

# **Отчет по лабораторной работе №4**

**Дисциплина архитектура компьютеров**

Царёв Максим Александрович

# Содержание

<b>1</b>	<b>Цель работы</b>	<b>5</b>
<b>2</b>	<b>Задание</b>	<b>6</b>
<b>3</b>	<b>Теоретическое введение</b>	<b>7</b>
<b>4</b>	<b>Выполнение лабораторной работы</b>	<b>8</b>
<b>5</b>	<b>Выводы</b>	<b>17</b>

## **Список иллюстраций**

## **Список таблиц**

# 1 Цель работы

Получение навыков правильной работы с репозиторием Гит

## 2 Задание

Выполнить работу для тестового репозитория Преобразовать рабочий репозиторий в репозиторий git-low and conventional commits

## 3 Теоретическое введение

Gitflow Workflow опубликована и популяризована Винсентом Дриссенем. Gitflow Workflow предполагает выстраивание строгой модели ветвления с учётом выпуска проекта. Данная модель отлично подходит для организации рабочего процесса на основе релизов. Работа по модели Gitflow включает создание отдельной ветки для исправлений ошибок в рабочей среде. Последовательность действий при работе по модели Gitflow: Из ветки master создаётся ветка develop. Из ветки develop создаётся ветка release. Из ветки develop создаются ветки feature. Когда работа над веткой feature завершена, она сливается с веткой develop. Когда работа над веткой релиза release завершена, она сливается в ветки develop и master. Если в master обнаружена проблема, из master создаётся ветка hotfix. Когда работа над веткой исправления hotfix завершена, она сливается в ветки develop и master.

# 4 Выполнение лабораторной работы

## Установка Gitflow

```
tsarevmax@tsarevmax:~$ sudo dnf copr enable elegos/gitflow
[sudo] password for tsarevmax:
https://copr.fedorainfracloud.org/api_3/rpmrepo/elegos/gitflow/fedo 100% | 1.0 KiB/s | 652.0 B | 00m01s
Enabling a Copr repository. Please note that this repository is not part
of the main distribution, and quality may vary.

The Fedora Project does not exercise any power over the contents of
this repository beyond the rules outlined in the Copr FAQ at
<https://docs.pagure.org/copr.copr/user_documentation.html#what-i-can-build-in-copr>,
and packages are not held to any quality or security level.

Please do not file bug reports about these packages in Fedora
Bugzilla. In case of problems, contact the owner of this repository.
Is this ok [y/N]: y
tsarevmax@tsarevmax:~$

tsarevmax@tsarevmax: /work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$ sudo dnf install gitflow
Updating and loading repositories:
Repositories loaded.
Package Arch Version Repository Size
Installing:
gitflow x86_64 1.12.3-1.fc34 copr:copr.fedorainfracloud.org 261.7 KiB

Transaction Summary:
Installing: 1 package

Total size of inbound packages is 57 KiB. Need to download 57 KiB.
After this operation, 262 KiB extra will be used (install 262 KiB, remove 0 B).
Is this ok [y/N]: y
[1/1] gitflow-0:1.12.3-1.fc34.x86_64 100% | 258.7 KiB/s | 57.4 KiB | 00m00s
-----
[1/1] Total 100% | 256.4 KiB/s | 57.4 KiB | 00m00s
[1/2] https://download.copr.fedorainfracloud.org/resu ???% [<=>] | 0.0 B/s | 0.0 B | 00m00s
[1/2] https://download.copr.fedorainfracloud.org/resu ???% [<=>] | 0.0 B/s | 0.0 B | 00m00s
[1/2] https://download.copr.fedorainfracloud.org/results/elegos/gitflow/pu 100% | 7.3 KiB/s | 998.0 B | 00m00s
-----
[2/2] Total 100% | 256.4 KiB/s | 57.4 KiB | 00m00s
Importing OpenPGP key 0x80F63AA3:
UserID : "elegos_gitflow (None) <elegos@gitflow@copr.fedorahosted.org>"
Fingerprint: 935799B049C5C36CF39A22823CA8E680F63AA3
From : https://download.copr.fedorainfracloud.org/results/elegos/gitflow/pubkey.gpg
Is this ok [y/N]:
```

