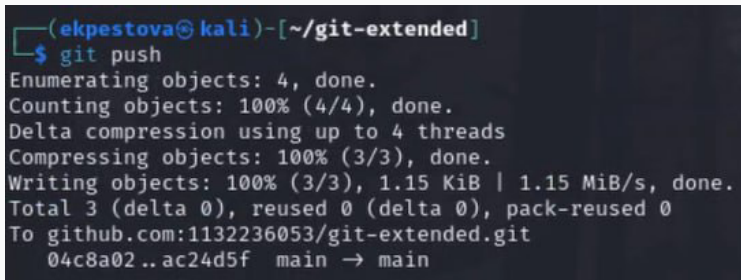
(ekpestova@kali)-[~/git-extended]
$ git cz
cz-cli@4.3.0, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: feat:      A new feature
? 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 91 chars):
(3) ///
? 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
```

Рис. 8: добавление и выполнение

- отправляю на github (рис. 9).

A terminal window with a dark background and light-colored text. The prompt is '(ekpestova@kali)-[~/git-extended]'. The user has entered the command '\$ git push'. The output shows the progress of pushing to GitHub: 'Enumerating objects: 4, done.', 'Counting objects: 100% (4/4), done.', 'Delta compression using up to 4 threads', 'Compressing objects: 100% (3/3), done.', 'Writing objects: 100% (3/3), 1.15 KiB | 1.15 MiB/s, done.', 'Total 3 (delta 0), reused 0 (delta 0), pack-reused 0', and 'To github.com:1132236053/git-extended.git 04c8a02..ac24d5f main -> main'.

```
(ekpestova@kali)-[~/git-extended]
$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 4 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 1.15 KiB | 1.15 MiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:1132236053/git-extended.git
04c8a02..ac24d5f main -> main
```

Рис. 9: отправка на github

Выполнение лабораторной работы

- инициализирую git-flow, префикс для ярлыков устанавливаю в v (рис. 10).

```
(ekpestova@kali)-[~/git-extended]
$ git flow init -f

Which branch should be used for bringing forth production releases?
  - develop
  - main
Branch name for production releases: [main]

Which branch should be used for integration of the "next release"?
  - develop
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? [] v
Hooks and filters directory? [/home/ekpestova/git-extended/.git/hooks]
```

Выполнение лабораторной работы

- проверяю, что я на ветке develop, загружаю весь репозиторий в хранилище, устанавливаю внешнюю ветку как вышестоящую для этой ветки (рис. 11).

```
(ekpestova@kali)-[~/git-extended]
$ git branch
* develop
  main

(ekpestova@kali)-[~/git-extended]
$ git push --all
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:   https://github.com/1132236053/git-extended/pull/new/develop
remote:
To github.com:1132236053/git-extended.git
 * [new branch]      develop -> develop

(ekpestova@kali)-[~/git-extended]
$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
```

Рис. 11: настройка

Выполнение лабораторной работы

- затем я создаю релиз с версией 1.0.0, создаю журнал изменений, добавляю журнал изменений в индекс (рис. 12).

```
(ekpestova@kali)-[~/git-extended]
$ git flow release start 1.0.0
Switched to a new branch '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'

(ekpestova@kali)-[~/git-extended]
$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md

(ekpestova@kali)-[~/git-extended]
$ git add CHANGELOG.md
```

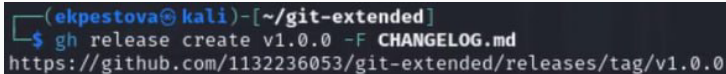
Выполнение лабораторной работы

- заливаю релизную ветку в основную ветку (рис. 13).

```
(ekpestova@kali)-[~/git-extended]
$ git flow release finish 1.0.0
Branches 'main' and 'origin/main' have diverged.
And local branch 'main' is ahead of 'origin/main'.
Already on 'main'
Your branch is ahead of 'origin/main' by 2 commits.
  (use "git push" to publish your local commits)
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.
Merge made by the 'ort' strategy.
 CHANGELOG.md | 9 ++++++++
 1 file changed, 9 insertions(+)
 create mode 100644 CHANGELOG.md
Deleted branch release/1.0.0 (was b66dc13).

Summary of actions:
- Release branch 'release/1.0.0' has been merged into 'main'
- The release was tagged 'v1.0.0'
- Release tag 'v1.0.0' has been back-merged into 'develop'
- Release branch 'release/1.0.0' has been locally deleted
- You are now on branch 'develop'
```

- создаю релиз на github. Для этого использую утилиты работы с github (рис. 14).

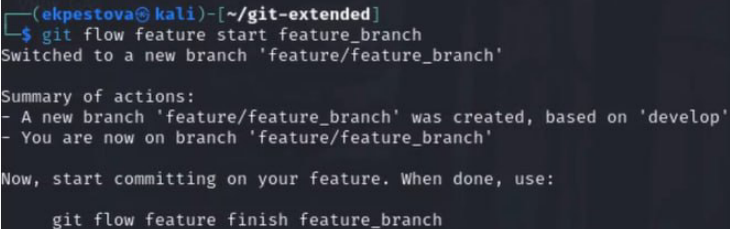
A terminal window with a dark background. The prompt is `(ekpestova@kali) - [~/git-extended]`. The command entered is `$ gh release create v1.0.0 -F CHANGELOG.md`. Below the command, the GitHub release URL is displayed: `https://github.com/1132236053/git-extended/releases/tag/v1.0.0`.

