

Лабораторная работа №1

Работа с git

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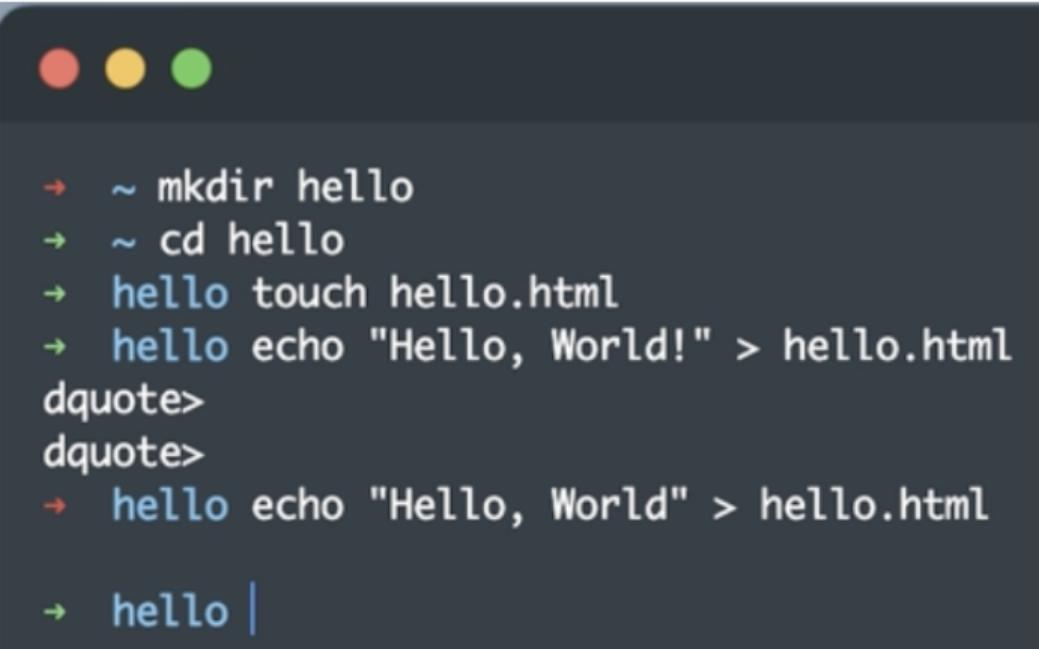
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Информация

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Создание проекта

Создайте страницу «Hello, World»



```
→ ~ mkdir hello
→ ~ cd hello
→ hello touch hello.html
→ hello echo "Hello, World!" > hello.html
dquote>
dquote>
→ hello echo "Hello, World" > hello.html
→ hello |
```

· тест

Создание репозитория

```
→ 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 /Users/glebpolyakov/hello/.git/
→ hello git:(master) x
```

- Тест

Проверка состояния репозитория

```
→ hello git:(master) ✘ git add hello.html
→ hello git:(master) ✘ git commit -m "Initial Commit"
[master (root-commit) a570b0e] Initial Commit
  1 file changed, 1 insertion(+)
  create mode 100644 hello.html
→ hello git:(master)
```

1.3 Внесение изменений

1.3.1 Измените страницу «Hello, World»

```
create mode 100001 netto.html
→ hello git:(master) git status
On branch master
nothing to commit, working tree clean
→ hello git:(master)
```