установка Node.js



```
tsarevmax@TsarevMax:~$ sudo dnf install nodejs
Updating and loading repositories:
Repositories loaded.
Package Arch Version Repository Size
Installing:
nodejs x86_64 1:22.14.0-2.fc41 updates 149.5 KiB
Installing dependencies:
nodejs-libs x86_64 1:22.14.0-2.fc41 updates 75.9 MiB
Installing weak dependencies:
nodejs-docs noarch 1:22.14.0-2.fc41 updates 93.7 MiB
nodejs-full-118n x86_64 1:22.14.0-2.fc41 updates 30.4 MiB
nodejs-npm x86_64 1:10.9.2-1.22.14.0.2.fc41 updates 9.3 MiB

Transaction Summary:
Installing: 5 packages

Total size of inbound packages is 39 MiB. Need to download 39 MiB.
After this operation, 210 MiB extra will be used (install 210 MiB, remove 0 B).
Is this ok [y/N]: y
[1/5] nodejs-1:22.14.0-2.fc41.x86_64 100% | 584.3 KiB/s | 46.7 KiB | 00m00s
[2/5] nodejs-npm-1:10.9.2-1.22.14.0.2.fc41.x86_64 100% | 1.8 MiB/s | 2.4 MiB | 00m01s
[3/5] nodejs-docs-1:22.14.0-2.fc41.noarch 100% | 1.9 MiB/s | 8.8 MiB | 00m05s
[4/5] nodejs-libs-1:22.14.0-2.fc41.x86_64 32% [=====] | 1.3 MiB/s | 6.2 MiB | 00m09s
[5/5] nodejs-full-118n-1:22.14.0-2.fc41.x86_64 61% [=====] | 1.2 MiB/s | 5.2 MiB | 00m02s
-----
[3/5] Total 58% [=====] | 3.9 MiB/s | 22.7 MiB | 00m04s
```

## Установка pnpm

```
tsarevmax@TsarevMax:~$ sudo dnf install pnpm
Updating and loading repositories:
Repositories loaded.
Package Arch Version Repository Size
Installing:
pnpm noarch 9.13.0-1.fc41 updates 15.5 MiB

Transaction Summary:
Installing: 1 package

Total size of inbound packages is 3 MiB. Need to download 3 MiB.
After this operation, 16 MiB extra will be used (install 16 MiB, remove 0 B).
Is this ok [y/N]: y
[1/1] pnpm-9.13.0-1.fc41.noarch 100% | 3.9 MiB/s | 3.0 MiB | 00m01s
-----
[1/1] Total 100% | 3.0 MiB/s | 3.0 MiB | 00m01s
Running transaction
[1/3] Verify package files 100% | 41.0 B/s | 1.0 B | 00m00s
[2/3] Prepare transaction 100% | 3.0 B/s | 1.0 B | 00m00s
[3/3] Installing pnpm-9.13.0-1.fc41.noarch 100% | 8.3 MiB/s | 15.7 MiB | 00m02s
Complete!
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$
```

## Настройка окружения

```
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$ pnpm setup
Appended new lines to /home/tsarevmax/.bashrc

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

To start using pnpm, run:
source /home/tsarevmax/.bashrc
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$ source ~/.bashrc
bash: source: command not found
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$ source ~/.bashrc
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$
```

## Настройка инструментов для общепринятых коммитов

### Установка commitizen

```
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$ pnpm add -g commitizen

Update available! 9.13.0 -> 18.6.1.
Changelog: https://github.com/pnpm/pnpm/releases/tag/v10.6.1
Run "pnpm self-update" to update.

Follow @pnpmjs for updates: https://x.com/pnpmjs

WARN: deprecated subdependencies found: glob@7.2.3, inflight@1.0.6
Packages: +151
Progress: resolved 151, reused 0, downloaded 151, added 151, done

/home/tsarevmax/.local/share/pnpm/global/5:
commitizen 4.3.1

Done in 5.9s
tsarevmax@TsarevMax:~/work/study/2024-2025/Операционные системы/study_2024-2025_os-intro$
```

Также установил стандартный генератор журналов изменений `pnpm add -g standard-changelog`

создаю тестовый репозиторий и клонирую его

```
tsarevmax@TsarevMax:~$ gh repo create --public git-extended
✓ Created repository gravitai06/git-extended on GitHub
https://github.com/gravitai06/git-extended
tsarevmax@TsarevMax:~$ git clone --recursive git@github.com:gravitai06/git-extended.git
Cloning into 'git-extended'...
```

