

Лабораторная работа №1

Работа с Git

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Информация

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Приобрести практические навыки работы с системой управления версиями Git.

1. Создать репозиторий
2. Изменить его содержимое, изучить работу с коммитами, версиями и тегами
3. Поработать с объектами Git
4. Создать дополнительную ветку, провести слияние, разрешение конфликтов
5. Создать клон репозитория и слить его с оригинальным
6. Залить и извлечь изменения

Выполнение лабораторной работы

```
shermanb@shermanb-VirtualBox:~/Desktop$ git config --global user.name "FNgorodiansky"
shermanb@shermanb-VirtualBox:~/Desktop$ git config --global user.email "gorodianskyfedor@gmail.com"
shermanb@shermanb-VirtualBox:~/Desktop$ git config --global core.autocrlf input
git config --global core.safecrlf true
shermanb@shermanb-VirtualBox:~/Desktop$ git config --global core.quotepath off
```

Рис. 1: Настройка git

```
shernan@shernan-VirtualBox: /Desktop$ mkdir hello
cd hello
touch hello.html
echo "Hello, World!" > hello.html
shernan@shernan-VirtualBox: /Desktop/hello$ ls
hello.html
shernan@shernan-VirtualBox: /Desktop/hello$ cat hello.html
Hello, World!
shernan@shernan-VirtualBox: /Desktop/hello$ git init
hint: using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/shernan/Desktop/hello/.git/
```

Рис. 2: Создание репозитория

```
shernan@shernan-VirtualBox: /Desktop/hello$ git add hello.html
shernan@shernan-VirtualBox: /Desktop/hello$ git commit -m "Initial Commit"
[master (root-commit) 189b672] Initial Commit
1 file changed, 1 insertion(+)
create mode 100644 hello.html
shernan@shernan-VirtualBox: /Desktop/hello$ git status
On branch master
nothing to commit, working tree clean
```

Рис. 3: Добавление файла в репозиторий


```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ nano hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cat hello.html
<h1>Hello, World!</h1>
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   hello.html

no changes added to commit (use "git add" and/or "git commit -a")
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html

shermanb@shermanb-VirtualBox:~/Desktop/hello$ git commit
[master ba4218d] Added h1 tag
 1 file changed, 1 insertion(+), 1 deletion(-)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
nothing to commit, working tree clean
```

Рис. 4: Внесение изменений в содержимое репозитория

Изменим страницу «Hello, World», чтобы она содержала стандартные теги

и

.

```
<html>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
```

Внесение изменений

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ nano hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cat hello.html
<html>
<body>
<h1>Hello, World!</h1>
</body>
</html>
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ nano hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   hello.html
```

Рис. 5: Внесение нескольких изменений в содержимое репозитория

Внесение изменений

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git commit -m "Added standard HTML page tags"
[master bdaa26e] Added standard HTML page tags
1 file changed, 4 insertions(+)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   hello.html

no changes added to commit (use "git add" and/or "git commit -a")
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add .
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html

shermanb@shermanb-VirtualBox:~/Desktop/hello$ git commit -m "Added HTML header"
[master ae7422c] Added HTML header
1 file changed, 2 insertions(+)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git log
```

Рис. 6: Внесение нескольких изменений в содержимое репозитория

```
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log
commit ae7422c63101eec6dab35c69d6bd1cbb15014d0b (HEAD -> master)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:16:11 2025 +0300

    Added HTML header

commit bdaa26e4ca981327050b6fd4637d9aa8076230b6
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:15:18 2025 +0300

    Added standard HTML page tags

commit ba4218dcbedd5e38a6b1365bbc0e847cf2831352
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:12:37 2025 +0300

    Added h1 tag

commit 180b6728a50042d0508a2e64d763c07543b3894e
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300

    Initial Commit

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline
ae7422c63101eec6dab35c69d6bd1cbb15014d0b (HEAD -> master) Added HTML header
bdaa26e4ca981327050b6fd4637d9aa8076230b6 Added standard HTML page tags
ba4218dcbedd5e38a6b1365bbc0e847cf2831352 Added h1 tag
180b6728a50042d0508a2e64d763c07543b3894e Initial Commit

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline --max-count=2
ae7422c63101eec6dab35c69d6bd1cbb15014d0b (HEAD -> master) Added HTML header
bdaa26e4ca981327050b6fd4637d9aa8076230b6 Added standard HTML page tags

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline --since='5 minutes ago'
ae7422c63101eec6dab35c69d6bd1cbb15014d0b (HEAD -> master) Added HTML header
bdaa26e4ca981327050b6fd4637d9aa8076230b6 Added standard HTML page tags
ba4218dcbedd5e38a6b1365bbc0e847cf2831352 Added h1 tag

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline --until='5 minutes ago'
180b6728a50042d0508a2e64d763c07543b3894e Initial Commit

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline --author=FNgorodiansky
ae7422c63101eec6dab35c69d6bd1cbb15014d0b (HEAD -> master) Added HTML header
bdaa26e4ca981327050b6fd4637d9aa8076230b6 Added standard HTML page tags
ba4218dcbedd5e38a6b1365bbc0e847cf2831352 Added h1 tag
180b6728a50042d0508a2e64d763c07543b3894e Initial Commit

shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --pretty=oneline --all
```

