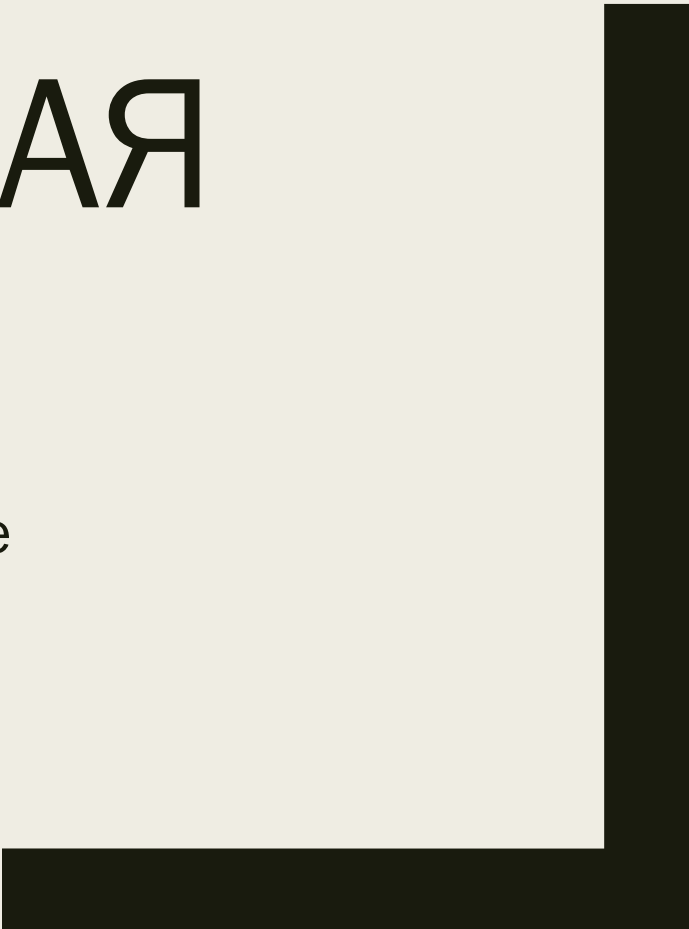




ЛАБОРАТОРНАЯ РАБОТА 1

Математическое моделирование
Скандарова Полина Юрьевна



Цель работы

- Научиться полному взаимодействию с git и разобрать основные его особенности.

```
[pyskandarova@server.pyskandarova.net ~]$ git config --global core.autocrlf
input
[pyskandarova@server.pyskandarova.net ~]$ git config --global core.safecrlf
true
```

Рис. 1: Параметры установки окончаний строк

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit -m "Initial Commit"
[master (root-commit) b8e53aa] Initial Commit
1 file changed, 1 insertion(+)
create mode 100644 hello.html
```

Рис. 5: Добавление файла в репозиторий

```
[pyskandarova@server.pyskandarova.net ~]$ git config --global core.quoteptat
h off
```

Рис. 2: Установка отображения unicode

```
[pyskandarova@server.pyskandarova.net hello]$ git status
On branch master
nothing to commit, working tree clean
```

Рис. 6: Проверка состояния репозитория

```
[pyskandarova@server.pyskandarova.net ~]$ mkdir hello
cd hello
touch hello.html
echo "Hello, World!" > hello.html
```

Рис. 3: Создание страницы «Hello, World»



Рис. 7: Изменение содержимого файла hello.html

```
[pyskandarova@server.pyskandarova.net hello]$ git init
hint: Using 'master' as the name for the initial branch. This default branch
hint: name
hint: is subject to change. To configure the initial branch name to use in
hint: 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/pyskandarova/hello/.git/
```

Рис. 4: Создание репозитория

```
[pyskandarova@server.pyskandarova.net 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")
```

Рис. 8: Проверка состояния рабочего каталога

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
[pyskandarova@server.pyskandarova.net hello]$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html
```

Рис. 9: Индексация изменений

```
pyskandarova@server:~/hello — git commit

Added h2 tag
# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# On branch master
# Changes to be committed:
#   modified:   hello.html
```

Рис. 10: Добавление комментария, сохранение файла и выход из редактора

```
[pyskandarova@server.pyskandarova.net hello]$ git commit
[master 216f339] Added h2 tag
1 file changed, 1 insertion(+), 1 deletion(-)
```