1.4 Индексация изменений

1.4.1 Коммит изменений

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

1.4.2 Добавьте стандартные теги страницы

```
→ hello git:(master) ✘ 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

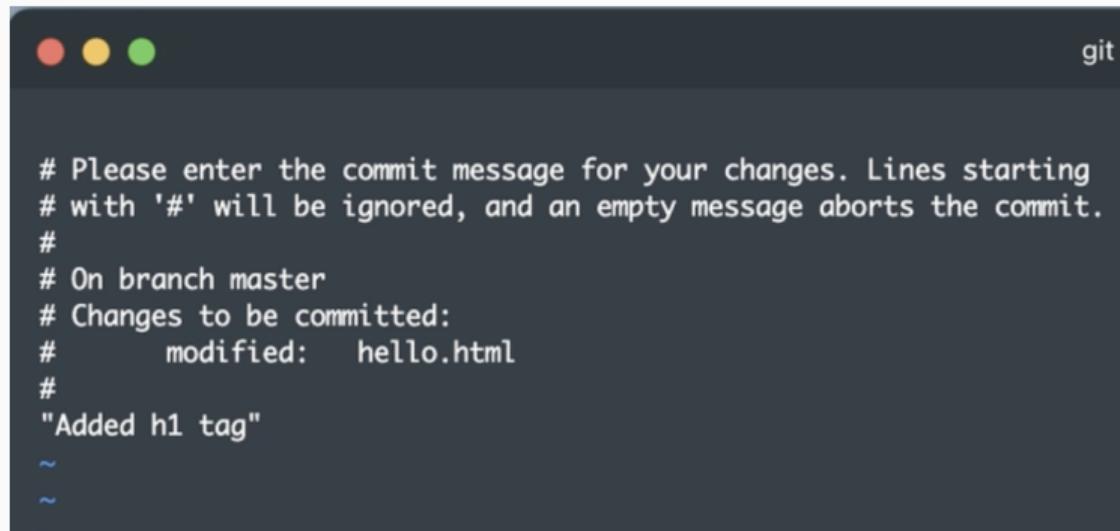
no changes added to commit (use "git add" and/or "git commit -a")
→ hello git:(master) ✘ |
```

1.4.3 История

```
→ hello git:(master) ✘ git add hello.html
→ hello git:(master) ✘ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   hello.html

→ hello git:(master) ✘
```

1.4.4 Получение старых версий



A screenshot of a terminal window with a dark background. In the top right corner, there are three colored dots (red, yellow, green) and the word "git". The main area of the terminal contains the following text:

```
# 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
#
"Added h1 tag"
~
```

1.4.5 Создание тегов версий

```
→ hello git:(master) git status
On branch master
nothing to commit, working tree clean
→ hello git:(master)
```

1.4.6 Переключение по имени тега

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

1.5 Отмена локальных изменений (до индексации)

1.5.1 Переключитесь на ветку master

```
nothing to commit, working tree clean  
→ hello git:(master) nano hello.html  
→ hello git:(master) x
```

1.5.2 Измените hello.html

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

1.5.3 Проверьте состояние

```
→ hello git:(master) ✘ 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

→ hello git:(master) ✘ |
```

1.5.4 Отмена изменений в рабочем каталоге

```
→ hello git:(master) ✘ git commit -m "Added standart HTML page tags"
[master b6424c1] Added standart HTML page tags
 1 file changed, 5 insertions(+), 1 deletion(-)
→ hello git:(master) ✘ 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")
→ hello git:(master) ✘ git |
```

1.6 Отмена проиндексированных изменений (перед коммитом)

1.6.1 Измените файл и проиндексируйте изменения

```
no changes added to commit (use "git add" and/or "git commit -a")
→ hello git:(master) ✘ git add .
→ hello git:(master) ✘ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   hello.html
```

1.6.2 Проверьте состояние

```
→ hello git:(master) ✘ git commit -m "Added HTML header"
[master ed73856] Added HTML header
 1 file changed, 2 insertions(+)
→ hello git:(master) |
```

1.6.3 Выполните сброс буферной зоны

```
commit ed73856e127ef5602123a322110c2764f8617f0c (HEAD -> master)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300
```

Added HTML header

```
commit b6424c19e57b81872e14644cea10a51d4d55c4c6
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300
```

Added standart HTML page tags

```
commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300
```

"Added h1 tag"

```
commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300
```

Initial Commit

(END)

1.6.4 Переключитесь на версию коммита

```
ed73856e127ef5602123a322110c2764f8617f0c (HEAD -> master) Added HTML header  
b6424c19e57b81872e14644cea10a51d4d55c4c6 Added standart HTML page tags  
73ec5fac5d41ed6da45c6c92590fea01c29eac40 "Added h1 tag"  
a570b0ea5524a39c67638cdcee9c4773e3baf27a Initial Commit  
(END)
```

1.7 Отмена коммитов

1.7.1 Отмена коммитов

```
→ hello git:(master) git log
→ hello git:(master) git log --pretty=oneline
→ hello git:(master) git log --pretty=oneline --max-count=2
→ hello git:(master) git log --pretty=oneline --since='5 minutes ago'
→ hello git:(master) git log --pretty=oneline --until='5 minutes ago'
→ hello git:(master) git log --pretty=oneline --all
→ hello git:(master) |
```