Получение старых версий

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout 180b6728a50042d0508a2e64d763c07543b3894e
Note: switching to '180b6728a50042d0508a2e64d763c07543b3894e'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

    git switch -c <new-branch-name>

Or undo this operation with:

    git switch -

Turn off this advice by setting config variable advice.detachedHead to false

HEAD is now at 180b672 Initial Commit
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cat hello.html
Hello, World!
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git tag v1
```

Рис. 8: Просмотр разных версий репозитория

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git tag v1
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout v1^
error: pathspec 'v1^' did not match any file(s) known to git
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout v1~1
error: pathspec 'v1~1' did not match any file(s) known to git
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout v1
HEAD is now at 180b672 Initial Commit
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cat hello.html
Hello, World!
```

Рис. 9: Создание тегов версий

Отмена локальных изменений (до индексации)

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout master
Previous HEAD position was 180b672 Initial Commit
Switched to branch 'master'
shermanb@shermanb-VirtualBox:~/Desktop/hello$ nano hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   hello.html

no changes added to commit (use "git add" and/or "git commit -a")
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout hello.html
git status
cat hello.html
Updated 1 path from the index
On branch master
nothing to commit, working tree clean
<html>
<head>
</head>
<body>
<h1>Hello, World!</h1>
</body>
</html>
```

Рис. 10: Отмена локальных изменений (до индексации)

Отмена проиндексированных изменений (перед коммитом)

```
</html>
shernanb@shernanb-VirtualBox:~/Desktop/hello$ nano hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git add hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html

shernanb@shernanb-VirtualBox:~/Desktop/hello$ git reset HEAD hello.html
Unstaged changes after reset:
M       hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git checkout hello.html
git status
Updated 1 path from the index
On branch master
nothing to commit, working tree clean
```

Рис. 11: Отмена проиндексированных изменений (перед коммитом)

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ nano hello.html
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add hello.html
git commit -m "Oops, we didn't want this commit"
[master c4ac86e] Oops, we didn't want this commit
1 file changed, 1 insertion(+)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git revert HEAD
[master ae7a0ca] This reverts commit c4ac86ecde9a2d9750b0314aadd563cee35fb05.
1 file changed, 1 deletion(-)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git log
commit ae7a0cad91ea1e35e677be029c3f7265be18b880 (HEAD -> master)
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:26:05 2025 +0300

    This reverts commit c4ac86ecde9a2d9750b0314aadd563cee35fb05.

commit c4ac86ecde9a2d9750b0314aadd563cee35fb05
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:25:47 2025 +0300

    Oops, we didn't want this commit

commit ae7422c63101eec6dab35c69d6bd1cbb15014d0b
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:16:11 2025 +0300

    Added HTML header

commit bdaa26e4ca981327050b6fd4637d9aa8076230b6
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:15:18 2025 +0300

    Added standard HTML page tags

commit ba4218dcbedd5e38a6b1365bbc0e847cf2831352
Author: FNgordiansky <gorodianskyfedor@gmail.com>
```

Рис. 12: Отмена КОММИТОВ

Удаление коммитов из ветки

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git tag oops
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git reset
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git reset --hard v1
HEAD is now at 180b672 Initial Commit
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git log
commit 180b6728a50042d0508a2e64d763c07543b3894e (HEAD -> master, tag: v1-beta, tag: v1)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300