Рис. 11: Повторная проверка состояния

```
1 <<html>
2     <body>
3         <h1>Hello, World!</h1>
4     </body>
5 </html>
```

Рис. 12: Изменение страницы «Hello, World»

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
```

Рис. 13: Добавление изменения в индекс git

```
1 <<html>
2     <head>
3     </head>
4     <body>
5         <h1>Hello, World!</h1>
6     </body>
7 </html>
```

Рис. 14: Добавление заголовков HTML к странице «Hello, World»

```
[pyskandarova@server.pyskandarova.net hello]$ git commit -m "Added HTML header"
[master d241150] Added HTML header
1 file changed, 2 insertions(+)
[pyskandarova@server.pyskandarova.net hello]$ git log
commit d2411508738af5589ad7086770ea46b92c36c92f9 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

    Added HTML header

commit be2b01f13b47b3f05280a2592028bf50alb6c0d1
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

    Added standard HTML page tags

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit be9e5dac446466506e95eee94544f308b84e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

    gedit

commit b8e53a9e0f0c029000ac8af46906d78724b50a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

    Initial Commit
```

Рис. 15: Добавление стандартных тегов страницы


```
[pyskandarova@server.pyskandarova.net hello]$ git commit -m "Added HTML header"
[master d241150] Added HTML header
1 file changed, 2 insertions(+)
[pyskandarova@server.pyskandarova.net hello]$ git log
commit d241150b758af5569ad7086776ea6b92c36c92f9 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

    Added HTML header

commit be2b93f13b47b3fb520ba2592028b759a1b6c8d2
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

    Added standard HTML page tags

commit 216f339aff245a2e160fa28fa580a81ed4b5699e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit be9a5dac446465506e95ee94544f308b04e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

    gedit

commit b8e53aa08fc02000ac8af46086d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

    Initial Commit
```

Рис. 16: История

```
[pyskandarova@server.pyskandarova.net hello]$ git tag
v1
v1-beta
[pyskandarova@server.pyskandarova.net hello]$ git log master --all
commit d241150b758af5569ad7086776ea6b92c36c92f9 (tag: v1, master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

    Added HTML header

commit be2b93f13b47b3fb520ba2592028b759a1b6c8d2 (HEAD, tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

    Added standard HTML page tags

commit 216f339aff245a2e160fa28fa580a81ed4b5699e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit be9a5dac446465506e95ee94544f308b04e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

    gedit

commit b8e53aa08fc02000ac8af46086d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

    Initial Commit
```

Рис. 20: Просмотр тегов с помощью команды tag

```
Added standard HTML page tags

commit 216f339aff245a2e160fa28fa580a81ed4b5699e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit be9a5dac446465506e95ee94544f308b04e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

    gedit

commit b8e53aa08fc02000ac8af46086d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

    Initial Commit

[pyskandarova@server.pyskandarova.net hello]$ git checkout <hash>
cat hello.html
bash: syntax error near unexpected token `newline'
<<html>
  <head>
  </head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
[pyskandarova@server.pyskandarova.net hello]$ git checkout master
cat hello.html
Already on 'master'
<<html>
  <head>
  </head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
[pyskandarova@server.pyskandarova.net hello]$
```

Рис. 17: Получение старых версий

```
[pyskandarova@server.pyskandarova.net hello]$ git checkout master
Previous HEAD position was be2b93f Added standard HTML page tags
Switched to branch 'master'
```

Рис. 21: Переключитесь на ветку master

```
1 <<html>
2   <head>
3 </head>
4   <body>
5     <h1>Hello, World!</h1>
6     !-- This is a bad comment. We want to revert it. --
7   </body>
8 </html>
```

Рис. 22: Изменение hello.html

```
[pyskandarova@server.pyskandarova.net hello]$ git checkout master
cat hello.html
Already on 'master'
<<html>
  <head>
  </head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
[pyskandarova@server.pyskandarova.net hello]$ git tag v1
```

Рис. 18: Создание тегов версий

```
[pyskandarova@server.pyskandarova.net hello]$ git checkout v1^
Note: switching to 'v1^'.
```

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 be2b93f Added standard HTML page tags
[pyskandarova@server.pyskandarova.net hello]$ cat hello.html
<<html>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
[pyskandarova@server.pyskandarova.net hello]$ git tag v1-beta
```