1.7.2 Измените файл и

сделайте коммит

```
→ hello git:(master) git log
→ hello git:(master) git checkout a570b0ea5524a39c67638cdcee9c4773e3baf27a
Note: switching to 'a570b0ea5524a39c67638cdcee9c4773e3baf27a'.
```

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

1.7.3 Сделайте коммит с новыми изменениями, отменяющими предыдущие

```
→ hello git:(a570b0e) git checkout master
Previous HEAD position was a570b0e Initial Commit
Switched to branch 'master'
→ hello git:(master) cat hello.html
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
→ hello git:(master)
```

1.7.4 Проверьте лог

```
→ hello git:(master) git tag v1  
→ hello git:(master) |
```

1.8 Удаление коммитов из ветки

1.8.1 Команда git reset

```
→ hello git:(master) git checkout v1~1
```

Note: switching to 'v1~1'.

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 b6424c1 Added standart HTML page tags

```
→ hello git:(b6424c1) cat hello.html
```

```
<html>
```

```
  <body>
```

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

```
  </body>
```

```
</html>
```

```
→ hello git:(b6424c1) |
```

1.8.2 Проверьте нашу историю

```
→ hello git:(b6424c1) git tag v1-beta  
→ hello git:(v1-beta) |
```

1.8.3 Для начала отметьте эту ветку

```
commit ed73856e127ef5602123a322110c2764f8617f0c (tag: v1, master)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300
```

Added HTML header

```
commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (HEAD, tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300
```

Added standard HTML page tags

```
commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300
```

"Added h1 tag"

```
commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300
```

Initial Commit

(END)

1.8.4 Сброс коммитов к предшествующим коммиту Oops

```
→ hello git:(v1-beta) git checkout master
Previous HEAD position was b6424c1 Added standart HTML page tags
Switched to branch 'master'
→ hello git:(master)
```

1.8.5 Ничего никогда не теряется

```
<html>
  <head>
  </head>
  <body>
    <h1>Hello, World!</h1>
    <!-- This is a bad comment. We want to revert it. -->
  </body>
</html>
```

1.8.6 Опасность сброса

```
→ hello git:(master) ✘ 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")
→ hello git:(master) ✘ git ch
```

1.9 Удаление тега oops

1.9.1 Удаление тега oops

```
→ hello git:(master) ✘ git checkout hello.html
Updated 1 path from the index
→ hello git:(master) git status
On branch master
nothing to commit, working tree clean
→ hello git:(master) cat hello.html
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
→ hello git:(master) |
```

1.10 Внесение изменений в коммиты

1.10.1 Измените страницу, а затем сделайте коммит

```
<html>
  <head>
    <!-- This is an unwanted but staged comment --&gt;
  &lt;/head&gt;
  &lt;body&gt;
    &lt;h1&gt;Hello, World!&lt;/h1&gt;
  &lt;/body&gt;
&lt;/html&gt;</pre>
```

1.10.2 Необходим email

```
→ hello git:(master) ✘ git add hello.html  
→ hello git:(master) ✘ nano hello.html|
```

1.10.3 Измените предыдущий коммит

```
→ hello git:(master) ✘ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   hello.html

→ hello git:(master) ✘ |
```

1.10.4 Просмотр истории

```
→ hello git:(master) ✘ git reset HEAD hello.html
Unstaged changes after reset:
M      hello.html
→ hello git:(master) ✘ |
```

1.11 Перемещение файлов

1.11.1 Переместите файл hello.html в каталог lib

```
M      hello.html
→ hello git:(master) ✘ git checkout hello.html
Updated 1 path from the index
→ hello git:(master) git status
On branch master
nothing to commit, working tree clean
→ hello git:(master)
```

1.12 Второй способ перемещения файлов

1.12.1 Коммит в новый каталог

```
<html>
  <head>
  </head>
  <body>
    <h1>Hello, World!</h1>
    <!-- This is an unwanted but committed change -->
  </body>
</html>
```

1.13 Подробнее о структуре

1.13.1 Добавление index.html

```
→ hello git:(master) ✘ git add hello.html
→ hello git:(master) ✘ git commit -m "Oops, we didn't want this commit"
[master 1c91ce3] Oops, we didn't want this commit
 1 file changed, 1 insertion(+)
→ hello git:(master)
```

1.14 Git внутри: Каталог .git

1.14.1 Каталог .git

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

This reverts commit 1c91ce3b70ebb617caa94137ce9006a8316f7ff8.