    Initial Commit

shermanb@shermanb-VirtualBox:~/Desktop/hello$ git log --all
commit ae7a0cad91ea1e35e677be029c3f7265be18b888 (tag: oops)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:26:05 2025 +0300

    This reverts commit c4ac86ecde9a2d9750b0314aadd563cee35fb05.

commit c4ac86ecde9a2d9750b0314aadd563cee35fb05
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:25:47 2025 +0300

    Oops, we didn't want this commit

commit ae7422c63101eec6dab35c69d6bd1cbb15014d0b
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:16:11 2025 +0300

    Added HTML header

commit bdaa26e4ca981327050b6fd4637d9aa8076230b6
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:15:18 2025 +0300

    Added standard HTML page tags
```

Рис. 13: Удаление коммитов из ветки

Удаление коммитов из ветки

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git log --all
commit ae7a0cad91eae35e677be029c3f7265be18b888 (tag: oops)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:26:05 2025 +0300

    This reverts commit c4ac86ecde9a2d9750b0314aadd563cee35fb05.

commit c4ac86ecde9a2d9750b0314aadd563cee35fb05
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:25:47 2025 +0300

    Oops, we didn't want this commit

commit ae7422c63101eec6dab35c69d6bd1cbb15014d0b
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:16:11 2025 +0300

    Added HTML header

commit bdaa26e4ca981327050b6fd4637d9aa8076230b6
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:15:18 2025 +0300

    Added standard HTML page tags

commit ba4218dcbedd5e38a6b1365bbc0e847cf2831352
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:12:37 2025 +0300

    Added h1 tag

commit 180b6728a50042d0508a2e64d763c07543b3894e (HEAD -> master, tag: v1-beta, tag: v1)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300
```

Рис. 14: Ничего никогда не теряется

```
Initial Commit
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git tag -d oops
git log --all
Deleted tag 'oops' (was ae7a0ca)
commit 180b6728a50042d0508a2e64d763c07543b3894e (HEAD -> master, tag: v1-beta, tag: v1)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300

Initial Commit
```

Рис. 15: Удаление тега oops

Изменение предыдущего коммита

```
shernanb@shernanb-VirtualBox:~/Desktop/hello$ nano hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git add hello.html
git commit -m "Add an author comment"
[master b0fe88b] Add an author comment
1 file changed, 8 insertions(+), 1 deletion(-)
shernanb@shernanb-VirtualBox:~/Desktop/hello$ nano hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git add hello.html
git commit --amend -m "Add an author/email comment"
[master 484b53d] Add an author/email comment
Date: Tue Feb 18 11:32:23 2025 +0300
1 file changed, 8 insertions(+), 1 deletion(-)
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git log
commit 484b53d2295a4e8925bc5c28da041ac52bd0d830 (HEAD -> master)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:32:23 2025 +0300

    Add an author/email comment

commit 180b6728a50042d0508a2e64d763c07543b3894e (tag: v1-beta, tag: v1)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300

    Initial Commit
```

Рис. 16: Изменение предыдущего коммита

Переместим наш файл в каталог `lib`. Для этого создадим его и используем команду `git mv`, сделаем коммит этого перемещения.