Рис. 19: Переключение по имени тега

```
[pyskandarova@server.pyskandarova.net 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")

Рис. 23: Проверка состояния

```
[pyskandarova@server.pyskandarova.net 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. 24: Отмена изменений в рабочем каталоге

```
1 <<html>
2   <head>
3   <!-- This is an unwanted but staged comment -->
4   </head>
5   <body>
6     <h1>Hello, World!</h1>
7   </body>
8 </html>
```

Рис. 25: Внесение изменения в файл hello.html

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
[pyskandarova@server.pyskandarova.net hello]$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html
```

Рис. 26: Индексация изменения

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
[pyskandarova@server.pyskandarova.net hello]$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html
```

Рис. 27: Проверка состояния

```
[pyskandarova@server.pyskandarova.net hello]$ git reset HEAD hello.html
Unstaged changes after reset:
M    hello.html
```

Рис. 28: Выполнение сброса буферной зоны

```
[pyskandarova@server.pyskandarova.net hello]$ git checkout hello.html
git status
Updated 1 path from the index
On branch master
nothing to commit, working tree clean
```

Рис. 29: Переключение на версию коммита

```
1 <<html>
2   <head>
3   </head>
4   <body>
5     <h1>Hello, World!</h1>
6     <!-- This is a bad comment. We want to revert it. -->
7   </body>
8 </html>
```

Рис. 30: Изменение файла hello.html

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit -m "Oops, we didn't want this commit"
[master d0845a9] Oops, we didn't want this commit
1 file changed, 7 insertions(+), 6 deletions(-)
```

Рис. 31: Коммит

```
Revert "Oops, we didn't want this commit"

This reverts commit d0845a9bea6596715f0d0f4f07d6c294ed70f7d5.

# Please enter the commit message for your changes. Lines starting
# with '#' will be ignored, and an empty message aborts the commit.
#
# On branch master
# Changes to be committed:
#   modified:   hello.html
#
```

Рис. 32: Создание коммита с новыми изменениями, отменяющими предыдущие

```
[pyskandarova@server.pyskandarova.net hello]$ git tag -d oops
```

Рис. 35: Отметка этой ветки для начала

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit d0845a9bea6596715f0d0f4f07d6c294ed70f7d5 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 20:51:02 2025 +0000

    Oops, we didn't want this commit

commit d24156a758a9d1886770e8b92c3b3279 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 18:19:05 2025 +0000

    Added HTML header

commit ba3003713d47037b520a23e782307f8a186a8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 18:18:11 2025 +0000

    Added standard HTML page tags

commit 218738a77245a29188fa28fa08aa61ed4b5490e
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit ba6a8d0c44640050e030ee045447080084e0a6
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:32:56 2025 +0000

    edit

commit ba6a8d0c44640050e030ee045447080084e0a6
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:26:48 2025 +0000

    Initial commit
```

Рис. 33: Проверка лога

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit d0845a9bea6596715f0d0f4f07d6c294ed70f7d5 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 20:51:02 2025 +0000

    Oops, we didn't want this commit

commit d24156a758a9d1886770e8b92c3b3279 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 18:19:05 2025 +0000

    Added HTML header

commit ba3003713d47037b520a23e782307f8a186a8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 18:18:11 2025 +0000

    Added standard HTML page tags

commit 218738a77245a29188fa28fa08aa61ed4b5490e
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:34:19 2025 +0000

    Added h2 tag

commit ba6a8d0c44640050e030ee045447080084e0a6
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:32:56 2025 +0000

    edit

commit ba6a8d0c44640050e030ee045447080084e0a6
Author: pyskandarova <1132221815@pfur.ru>
Date:   Thu Feb 20 07:26:48 2025 +0000

    Initial commit
```

Рис. 34: Проверка нашей истории

Рис. 36: Сброс коммитов к предшествующим коммиту Oops

Рис. 39: Добавление в страницу комментария автора

Рис. 40: Коммит

Рис. 37: Просмотр всех коммитов

Рис. 41: Добавление email

Рис. 42: Изменение предыдущего коммита

Рис. 44: Перемещение файла `hello.html` в каталог `lib`

Рис. 38: Удаление тега `oops`

Рис. 43: Просмотр истории

```

1 <html>
2   <body>
3     <iframe src="lib/hello.html" width="200" height="200" />
4   </body>
5 </html>

```

Рис. 45: Коммит в новом каталоге