# 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
#
~
```

1.14.2 База данных объектов

```
→ hello git:(master) git revert HEAD
[master c7f80c3] Revert "Oops, we didn't want this commit"
 1 file changed, 1 deletion(-)
→ hello git:(master)
```

1.14.3 Углубляемся в базу данных объектов

```
commit c7f80c3bf89a2ea0e3df4be396800f327add8569 (HEAD -> master)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:47:47 2025 +0300
```

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

This reverts commit 1c91ce3b70ebb617caa94137ce9006a8316f7ff8.

```
commit 1c91ce3b70ebb617caa94137ce9006a8316f7ff8
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:47:34 2025 +0300
```

Oops, we didn't want this commit

```
commit ed73856e127ef5602123a322110c2764f8617f0c (tag: v1)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300
```

Added HTML header

```
commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300
```

Added standard HTML page tags

```
commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300
```

"Added h1 tag"

```
commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300
```

Initial Commit

(END)

1.14.4 Config File

1.14.5 Ветки и теги

```
→ hello git:(master) git tag oops
→ hello git:(master)
```

1.14.6 Файл HEAD

```
→ hello git:(master) git reset --hard v1
HEAD is now at ed73856 Added HTML header
→ hello git:(master)
```

1.15 Работа непосредственно с объектами git

1.15.1 Поиск последнего коммита

```
commit ed73856e127ef5602123a322110c2764f8617f0c (HEAD -> master, tag: v1)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300

    Added HTML header

commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300

    Added standart HTML page tags

commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300

    "Added h1 tag"

commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300

    Initial Commit
(END)
```

1.15.2 Вывод последнего коммита с помощью SHA1 хэша

```
commit c7f80c3bf89a2ea0e3df4be396800f327add8569 (tag: oops)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:47:47 2025 +0300

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

    This reverts commit 1c91ce3b70ebb617caa94137ce9006a8316f7ff8.

commit 1c91ce3b70ebb617caa94137ce9006a8316f7ff8
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:47:34 2025 +0300

    Oops, we didn't want this commit

commit ed73856e127ef5602123a322110c2764f8617f0c (HEAD -> master, tag: v1)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300

    Added HTML header

commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300

    Added standart HTML page tags

commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300

    "Added h1 tag"

commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300

    Initial Commit
(END)
```

1.15.3 Поиск дерева

```
→ hello git:(master) git tag -d oops
Deleted tag 'oops' (was c7f80c3)
→ hello git:(master) git tag|
```

1.15.4 Вывод каталога lib

```
commit ed73856e127ef5602123a322110c2764f8617f0c (HEAD -> master, tag: v1)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300

    Added HTML header

commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300

    Added standart HTML page tags

commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300

    "Added h1 tag"

commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300

    Initial Commit
(END)
```

1.15.5 Вывод файла hello.html

```
<!-- Author: Gleb S. Polyakov -->
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
```

1.15.6 Исследуйте самостоятельно

```
→ hello git:(master) ✘ git add hello.html
→ hello git:(master) ✘ git commit -m "Add an author comment"
[master eb3116d] Add an author comment
 1 file changed, 1 insertion(+)
→ hello git:(master)
```

1.16 Создание ветки

1.16.1 Создайте ветку

```
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
```

1.16.2 Добавьте файл стилей style.css

```
→ hello git:(master) ✘ git add hello.html
→ hello git:(master) ✘ git commit --amend -m "Add an author/email comment"
[master adbe6d4] Add an author/email comment
  Date: Sat Feb 22 11:52:04 2025 +0300
  1 file changed, 1 insertion(+)
→ hello git:(master) git |
```

1.16.3 Измените основную страницу

```
commit adbe6d4445abc43fb6d927a08ddd4849d1175bb5 (HEAD -> master)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:52:04 2025 +0300
```

Add an author/email comment

```
commit ed73856e127ef5602123a322110c2764f8617f0c (tag: v1)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300
```

Added HTML header

```
commit b6424c19e57b81872e14644cea10a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300
```

Added standard HTML page tags

```
commit 73ec5fac5d41ed6da45c6c92590fea01c29eac40
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300
```

"Added h1 tag"

```
commit a570b0ea5524a39c67638cdcee9c4773e3baf27a
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300
```

Initial Commit

(END)

1.16.4 Измените index.html