Подробнее о структуре

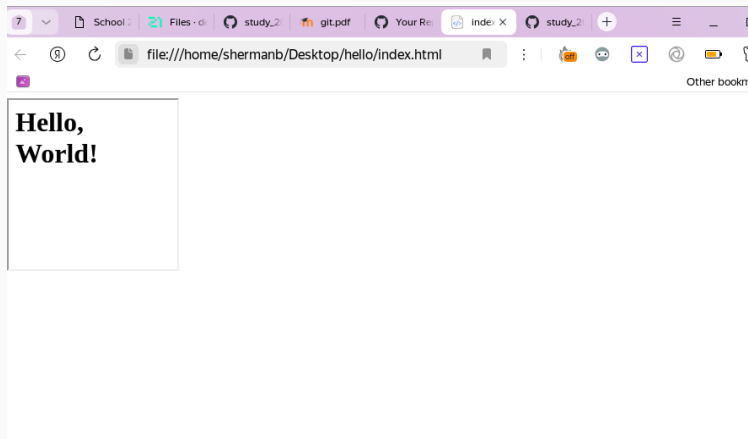


Рис. 17: Результат открытия index.html


```
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ ls -C .git
branches      config        HEAD         index        logs         ORIG_HEAD    refs
COMMIT_EDITMSG  description  hooks        info         objects      packed-refs
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ ls -C .git/objects
00 11 18 4f 5d 68 8a 98 b0 bd cb e5 f4 info
09 17 48 52 62 88 92 ae ba c4 d5 f1 f7 pack
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ ls -C .git/objects/<dir>
bash: syntax error near unexpected token 'newline'
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ ls -C .git/objects/11
1bf13ce6fa20286ed822590688aef138b9e0f
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ cat .git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ ls .git/refs
ls .git/refs/heads
ls .git/refs/tags
cat .git/refs/tags/v1
heads  tags
master
v1  v1-beta
180b6728a50042d0508a2e64d763c07543b3894e
shermanb@shermanb-VirtualBox: ~/Desktop/hello$ cat .git/HEAD
ref: refs/heads/master
```

Рис. 18: Каталог .git

Работа непосредственно с объектами git

```
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git log --max-count=1
commit f118f238c42e1d5936d0be8a57af691edb5b609a (HEAD -> master)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:36:02 2025 +0300

    Added index.html.
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git cat-file -t f118f238c42e1d5936d0be8a57af691e
db5b609a
git cat-file -p f118f238c42e1d5936d0be8a57af691edb5b609a
commit
tree 172a0112deb91b3f4fb1f32aae63eb098619da64
parent d51f9d350f18e94a7e46f3342da32f9d26b5e99
author FNgorodiansky <gorodianskyfedor@gmail.com> 1739867762 +0300
committer FNgorodiansky <gorodianskyfedor@gmail.com> 1739867762 +0300

Added index.html.
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git cat-file -p 172a0112deb91b3f4fb1f32aae63eb09
8619da64
100644 blob 68583eacd328506a31568f8df6f45ebb874238b5 index.html
040000 tree 921f8c6899dda778704dd4543f18911cddcee8d1 lib
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git cat-file -p 921f8c6899dda778704dd4543f18911c
ddcee8d1
100644 blob 111bf13ce6fa20286ed82259068baef138b9e0f hello.html
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git cat-file -p 111bf13ce6fa20286ed82259068baef1
38b9e0f
error: unknown switch 'l'
usage: git cat-file <type> <object>
or: git cat-file <obj-id> <object>
```

Рис. 19: Работа непосредственно с объектами git

```
shermanb@shermanb-VirtualBox:~/Desktop/hello/lib$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
nothing to commit, working tree clean
shermanb@shermanb-VirtualBox:~/Desktop/hello/lib$ touch lib/style.css
touch: cannot touch 'lib/style.css': No such file or directory
shermanb@shermanb-VirtualBox:~/Desktop/hello/lib$ touch style.css
```

Рис. 20: Создание ветки

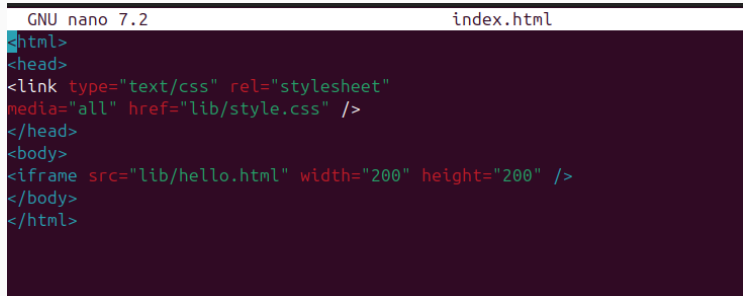
```
shermanb@shermanb-VirtualBox:~/Desktop/hello/lib$ git add style.css
shermanb@shermanb-VirtualBox:~/Desktop/hello/lib$ git commit -m "Added css stylesheet"
[style 9d76ebc] Added css stylesheet
1 file changed, 3 insertions(+)
create mode 100644 lib/style.css
```

Рис. 21: Создание ветки



```
GNU nano 7.2                                hello.html
<!-- Author: Fedor Gorodiansky (gorodianskyfedor@gmail.com)-->
<html>
<head>
<link type="text/css" rel="stylesheet"
media="all" href="style.css" />
</head>
<body>
<h1>Hello, World!</h1>
</body>
</html>
```