```
(ekpestova@kali) - [~/git-extended]
$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/1132236053/git-extended/releases/tag/v1.0.0
```

Рис. 14: создание релиза

Выполнение лабораторной работы

- создаю ветку для новой функциональности (рис. 15).

A terminal window with a dark background and light blue text. The prompt is '(ekpestova@kali)-[~/git-extended]'. The user enters '\$ git flow feature start feature_branch'. The output is 'Switched to a new branch 'feature/feature_branch''. Below this is a 'Summary of actions:' section with two bullet points: '- A new branch 'feature/feature_branch' was created, based on 'develop'' and '- You are now on branch 'feature/feature_branch''. At the bottom, it says 'Now, start committing on your feature. When done, use:' followed by the command 'git flow feature finish feature_branch' on a new line.

```
(ekpestova@kali)-[~/git-extended]
$ git flow feature start feature_branch
Switched to a new branch '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
```

Рис. 15: создание ветки

Выполнение лабораторной работы

- после этого я объединяю ветку feature_branch с develop и создаю релиз с версией 1.2.3 (рис. 16).

```
(ekpestova@kali)-[~/git-extended]
$ git flow feature finish feature_branch
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.
Already up to date.
Deleted branch feature/feature_branch (was 5833591).

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'

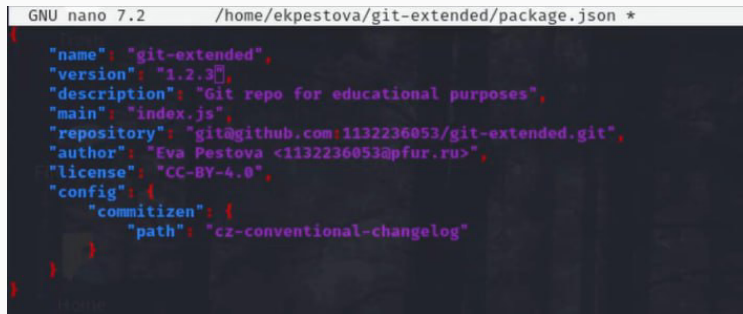
(ekpestova@kali)-[~/git-extended]
$ git flow release start 1.2.3
Switched to a new branch 'release/1.2.3'

Summary of actions:
- A new branch 'release/1.2.3' was created, based on 'develop'
- You are now on branch 'release/1.2.3'

Follow-up actions:
- Bump the version number now!
- Start committing last-minute fixes in preparing your release
```

Выполнение лабораторной работы

- обновляю номер версии в файле package.json (рис. 17).

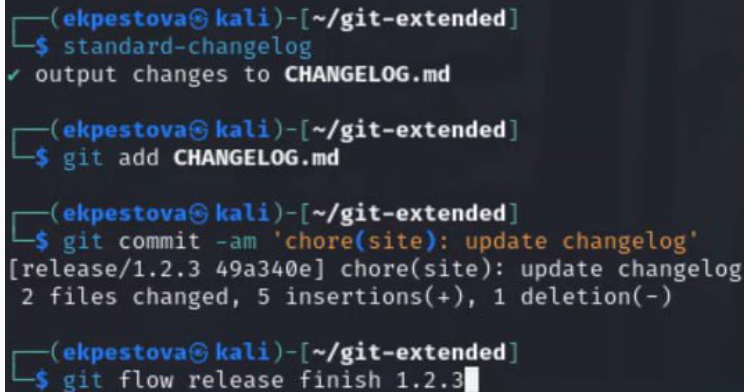


```
GNU nano 7.2 /home/ekpestova/git-extended/package.json *
{
  "name": "git-extended",
  "version": "1.2.3",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:1132236053/git-extended.git",
  "author": "Eva Pestova <1132236053@pfur.ru>",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

Рис. 17: обновление package.json

Выполнение лабораторной работы

- далее, создаю журнал изменений, добавляю журнал изменений в индекс и заливаю релизную ветку в основную ветку (рис. 18).



```
(ekpestova@kali)-[~/git-extended]
$ standard-changelog
✓ output changes to CHANGELOG.md

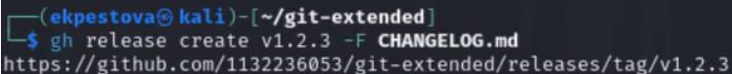
(ekpestova@kali)-[~/git-extended]
$ git add CHANGELOG.md

(ekpestova@kali)-[~/git-extended]
$ git commit -am 'chore(site): update changelog'
[release/1.2.3 49a340e] chore(site): update changelog
2 files changed, 5 insertions(+), 1 deletion(-)

(ekpestova@kali)-[~/git-extended]
$ git flow release finish 1.2.3
```

Рис. 18: изменения

- создаю релиз на github с комментарием из журнала изменений (рис. 19).

A terminal window with a dark background. The prompt is `(ekpestova@kali) - [~/git-extended]`. The command entered is `$ gh release create v1.2.3 -F CHANGELOG.md`. Below the command, the URL `https://github.com/1132236053/git-extended/releases/tag/v1.2.3` is displayed.

```
(ekpestova@kali) - [~/git-extended]
$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/1132236053/git-extended/releases/tag/v1.2.3
```

Рис. 19: релиз

Мне удалось получить навыки правильной работы с репозиториями git

Спасибо за внимание!