создал несколько файлов чтобы был не пустой репозиторий закомитил и запушил

```
tsarevmax@TsarevMax:~$ git clone --recursive git@github.com:gravitai06/git-extended.git
Cloning into 'git-extended'...
warning: You appear to have cloned an empty repository.
tsarevmax@TsarevMax:~$ ls
git-extended  touch  work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
tsarevmax@TsarevMax:~$ cd git-extended/
tsarevmax@TsarevMax:~/git-extended$ touch README.md && echo text > README.md
tsarevmax@TsarevMax:~/git-extended$ git add
tsarevmax@TsarevMax:~/git-extended$ git commit -m "first commit"
error: pathspec 'first commit' did not match any file(s) known to git
tsarevmax@TsarevMax:~/git-extended$ git commit -m "first commit"
[main (root-commit) ffa217c] first commit
1 file changed, 1 insertion(+)
 create mode 100644 README.md
tsarevmax@TsarevMax:~/git-extended$ git push
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Writing objects: 100% (3/3), 865 bytes | 865.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:gravitai06/git-extended.git
 * [new branch]    main -> main
tsarevmax@TsarevMax:~/git-extended$
```

Конфигурация для пакетов Node.js

`pnpm init`

после изменил файл `package.json`

```
Terminal - tsarevmax@TsarevMax:~/git-extended
File Edit View Terminal Tabs Help
GNU nano 8.1 package.json
{
  "name": "git-extended",
  "version": "1.0.0",
  "description": "Git repo for educational purposes",
  "main": "index.js",
  "repository": "git@github.com:gravitai06/git-extended.git",
  "author": "Tsarev Max floozy06@mail.ru",
  "license": "CC-BY-4.0",
  "config": {
    "commitizen": {
      "path": "cz-conventional-changelog"
    }
  }
}
```

создаю ветку девелоп и пушу все туда

```
tsarevmax@TsarevMax:~/git-extended$ git checkout -b develop
Switched to a new branch 'develop'
tsarevmax@TsarevMax:~/git-extended$ git push -u origin develop
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/gravitai06/git-extended/pull/new/develop
remote:
To github.com:gravitai06/git-extended.git
 * [new branch]      develop -> develop
branch 'develop' set up to track 'origin/develop'.
tsarevmax@TsarevMax:~/git-extended$
```

добавил файлы в индекс сделал коммит и запустил

```
tsarevmax@TsarevMax:~/git-extended$ git add .
tsarevmax@TsarevMax:~/git-extended$ git cz
cz-cli@4.3.1, cz-conventional-changelog@3.3.0

? Select the type of change that you're committing: docs: Documentation only changes
? 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 94 chars):
  (27) improve information context
? 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
[develop 4315f73] docs: improve information context
1 file changed, 14 insertions(+)
create mode 100644 package.json
tsarevmax@TsarevMax:~/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 (from 0)
To github.com:gravitai06/git-extended.git
 ffa217c..4315f73 develop -> develop
tsarevmax@TsarevMax:~/git-extended$
```

Инициализируем git-flow проверяю ветку и загружаю в репозиторий

```
terminal - tsarevmax@TsarevMax:~/git-extended
File Edit View Terminal Tabs Help

tsarevmax@TsarevMax:~/git-extended$ git flow init

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/tsarevmax/git-extended/.git/hooks]
tsarevmax@TsarevMax:~/git-extended$ git branch
* develop
  main
tsarevmax@TsarevMax:~/git-extended$ git push --all
Everything up-to-date
tsarevmax@TsarevMax:~/git-extended$ git branch --set-upstream-to=origin/develop develop
branch 'develop' set up to track 'origin/develop'.
tsarevmax@TsarevMax:~/git-extended$
```

## Создание релиза

### Начал релиз

```
tsarevmax@TsarevMax:~/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'

tsarevmax@TsarevMax:~/git-extended$
```

создал журнал изменений и добавил в журнал

```
Terminal - tsarevmax@TsarevMax:~/git-extended
File Edit View Terminal Tabs Help

tsarevmax@TsarevMax:~/git-extended$ standard-changelog --first-release
✓ created CHANGELOG.md
✓ output changes to CHANGELOG.md
tsarevmax@TsarevMax:~/git-extended$ git add .
tsarevmax@TsarevMax:~/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) site
? Write a short, imperative tense description of the change (max 87 chars):
(13) add changelog
? 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
[release/1.0.0 24af0cd] chore(site): add changelog
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
tsarevmax@TsarevMax:~/git-extended$
```