Рис. 22: Просмотр логов новой ветки



```
GNU nano 7.2                                index.html
<html>
<head>
<link type="text/css" rel="stylesheet"
media="all" href="lib/style.css" />
</head>
<body>
<iframe src="lib/hello.html" width="200" height="200" />
</body>
</html>
```

Рис. 23: Переключение на ветку master

```
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git checkout style
cat lib/hello.html
Already on 'style'
<!-- Author: Fedor Gorodiansky (gorodianskyfedor@gmail.com)-->
<html>
<head>
<link type="text/css" rel="stylesheet"
media="all" href="style.css" />
</head>
<body>
<h1>Hello, World!</h1>
</body>
</html>
shernanb@shernanb-VirtualBox:~/Desktop/hello$ git checkout master
```

Рис. 24: Изменения в ветке master

```
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git checkout master
Switched to branch 'master'
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ nano README.md
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ ls
index.html  lib
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ touch README.md
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ echo "This is the Hello World example from the g
it tutorial." > README.md
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git add README.md
git commit -m "Added README"
[master 9561463] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md
shernanb@shernanb-VirtualBox: ~/Desktop/hello$ git log --graph --all
* commit 9561463c31e978ak382b838aa4f71aab8bec1c7 (HEAD -> master)
  Author: FNgorodiansky <gorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:49:25 2025 +0300

    Added README

* commit 360c8bdb4472d51ddf85933cb0e83e03226b50ab (style)
  Author: FNgorodiansky <gorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:47:26 2025 +0300

    Updated index.html

* commit 06e2296a520e79856504668eb28bd54e40185cd2
  Author: FNgorodiansky <gorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:48 2025 +0300

    Hello uses style.css

* commit 9d76ebce104cee466fb227258b83bcc3b81a110b
  Author: FNgorodiansky <gorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:00 2025 +0300

    Added css stylesheet

* commit f118f230c42e1d5936d0be8a57af691ed5b669a
  Author: FNgorodiansky <gorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:36:02 2025 +0300
```

Рис. 25: Слияние веток

Создание конфликта

```
chernash@chernash-VirtualBox: ~/Desktop/hello$
chernash@chernash-VirtualBox: ~/Desktop/hello$ git checkout style
git merge master
git log --graph --all
Switched to branch 'style'
Merge made by the 'ort' strategy.
 README.md | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
* commit 405e00406060efcabc429293d07a4917e3c776 (HEAD -> style)
Merge: 368c00d 9561053
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
Date: Tue Feb 19 11:58:07 2025 +0300

Merge branch 'master' into style

* commit 9561053c1e978ae302d078ae0f71eab8bac1c7 (master)
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
Date: Tue Feb 19 11:49:21 2025 +0300

Added README

* commit 368c00d4472d51d0f01931c3db0a3e83226b50ab
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
Date: Tue Feb 19 11:47:26 2025 +0300

Updated index.html

* commit 06e7296a120e7985610446a0300954e401f8c02
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
Date: Tue Feb 19 11:46:48 2025 +0300

Hello uses style.css

* commit 06f6b0c08c0e4067b12772301031c1c3081a110b
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
Date: Tue Feb 19 11:46:09 2025 +0300

Added css stylesheet

* commit 7110f20c42e1d5936000ba57af291e0b5b009a
Author: Fhgorodlansky <fgorodlanskyfedor@gmail.com>
```

Рис. 26: Создание конфликта

```
shernad@shernad-VirtualBox: ~/Desktop/hello5 $ git checkout style
git log --graph
Already on 'style'
* commit d620751004b31d6e9982bc91400f5150f02e6a24 (HEAD -> style)
  Merge: d656d84 aae990c
  Author: P@gorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:54:44 2025 +0300

  Merged master fixed conflict.

* commit aae990c08e067a22a7864b403fa722c0f0953 (master)
  Author: P@gorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:52:22 2025 +0300

  Life is great

* commit d81e804806094fcabbc40193067a4917e3cb776
  Merge: 36dc8bd 9561463
  Author: P@gorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:50:47 2025 +0300

  Merge branch "master" into style

* commit 9561463c3e978ae302010baed771e080ec1c7
  Author: P@gorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:49:25 2025 +0300

  Added README

* commit 36dc8bd0472051d0f0931c0ee3ee3220450ab
  Author: P@gorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:47:26 2025 +0300
```