```
→ hello git:(master) mkdir lib
→ hello git:(master) git mv hello.html lib
→ hello git:(master) ✘ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    renamed:    hello.html -> lib/hello.html

→ hello git:(master) ✘
```

1.17 Навигация по веткам

1.17.1 Переключение на ветку master

```
→ hello git:(master) ✘ git commit -m "Moved hello.html to lib"
[master dac8b73] Moved hello.html to lib
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename hello.html => lib/hello.html (100%)
→ hello git:(master) |
```

1.17.2 Вернемся к ветке style

```
<html>
  <body>
    <iframe src=lib/hello.html" width="200" heigth="200" />
  </body>
</html>
```

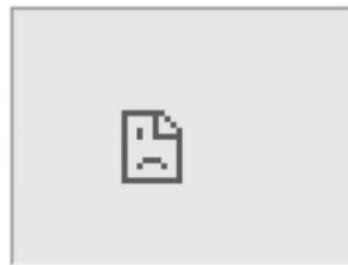
1.18 Изменения в ветке master

1.18.1 Создайте файл README в ветке master

```
→ hello git:(master) ✘ nano index.html
→ hello git:(master) ✘ git add index.html
→ hello git:(master) ✘ git commit -m "Added index.html"
[master 3467dae] Added index.html
 1 file changed, 5 insertions(+)
 create mode 100644 index.html
→ hello git:(master) |
```

1.19 Сделайте коммит изменений
README.md в ветку master.

1.19.1 Просмотр отличающихся веток



1.19.2 Просмотрите текущие ветки

```
→ hello git:(master) ls -C .git
COMMIT_EDITMSG    description    index      logs      refs
ORIG_HEAD        config        hooks      info      objects
HEAD            |
```

1.20 Слияние

1.20.1 Слияние веток

```
→ hello git:(master) ls -C .git/objects
06  23  3f  5a  65  77  93  a5  ad  c7  d1  de  ed  info
1c  34  56  62  73  79  a4  a7  b6  d0  da  eb  f7  pack
→ hello git:(master)
```

1.21 Создание конфликта

1.21.1 Вернитесь в master и создайте конфликт

```
→ hello git:(master) ls -C .git/objects/06  
098b8c832f8cf3794c16897e25272c482ba890  
→ hello git:(master)
```

1.21.2 Просмотр веток

```
→ hello git:(master) cat .git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
    ignorecase = true
    precomposeunicode = true
→ hello git:(master) |
```

1.22 Разрешение конфликтов

1.22.1 Слияние master с веткой style

```
→ hello git:(master) ls .git/refs  
heads tags  
→ hello git:(master) ls .git/refs/heads  
master  
→ hello git:(master) ls .git/refs/tags  
v1      v1-beta  
→ hello git:(master) ls .git/refs/tags/v1  
.git/refs/tags/v1  
→ hello git:(master) |
```

1.22.2 Решение конфликта

```
→ hello git:(master) cat .git/HEAD
ref: refs/heads/master
→ hello git:(master)
```

1.22.3 Сделайте коммит решения конфликта

```
commit 3467dae4546fa9ff0150f424a1006437f3f97d9e (HEAD -> master)
Author: Gleb Polyakov <76563597+1GLEBOS1@users.noreply.github.com>
Date:   Sat Feb 22 11:57:45 2025 +0300
```

Added index.html

(END)

1.22.4 Перебазирование как альтернатива слиянию

```
+ hello git:(master) git cat-file -t 3467dae4546fa9ff0150f424a1006437f3f97d9e
commit
+ hello git:(master) git cat-file -po 3467dae4546fa9ff0150f424a1006437f3f97d9e
error: unknown switch 'o'
usage: git cat-file <type> <object>
   or: git cat-file (-e | -p) <object>
   or: git cat-file (-t | -s) [-allow-unknown-type] <object>
   or: git cat-file (--textconv | --filters)
      [<rev>:<path>|tree-ish | --path=<path>|tree-ish> <rev>]
or: git cat-file (-batch | --batch-check | --batch-command) [-batch-all-objects]
   [--buffer] [--follow-symlinks] [-unordered]
   [--textconv | --filters] [-Z]
Check object existence or emit object contents
-e           check if <object> exists
-p           pretty-print <object> content