## Завершил релиз

```
tsarevmax@TsarevMax:~/git-extended$ git flow release finish 1.0.0
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
Merge made by the 'ort' strategy.
CHANGELOG.md | 4 ++++
package.json | 14 ++++++++
2 files changed, 18 insertions(+)
create mode 100644 CHANGELOG.md
create mode 100644 package.json
Already on 'main'
Your branch is ahead of 'origin/main' by 3 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 | 4 ++++
1 file changed, 4 insertions(+)
create mode 100644 CHANGELOG.md
Deleted branch release/1.0.0 (was 24af0cd).

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'
```

отправляю все в репозиторий

```

tsarevmax@TsarevMax:~/git-extended$ git push --all
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 4 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 2.66 KiB | 1.33 MiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:gravitai06/git-extended.git
   4315f73..135b8e4  develop -> develop
   ffa217c..9f18829  main -> main
tsarevmax@TsarevMax:~/git-extended$ git push tags
fatal: 'tags' does not appear to be a git repository
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
tsarevmax@TsarevMax:~/git-extended$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 160 bytes | 160.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:gravitai06/git-extended.git
 * [new tag]          v1.0.0 -> v1.0.0
tsarevmax@TsarevMax:~/git-extended$

```

создал релиз на гитхабе

```

tsarevmax@TsarevMax:~/git-extended$ gh release create v1.0.0 -F CHANGELOG.md
https://github.com/gravitai06/git-extended/releases/tag/v1.0.0
tsarevmax@TsarevMax:~/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

tsarevmax@TsarevMax:~/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 135b8e4).

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'
tsarevmax@TsarevMax:~/git-extended$

```

Работа с ветками

Начинаю релиз

```
tsarevmax@TsarevMax:~/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
- When done, run:

    git flow release finish '1.2.3'
```

Создал журнал изменений и добавил туда и в конце завершаю релиз

```
tsarevmax@TsarevMax:~/git-extended$ nano package.json
tsarevmax@TsarevMax:~/git-extended$ standard-changelog
* output changes to CHANGELOG.md
tsarevmax@TsarevMax:~/git-extended$ git add .
tsarevmax@TsarevMax:~/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) site
Write a short, imperative tense description of the change (max 87 chars):
(16) update changelog
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
[release/1.2.3 99074cb] chore(site): update changelog
2 files changed, 5 insertions(+), 1 deletion(-)
tsarevmax@TsarevMax:~/git-extended$ git flow release finish 1.2.3
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
Merge made by the 'ort' strategy.
  CHANGELOG.md | 4 ++++
  package.json | 2 +-
  2 files changed, 5 insertions(+), 1 deletion(-)
Already on 'main'
Your branch is ahead of 'origin/main' by 3 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 | 4 ++++
  package.json | 2 +-
  2 files changed, 5 insertions(+), 1 deletion(-)
Deleted branch release/1.2.3 (was 99074cb).

Summary of actions:
- Release branch 'release/1.2.3' has been merged into 'main'
- The release was tagged 'v1.2.3'
- Release tag 'v1.2.3' has been back-merged into 'develop'
- Release branch 'release/1.2.3' has been locally deleted
- You are now on branch 'develop'
```

отправляю изменения в репозиторий и создаю релиз

```
Terminal - tsarevmax@TsarevMax:~/git-extended
File Edit View Terminal Tabs Help

tsarevmax@TsarevMax:~/git-extended$ git push --all
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 4 threads
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 2.78 KiB | 2.78 MiB/s, done.
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:gravitai06/git-extended.git
   135b8e4..36af71d  develop -> develop
   9f18829..3022683  main -> main
* [new branch]      feature/feature_branch -> feature/feature_branch
tsarevmax@TsarevMax:~/git-extended$ git push --tags
Enumerating objects: 1, done.
Counting objects: 100% (1/1), done.
Writing objects: 100% (1/1), 158 bytes | 158.00 KiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com:gravitai06/git-extended.git
* [new tag]         v1.2.3 -> v1.2.3
tsarevmax@TsarevMax:~/git-extended$ gh release create v1.2.3 -F CHANGELOG.md
https://github.com/gravitai06/git-extended/releases/tag/v1.2.3
tsarevmax@TsarevMax:~/git-extended$
```



## 5 Выводы

я получил навыки правильной работы с репозиториями git.