Рис. 27: Поиск коммита перед слиянием

```
shernad@shernad-VirtualBox: ~/Desktop/Hello$ git log --graph --all
* commit a50999c5d0a3a3a78a4d46034722c40e3 (master)
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:52:22 2025 +0300

    Life is great

* commit 93614613c1c4978ae382d499ad77a0db6c1c7
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:49:25 2025 +0300

    Added README

* commit 306c8db4472d51d0785931c0a68ba8322d050db (HEAD -> style)
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:47:26 2025 +0300

    Updated index.html

* commit 80e2296a52ba7985610466eb20d54e49185cd2
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:46:48 2025 +0300

    Hello uses style.css

* commit a4704bc3184cee4667b27258d01ccc3081d11b
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 10 11:46:00 2025 +0300

    Added css stylesheet

* commit f1107210c42a4d593601b6c17f781c0b1b09a
  Author: fNgorodlansky <gorodlanskyfedor@gmail.com>
```

Рис. 28: Сброс ветки style

Сброс ветки master

```
thorand@phoronix-VirtualBox: ~/Desktop/hello5 git checkout master
git log --graph
Switched to branch 'master'
* commit a489f0c0d8057a228a70e4db6037af22c8f0051 (HEAD -> master)
  Author: Fhgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:32:22 2025 +0300

    Life is great

* commit 9561461c3c1e97f8e302b30a0ff71eab0bec1c7
  Author: Fhgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:49:21 2025 +0300

    Added README

* commit f110f218c42e1d5916d0be8a7af031eab0b09a
  Author: Fhgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:36:02 2025 +0300

    Added index.html.

* commit d11f9d10f18e94c7e66f13d70e621f9d0b1e099
  Author: Fhgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:35:06 2025 +0300

    Moved hello.html to lib

* commit 04051622f0e4e60273c0f702e041ac12b0b030
  Author: Fhgorodlansky <gorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:32:21 2025 +0300

    Add an author/email comment
```

Рис. 29: Поиск коммита перед конфликтом

Сброс ветки master

```
thornt@shernanb-VirtualBox: /Desktop/hello$ git reset --hard 9561463c1a978ae3b2b38ae4f
ab8bec1c7
HEAD is now at 9561463 Added README
thornt@shernanb-VirtualBox: /Desktop/hello$ git log --graph --all
* commit 9561463c1a978ae3b2b38ae4f71eab8bec1c7 (HEAD -> master)
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:49:25 2025 +0300

    Added README

* commit 369c3b0b4472d51d4f9c931cbb81e0122c958ab (style)
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:47:26 2025 +0300

    Updated index.html

* commit 86x29ac132b77895558d8d9d39d15c4e8185c47
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:48 2025 +0300

    Hello uses style.css

* commit 9d76ebce18dcew46fb227258b83ccc3b81a10b
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:00 2025 +0300

    Added css stylesheet

* commit f118f23bc42e1d5936d80ea17af691ed55d89e
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:36:02 2025 +0300

    Added index.html

* commit d11fcd20f19b0a7e46f23d4d4a32f9d305e99
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:35:06 2025 +0300

    Moved hello.html to lib

* commit 494b53d5291e4de925bc1c28d0d41ac52bdf0838
  Author: #Ngorodiansky <ngorodianskyfedor@gmail.com>
  Date: Tue Feb 18 11:31:23 2025 +0300
```

Рис. 30: Сброс ветки master

```
thor@kali:~/VirtualBox/Hello$ git checkout style
git rebase master
git log --graph
Switched to branch 'style'
Successfully rebased and updated refs/heads/style.
* commit 409e36ac2c0c0d10e0c90b0b0b0d10750 (HEAD -> style)
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:47:26 2025 +0300

    Updated index.html

* commit 50f97596a3c04dd6dccc1f9f337da70524ed501f
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:40 2025 +0300

    Hello uses style.css

* commit 3a88cad0113a16d0f201af0dc3f3ce2ac28ebca
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:46:00 2025 +0300

    Added css stylesheet

* commit 9561462c3c16f70e0302030aef77a0b0bc012 (master)
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:49:25 2025 +0300

    Added README

* commit f118f236c42e1d5936d060a57a76091ed55609a
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:36:02 2025 +0300

    Added index.html.

* commit d51fd358f78e94a746f73424d432f9d2605499
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
  Date: Tue Feb 18 11:35:06 2025 +0300

    Moved hello.html to lib

* commit 40b63d7854a4922dc5c26d0d41cc570404930
  Author: FNgorodlansky <ngorodlanskyfedor@gmail.com>
```