Emit [broken] object attributes
-t           show object type (one of 'blob', 'tree', 'commit', 'tag', ...)
-s           show object size
--[no-]allow-unknown-type
            allow -s and -t to work with broken/corrupt objects
--[no-]use-mailmap
            use mail map file
--[no-]mailmap
            alias of --use-mailmap

Batch objects requested on stdin (or --batch-all-objects)
--batch[=<format>]
            show full <object> or <rev> contents
--batch-check[=<format>]
            like --batch, but don't emit <contents>
-Z           stdin and stdout is NUL-terminated
--batch-command[=<format>]
            read commands from stdin
--batch-all-objects
            with --batch[-check]: ignores stdin, batches all known objects

Change or optimize batch output
--[no-]buffer
            buffer --batch output
--[no-]follow-symlinks
            follow in-tree symlinks
--[no-]unordered
            do not order objects before emitting them

Emit object (blob or tree) with conversion or filter (stand-alone, or with batch)
--textconv
            run textconv on object's content
--filters
            run filters on object's content
--[no-]path
            blob|tree use a <path> for (-textconv | --filters); Not with 'batch'

+ hello git:(master) git cat-file -p 3467dae4546fa9ff0150f424a1006437f3f97d9e
tree de0bf795c134793a2265afb84d0de9cd7c87c0b
parent dac8073776e6234f0850508b17fec74171021834
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214665 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214665 +0300

Added index.html
+ hello git:(master)
```

1.23 Сброс ветки style

1.23.1 Сброс ветки style

```
→ hello git:(master) git cat-file -p de0bf795c1134793a2265afb84d0de9cd7c87c0b  
100644 blob d1557ba1bc13fad777bf013ef1a7111133b6474d      index.html  
040000 tree a5710be5c52ad325c16371bbc99f7723b23ae05f      lib  
→ hello git:(master) |
```

1.23.2 Проверьте ветку

```
010000 tree a5710be5c52ad325c16371bbc99f7723b23ae05f      t/tb
→ hello git:(master) git cat-file -p a5710be5c52ad325c16371bbc99f7723b23ae05f
100644 blob 794f25d640eb66cda0e5eef823d1e5c8ba48f6d3    hello.html
→ hello git:(master)
```

1.24 Сброс ветки master

1.24.1 Сброс ветки master

```
→ hello git:(master) git cat-file -p 794f25d640eb66cda0e5eef823d1e5c8ba48f6d3
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
→ hello git:(master) |
```

1.25 Перебазирование

1.25.1 Слияние VS перебазирование

```
+ hello git:(master) git cat-file -p 3467dae4546fa9ff0150f424a1006437f397d9e
tree deebfb795c1134793a265af8d40de9c7d7c80b
parent dac8b73776e6234f08850a8b17fec74171021834
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214665 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214665 +0300

Added index.html
+ hello git:(master) git cat-file -p dac8b73776e6234f08850a8b17fec74171021834
tree 5639ac97187ec33939e120e6ec7c94af97135e58
parent adbe6d4445abc43fb6d927a08ddd4849d1175bb5
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214502 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214502 +0300

Moved hello.html to lib
+ hello git:(master) git cat-file -p adbe6d4445abc43fb6d927a08ddd4849d1175bb5
tree a571b0e5c52ad325c16371bbc99f7723b23e05f
parent ed73856e127ef5602123a322110c2764f8617f0c
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214324 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740214415 +0300

Add an author/email comment
+ hello git:(master) git cat-file -p ed73856e127ef5602123a322110c2764f8617f0c
tree a545a07e4cc555b8041bcd34ad3692e96e3f266e
parent b6424c19e57b81872e14644cea10a51d4d55c4c6
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213361 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213361 +0300

Added HTML header
+ hello git:(master) git cat-file -p b6424c19e57b81872e14644cea10a51d4d55c4c6
tree 5a08fc805109b6b3add3ef11bda23005ce76f6b8
parent a57ec5fac5d41ed6da45c6c92590fea01c29eac40
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213333 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213333 +0300

Added standard HTML page tags
+ hello git:(master) git cat-file -p 73ec5fac5d41ed6da45c6c92590fea01c29eac40
tree 629377ed8e960afe9fd6cb7b48b1e4a1d3dc56
parent a570b0ea5524a39c67638cddee9c4773e3baf27a
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213104 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740213104 +0300