```

[pyskandarova@server.pyskandarova.net hello]$ ls -C .git
branches      config        HEAD      index      logs      ORIG_HEAD  refs
COMMIT_EDITMSG  description  hooks     info       objects   packed-refs

```

Рис. 47: Каталог .git

```

[pyskandarova@server.pyskandarova.net hello]$ ls -C .git/objects/<dir>
bash: syntax error near unexpected token 'newline'

```

Рис. 49: Углубление в базу данных объектов

```

[pyskandarova@server.pyskandarova.net hello]$ ls .git/refs
ls .git/refs/heads
ls .git/refs/tags
cat .git/refs/tags/v1
heads tags
master
v1 v1-beta
d2411508758af5569ad7086776ea6b92c36c92f9
[pyskandarova@server.pyskandarova.net hello]$

```

Рис. 51: Изучение веток и тегов

```

[pyskandarova@server.pyskandarova.net hello]$ git log --max-count=1
commit 059e557c41cbcaaf949bbd0a1ebd984351a240c3 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 21:00:44 2025 +0000

    Added index.html.

```

Рис. 53: Поиск последнего коммита

```

1 <!-- Author: Dmitry S. Kulyabov (kulyabov-ds@rudn.ru) -->
2 <html>
3 <head>
4 <link type="text/css" rel="stylesheet" media="all" href="style.css" />
5 </head>
6 <body>
7 <h1>Hello, World!</h1>
8 </body>
9 </html>

```

Рис. 57: Вывод файла hello.html

```

[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md

```

Рис. 59: Создание файла css

```

[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
1 file changed, 0 insertions(+), 0 deletions(-)
rename hello.html => lib/hello.html (100%)

```

Рис. 46: Добавление index.html

```

[pyskandarova@server.pyskandarova.net hello]$ ls -C .git/objects
05 15 21 53 7e 8a 92 a7 ba d0 df f3 info
11 1a 52 62 88 af 98 b8 be d2 eb f7 pack

```

Рис. 48: Просмотр базы данных объектов

```

[pyskandarova@server.pyskandarova.net hello]$ ls .git/refs
ls .git/refs/heads
ls .git/refs/tags
cat .git/refs/tags/v1
heads tags
master
v1 v1-beta
d2411508758af5569ad7086776ea6b92c36c92f9
[pyskandarova@server.pyskandarova.net hello]$

```

Рис. 50: Просмотр Config File

```

[pyskandarova@server.pyskandarova.net hello]$ cat .git/HEAD
ref: refs/heads/master

```

Рис. 52: Файл HEAD

```

[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <l1bhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    hello.html
nothing added to commit but untracked files present (use "git add" to track)

```

Рис. 54: Вывод последнего коммита с помощью SHA1 хэша

```

[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md

```

Рис. 61: Коммит

```

[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <l1bhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    hello.html
nothing added to commit but untracked files present (use "git add" to track)

```

Рис. 55: Поиск дерева

```

[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <l1bhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    hello.html
nothing added to commit but untracked files present (use "git add" to track)

```

Рис. 56: Вывод каталога lib

```

[pyskandarova@server.pyskandarova.net hello]$ git add lib/hello.html
git commit -m "Hello uses style.css"
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    hello.html
    style.css
nothing added to commit but untracked files present (use "git add" to track)

```

Рис. 58: Создание ветки

```

1 <!-- Author: pyskandarova -->
2 <html>
3   <head>
4   </head>
5   <body>
6     <h1>Hello, World!</h1>
7   </body>
8 </html>

```

Рис. 60: Добавление содержимого в файл


```

1 <!-- Author: Dmitry S. Kulyabov (kulyabov-ds@rudn.ru) -->
2 <html>
3 <head>
4 <link type="text/css" rel="stylesheet" media="all" href="style.css" />
5 </head>
6 <body>
7 <h1>Hello, World!</h1>
8 </body>
9 </html>

```

Рис. 62: Обновление файла hello.html

```

[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md

```

Рис. 63: Коммит

```

1 <!-- Author: Dmitry S. Kulyabov (kulyabov-ds@rudn.ru) -->
2 <html>
3 <head>
4 <link type="text/css" rel="stylesheet" media="all" href="style.css" />
5 </head>
6 <body>
7 <h1>Hello, World!</h1>
8 </body>
9 </html>

```

Рис. 64: Обновление файла index.html