Рис. 31: Перебазирование

Слияние в ветку master

```
shermash@shermash-VirtualBox: /Desktop/hello$ git checkout master
git merge style
Switched to branch 'master'
Updating 956163..e909e36
Fast-forward
 index.html | 4 +---
 lib/hello.html | 2 +-
 lib/style.css | 3 +--
 3 files changed, 9 insertions(+)
 create mode 100644 lib/style.css
shermash@shermash-VirtualBox: /Desktop/hello$ git log
commit e909e36ca283c59c4e4e090c0dd9d19758 (HEAD -> master, style)
Author: PNgordiansky <gordianskyfedor@gmail.com>
Date: Tue Feb 16 11:47:26 2025 +0300

    Updated index.html

commit 58f9759a3c64d06cc1f9f337de7b9524e9581f
Author: PNgordiansky <gordianskyfedor@gmail.com>
Date: Tue Feb 16 11:46:48 2025 +0300

    Hello uses style.css

commit 3488ca0331a1a0f791a7876cf5ce2ac24ebca
Author: PNgordiansky <gordianskyfedor@gmail.com>
Date: Tue Feb 16 11:46:08 2025 +0300

    Added css stylesheet

commit 9561633c1e970a2823010a5f71ed80ec1c7
Author: PNgordiansky <gordianskyfedor@gmail.com>
Date: Tue Feb 16 11:49:25 2025 +0300

    Added README

commit f118f236c42e3d5936d0bea57af691ed53669a
Author: PNgordiansky <gordianskyfedor@gmail.com>
Date: Tue Feb 16 11:36:02 2025 +0300

    Added index.html.
```

Рис. 32: Слияние style в master

Клонирование репозиториев

```
Author: FNgrodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:09:12 2025 +0300

shermanb@shermanb-VirtualBox:~/Desktop/hello$ cd ..
shermanb@shermanb-VirtualBox:~/Desktop$ pwd
/home/shermanb/Desktop
shermanb@shermanb-VirtualBox:~/Desktop$ ls
hello  school_21
shermanb@shermanb-VirtualBox:~/Desktop$ git clone hello cloned_hello
ls
Cloning into 'cloned_hello'...
done.
cloned_hello  hello  school_21
shermanb@shermanb-VirtualBox:~/Desktop$ cd cloned_hello/
```

Рис. 33: Клонирование репозиториев

Клонирование репозитория

```
shermanb@shermanb-VirtualBox:~/Desktop$ cd cloned_hello/
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ ls
index.html  lib  README.md
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git log --all
commit e9b9e36aca2cbc6c8962be8c090cbbd8e9d39750 (HEAD -> master, origin/style, origin/master,
origin/HEAD)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:47:26 2025 +0300

    Updated index.html

commit 50f97596a3c64dd66cc1f9f337da7b9524ed501f
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:46:48 2025 +0300

    Hello uses style.css

commit 3a88cad0313a1660f391af07dc5f5ce2ac28ebca
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:46:00 2025 +0300

    Added css stylesheet

commit 9561463c3c1e978ae382b830aa4f71eab8bec1c7
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:49:25 2025 +0300

    Added README

commit f118f230c42e1d5936d0be8a57af691edb5b609a
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:36:02 2025 +0300
```

Что такое origin?

```
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git remote
origin
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git remote show origin
* remote origin
  Fetch URL: /home/shermanb/Desktop/hello
  Push URL: /home/shermanb/Desktop/hello
  HEAD branch: master
  Remote branches:
    master tracked
    style tracked
  Local branch configured for 'git pull':
    master merges with remote master
  Local ref configured for 'git push':
    master pushes to master (up to date)
```