"Added h1 tag"
+ hello git:(master) git cat-file -p a570b0ea5524a39c67638cddee9c4773e3baf27a
tree 06098b8c832f8cf3794c16897e25272c482ba890
author Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740212940 +0300
committer Gleb Polyakov <76563597+1GLEB0S1@users.noreply.github.com> 1740212940 +0300

Initial Commit
+ hello git:(master) git cat-file -p 06098b8c832f8cf3794c16897e25272c482ba890
100644 blob 3fa0d4b98289a95a7cd3a45c9545e622718f8d2b    hello.html
+ hello git:(master) git cat-file -p 3fa0d4b98289a95a7cd3a45c9545e622718f8d2b
Hello, World
+ hello git:(master) |
```

1.26 Слияние в ветку master

1.26.1 Слияние style в master

```
hello, world
→ hello git:(master) git checkout -b style
Switched to a new branch 'style'
→ hello git:(style) git status
On branch style
nothing to commit, working tree clean
→ hello git:(style) |
```

1.26.2 Просмотрите логи

```
h1 {  
color: red;  
}
```

1.27 Клонирование репозиториев

1.27.1 Перейдите в рабочий каталог

1.27.1 Перейдите в рабочий каталог

```
→ hello git:(style) ✘ git add lib/style.css
→ hello git:(style) ✘ git commit -m "Added css stylesheet"
[style 6080416] Added css stylesheet
 1 file changed, 3 insertions(+)
  create mode 100644 lib/style.css
→ hello git:(style) |
```

1.27.2 Создайте клон репозитория hello

```
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
  <head>
    <link type="text/css" rel="stylesheet" media="all" href="style.css" />
  </head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
```

1.28 Просмотр клонированного репозитория

1.28.1 Давайте взглянем на клонированный репозиторий

```
→ hello git:(style) ✘ git add lib/hello.html
→ hello git:(style) ✘ git commit -m "Hello uses style.css"
[style 297221e] Hello uses style.css
 1 file changed, 1 insertion(+)
→ hello git:(style)
```

1.28.2 Просмотрите историю репозитория

```
<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>
```

1.28.3 Удаленные ветки

```
→ hello git:(style) ✘ git add index.html
→ hello git:(style) ✘ git commit -m "Updated index.html"
[style 7e34bf6] Updated index.html
 1 file changed, 3 insertions(+)
→ hello git:(style) g|
```

Рис. 1: Просмотр удаленных веток

1.29 Что такое origin?

1.29 Что такое origin?

```
commit 7e34bf69a088b68416fd9bf5f28ea13ff02fa20d (HEAD -> style)
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 12:09:17 2025 +0300

    Updated index.html

commit 297221e0dd0b17188313dd9e787132b42b78c1794
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 12:07:38 2025 +0300

    Hello uses style.css

commit 6880416f1a20d443ba0f34e6ba2528452d889d00
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 12:06:26 2025 +0300

    Added css stylesheet

commit 3467daef4546fd9ff0150f424d1006437f3f97d9e (master)
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:57:45 2025 +0300

    Added index.html

commit dac8b73776e6234f08505a8b17fec74171021834
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:55:02 2025 +0300

    Moved hello.html to lib

commit adbe6d4445abc43fb6d927a8ddd4849d1175bb5
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:52:04 2025 +0300

    Add an author/email comment

commit ed73856127wf5f602123a322110c276af8617f9c (tag: v1)
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:36:01 2025 +0300

    Added HTML header

commit b6424c19e57b81872e14644ca051d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:35:33 2025 +0300

    Added standard HTML page tags

commit 73ec5fac5d41ed6da45c6c92590fe01c29eac40
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:31:44 2025 +0300

    "Added h1 tag"

commit a570b0ea5524d39c67638cdce9c4773e3baef27a
Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
Date:   Sat Feb 22 11:29:00 2025 +0300

    Initial Commit

~(END)
```

1.30 Удаленные ветки

1.30 Удаленные ветки

```
→ hello git:(style) git checkout master
Switched to branch 'master'
→ hello git:(master) cat lib/hello.html
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
→ hello git:(master)
```

Рис. 3: Удаленные ветки в Git

1.30.1 Список удаленных веток

```
→ hello git:(master) git checkout style
Switched to branch 'style'
→ hello git:(style) cat lib/hello.html
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
  <head>
    <link type="text/css" rel="stylesheet" media="all" href="style.css" />
  </head>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
→ hello git:(style) |
```

Рис. 4: Список удаленных веток

1.31 Внесите изменения в
оригинальный репозиторий hello

1.31.1 Внесите изменения в оригиналальный репозиторий hello