```

[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md

```

Рис. 65: Коммит

```

[pyskandarova@server.pyskandarova.net 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. 67: Переключение на ветку master

```

[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000

```

Add an author/email comment

```

commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

```

Added HTML header

```

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

```

Added standard HTML page tags

```

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

```

Added h2 tag

```

commit be9e5dac446466506e95eee94544f308b84e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

```

gedit

```

commit b8e53aa08fc02900ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

```

Initial Commit

Рис. 66: Навигация по веткам

```

[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000

Add an author/email comment

commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

Added HTML header

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

Added standard HTML page tags

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

Added h2 tag

commit be9e5dac446466506e95eee94544f308b84e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

gedit

commit b8e53aa08fc02900ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

Initial Commit

```

Рис. 72: Слияние веток

```

[pyskandarova@server.pyskandarova.net 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. 68: Переключение на ветку style

```

[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit --amend -m "Add an author/email comment"

```

Рис. 69: Создание файла README.md

```

[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md

```

Рис. 70: Коммит изменений README.md в ветку master

```

[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000

```

Add an author/email comment

```

commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

```

Added HTML header

```

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

```

Added standard HTML page tags

```

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

```

Added h2 tag

```

commit be9e5dac446466506e95eee94544f308b84e8a04
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

```

gedit

```

commit b8e53aa08fc02900ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

```

Initial Commit

Рис. 71: Просмотр текущих веток


```
[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md
```

Рис. 73: Возвращение в ветку master

```
1 <!-- Author: Dmitry S. Kulyabov (kulyabov-ds@rudn.ru) -->
2 <html>
3 <head>
4 <link type="text/css" rel="stylesheet" media="all" href="style.css" />
5 </head>
6 <body>
7 <h1>Hello, World!</h1>
8 </body>
9 </html>
```

Рис. 74: Внесение изменений в файл

```
[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md
```

Рис. 75: Коммит

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000
```

Add an author/email comment

```
commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000
```

Added HTML header

```
commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000
```

Added standard HTML page tags

```
commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000
```

Added h2 tag

```
commit be9e5dac44646506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000
```

gedit

```
commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000
```

Initial Commit

Рис. 76: Просмотр веток

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit --amend -m "Add an author/email comment"
```

Рис. 77: Попытка объединения

```
1 <!-- Author: Dmitry S. Kulyabov (kulyabov-ds@rudn.ru) -->
2 <html>
3 <head>
4 <link type="text/css" rel="stylesheet" media="all" href="style.css" />
5 </head>
6 <body>
7 <h1>Hello, World!</h1>
8 </body>
9 </html>
```

Рис. 78: Решение конфликта

```
[pyskandarova@server.pyskandarova.net hello]$ git add README.md
git commit -m "Added README"
[master 4b4ec66] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md
```

Рис. 79: Коммит решения конфликта

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000
```

Add an author/email comment

```
commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000
```

Added HTML header

```
commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000
```

Added standard HTML page tags

```
commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000
```

Added h2 tag

```
commit be9e5dac44646506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000
```

gedit

```
commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000
```

Initial Commit

Рис. 80: Возвращение на ветку style

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit --amend -m "Add an author/email comment"
```

Рис. 81: Сброс ветки к нужному коммиту

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000
```

Add an author/email comment

```
commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000
```

Added HTML header

```
commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000
```

Added standard HTML page tags

```
commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000
```

Added h2 tag

```
commit be9e5dac44646506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000
```

gedit

```
commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000
```

Initial Commit

Рис. 82: Проверка ветки

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000

Add an author/email comment

commit d2411508758af5569ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

Added HTML header

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

Added standard HTML page tags

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

Added h2 tag

commit be9e5dac44646506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

gedit

commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

Initial Commit
```

Рис. 83: Сброс ветки master

```
[pyskandarova@server.pyskandarova.net hello]$ git add hello.html
git commit --amend -m "Add an author/email comment"
```

Рис. 84: Перебазирование

```
[pyskandarova@server.pyskandarova.net 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. 85: Слияние style в master

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000
```

```

  Add an author/email comment

commit d2411508758af5589ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

  Added HTML header

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000

  Added standard HTML page tags

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000

  Added h2 tag

commit be9e5dac446466506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000

  gedit

commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000

  Initial Commit
```

Рис. 86: Просмотр логов

```
Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01/hello (master)
$ cd

Ivan@DESKTOP-08NN2QL MINGW64 ~
$ cd MD/lab01

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ ls
hello/

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ pwd
/c/Users/Ivan/MD/lab01

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ |
```

Рис. 87: Клонирование репозитория

```
Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ git clone hello cloned_hello
Cloning into 'cloned_hello'...
done.