Рис. 35: Просмотр имени по умолчанию удаленного репозитория

Изменение оригинального репозитория

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cat README.md
This is the Hello World example from the git tutorial.
This is the Hello World example from the git tutorial.
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add README.md
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git commit -m "Changed README in original repo"
[master 4457712] Changed README in original repo
1 file changed, 1 insertion(+)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cd .. /closed hello
```

Рис. 36: Изменение оригинального репозитория

Изменение оригинального репозитория

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cd ../cloned_hello
git fetch
git log --all
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 365 bytes | 91.00 KiB/s, done.
From /home/shermanb/Desktop/hello
   e9b9e36..4457712  master       -> origin/master
commit 445771200475454520eee03779bd3f471f715e44 (origin/master, origin/HEAD)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date:   Tue Feb 18 12:10:01 2025 +0300

    Changed README in original repo

commit e9b9e36aca2cbc6c8962be8c090cbbd8e9d39750 (HEAD -> master, origin/style)
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date:   Tue Feb 18 11:47:26 2025 +0300

    Updated index.html

commit 50f97596a3c64dd66cc1f9f337da7b9524ed501f
Author: FNgorodiansky <gorodianskyfedor@gmail.com>
Date:   Tue Feb 18 11:46:48 2025 +0300

    Hello uses style.css

commit 3a88cad0311a1660f391af07dc5f5ce2ac28ebca
```

Рис. 37: Извлечение изменений

```
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ cat README.md
This is the Hello World example from the git tutorial.
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git merge origin/master
Updating e9b9e36..4457712
Fast-forward
 README.md | 1 +
 1 file changed, 1 insertion(+)
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ cat README.md
This is the Hello World example from the git tutorial.
This is the Hello World example from the git tutorial.
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git pull
Already up to date.
```

Рис. 38: Слияние извлеченных изменений

Добавление ветки наблюдения

```
Already up-to-date!
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git branch --track style origin/style
git branch -a
git log --max-count=2
branch 'style' set up to track 'origin/style'.
* master
  style
    remotes/origin/HEAD -> origin/master
    remotes/origin/master
    remotes/origin/style
commit 445771200475454520eee03779bd3f471f715e44 (HEAD -> master, origin/master, origin/HEAD)
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 12:10:01 2025 +0300

    Changed README in original repo

commit e9b9e36aca2cbc6c8962be8c090cbbd8e9d39750 (origin/style, style)
Author: FNgordiansky <gorodianskyfedor@gmail.com>
Date: Tue Feb 18 11:47:26 2025 +0300

    Updated index.html
```

Рис. 39: Добавление ветки наблюдения

```
updated-indexfile
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ cd ..
git clone --bare hello hello.git
ls hello.git
Cloning into bare repository 'hello.git'...
done.
branches  config  description  HEAD  hooks  info  objects  packed-refs  refs
shermanb@shermanb-VirtualBox:~/Desktop$ cd hello
```

Рис. 40: Создание чистого репозитория

Отправка и извлечение изменений

```
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git checkout master
git add README
git commit -m "Added shared comment to readme"
M      README.md
Already on 'master'
fatal: pathspec 'README' did not match any files
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git add README.md
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git commit -m "Added shared comment to readme"
[master 98c246b] Added shared comment to readme
 1 file changed, 1 insertion(+), 1 deletion(-)
shermanb@shermanb-VirtualBox:~/Desktop/hello$ git push shared master
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 7 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 409 bytes | 204.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To ../hello.git
 4457712..98c246b  master -> master
```

Рис. 41: Отправка изменений


```
4457712..98c246b master -> master
shermanb@shermanb-VirtualBox:~/Desktop/hello$ cd ../cloned_hello
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ git remote add shared ../hello.git
git branch --track shared master
git pull shared master
cat README.md
branch 'shared' set up to track 'master'.
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 389 bytes | 389.00 KiB/s, done.
From ../hello
* branch          master      -> FETCH_HEAD
* [new branch]     master      -> shared/master
Updating 4457712..98c246b
Fast-forward
 README.md | 2 +-
 1 file changed, 1 insertion(+), 1 deletion(-)
This is the Hello World example from the git tutorial.
(Changed in the original and pushed to shared)
shermanb@shermanb-VirtualBox:~/Desktop/cloned_hello$ cd ../hello
```

Рис. 42: Извлечение изменений

Выводы

В процессе выполнения данной лабораторной работы я приобрел практические навыки работы с Git.