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ ls
cloned_hello/ hello/

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ |
```

Рис. 88: Создание клона репозитория hello

```
Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01
$ cd cloned_hello

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01/cloned_hello (master)
$ ls
README.md index.html lib/

Ivan@DESKTOP-08NN2QL MINGW64 ~/MD/lab01/cloned_hello (master)
$ |
```

Рис. 89: Просмотр клонированного репозитория

```
[pyskandarova@server.pyskandarova.net 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. 91: Изучение origin

```
[pyskandarova@server.pyskandarova.net hello]$ git log
commit 7e8ad844480a6398df31d08cb7b683e281f636e6 (HEAD -> master)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 20:56:58 2025 +0000
```

```

  Add an author/email comment

commit d2411508758af5589ad7086776ea6b92c36c92f9 (tag: v1)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:19:05 2025 +0000

  Added HTML header

commit be2b93f13b47b3fb520ba2592028bf59a1b6c8d2 (tag: v1-beta)
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 18:18:11 2025 +0000
```

```

  Added standard HTML page tags

commit 216f339aff245a2e160fa28fa586a81ed4b5696e
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:34:19 2025 +0000
```

```

  Added h2 tag

commit be9e5dac446466506e95eee94544f308b84e8a84
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:32:56 2025 +0000
```

```

  gedit

commit b8e53aa08fc029000ac8af46986d78724b59a1f0
Author: pyskandarova <1132221815@pfur.ru>
Date: Thu Feb 20 07:26:48 2025 +0000
```

Initial Commit

Рис. 90: Просмотр истории репозитория

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
1 file changed, 0 insertions(+), 0 deletions(-)
rename hello.html => lib/hello.html (100%)
```


Рис. 92: Просмотр доступных веток в клонированном репозитории


```
[pyskandarova@server.pyskandarova.net 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. 93: Просмотр всех веток

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 94: Переход в репозиторий hello

 *README.md – Блокнот

Файл Правка Формат Вид Справка

This is the Hello World example from the git tutorial.
This is the Hello World example from the git tutorial.

Рис. 95: Внесение изменения в файл README.md

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 96: Добавление изменения и создание коммита

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 98: Проверка README.md

```
[pyskandarova@server.pyskandarova.net 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. 97: Извлечение изменений

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 99: Слив извлеченных изменений в локальную ветку master

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 100: Объединение fetch и merge в одну команду

```
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <libhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
  hello.html
nothing added to commit but untracked files present (use "git add" to track)
```

Рис. 101: Добавление локальной ветки, которая отслеживает удаленную ветку

```
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <libhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
  hello.html
nothing added to commit but untracked files present (use "git add" to track)
```

Рис. 102: Создание чистого репозитория

```
[pyskandarova@server.pyskandarova.net hello]$ git add index.html
git commit -m "Added index.html."
fatal: pathspec 'index.html' did not match any files
[master 059e557] Added index.html.
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
```

Рис. 103: Добавление удаленного репозитория

```
1 This is the Hello World example from the git tutorial.
```

Рис. 104: Редактирование файла README.md

```
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <libhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
  hello.html
nothing added to commit but untracked files present (use "git add" to track)
```

Рис. 105: Коммит и отправка изменений в общий репозиторий

```
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -t <hash>
git cat-file -p <hash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <treehash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <libhash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git cat-file -p <hellohash>
bash: syntax error near unexpected token 'newline'
[pyskandarova@server.pyskandarova.net hello]$ git checkout -b style
git status
Switched to a new branch 'style'
On branch style
Untracked files:
  (use "git add <file>..." to include in what will be committed)
  hello.html
nothing added to commit but untracked files present (use "git add" to track)
```

Рис. 106: Извлечение общих изменений

Вывод

- В результате выполнения лабораторной работы мы научились полному взаимодействию с git и разобрали основные его особенности.