```
→ hello git:(style) git checkout master
Switched to branch 'master'
→ hello git:(master) echo "This is the Hello World example from the git tutorial." > README.md
→ hello git:(master) x |
```

Рис. 5: Внесение изменений в оригиналальный репозиторий

1.31.2 Извлечение изменений

```
→ hello git:(master) ✘ git add README.md
→ hello git:(master) ✘ git commit -m "Added README"
[master f329350] Added README
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
→ hello git:(master) g|
```

Рис. 6: Извлечение изменений из удаленного репозитория

1.31.3 Проверьте README.md

```
* commit f3293506f7a3ffae5c81386f38e53c63386dc9fd (HEAD -> master)
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 12:11:38 2025 +0300

    Added README

* commit 7e34bf60a88b68416fd9fb5f28ea013ff0f2fa20d (style)
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 12:09:17 2025 +0300

    Updated index.html

* commit 297221ed0b0717188313do9b787132b42b78c1794
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 12:07:38 2025 +0300

    Hello uses style.css

* commit 6080416f102a04443beff34e6ba2528452d889d00
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 12:06:26 2025 +0300

    Added css stylesheet

* commit 3467dae4546fa9ff0150f424a1006437f3f97d9e
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:57:45 2025 +0300

    Added index.html

* commit doc8b73776e6234f08505a8b17fec74171021834
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:55:02 2025 +0300

    Moved hello.html to lib

* commit ed9e6d4445dhc43fb6d927a08dd4d4840d1175bb5
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:52:04 2025 +0300

    Add an author/email comment

* commit ed73856e127af5602123d327e0c2764f8617f0c (tag: v1)
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:36:01 2025 +0300

    Added HTML header

* commit b6424c19e57b81872e14644ce010a51d4d55c4c6 (tag: v1-beta)
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:35:33 2025 +0300

    Added standard HTML page tags

* commit 73ec5f0c5d41ed6da45c6c92590fea01c29ead40
Author: Gleb Polyakov <765635971GLEB051@users.noreply.github.com>
Date: Sat Feb 22 11:31:44 2025 +0300

    "Added h1 tag"
```

1.32 Слияние извлеченных изменений

1.32.1 Слейте извлеченные изменения в локальную ветку master

```
→ hello git:(master) git checkout style
Switched to branch 'style'
→ hello git:(style) git merge master
Merge made by the 'ort' strategy.
 README.md | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
→ hello git:(style) git log --graph --all
→ hello git:(style)
```

Рис. 8: Слияние изменений в ветку master

1.32.2 Еще раз проверьте файл README.md

```
* commit bo62c6ef530f39e09fe84a3cd23debcf7c80fd2 (HEAD -> style)
| Merge: 7e34bf6 f329350
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 12:12:24 2025 +0300
|
|   Merge branch 'master' into style
|
* commit f3293506f7a3ffae5c81386f38e53c63386ac9fd (master)
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 12:11:38 2025 +0300
|
|   Added README
|
* commit 7e34bf69e0988668415fd9fb5f28ea13ff02fa29d
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 12:09:17 2025 +0300
|
|   Updated index.html
|
* commit 297221e0d0b17188313da9b787132b42b78c1794
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 12:07:38 2025 +0300
|
|   Hello uses style.css
|
* commit 6080416f1a2a04443baF34e6ba2528452d89d08
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 12:06:26 2025 +0300
|
|   Added css stylesheet
|
* commit 3467dce4546fa9ff0150f424a1006437f3f97d9e
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 11:57:45 2025 +0300
|
|   Added index.html
|
* commit doc80737766c34f0850508b17fec74171021834
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 11:55:02 2025 +0300
|
|   Moved hello.html to lib
|
* commit adbe644452bc443fb6927a08dd44849d1175bb5
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 11:52:04 2025 +0300
|
|   Add an author/email comment
|
* commit ed73856e127ef5602123a322110c2764f8617f0c (tag: v1)
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 11:36:01 2025 +0300
|
|   Added HTML header
|
* commit b6424c19e57b81872e14644ace010a51d4d55c4c6 (tag: v1-beta)
| Author: Gleb Polyakov <76563597+1GLEB051@users.noreply.github.com>
| Date: Sat Feb 22 11:35:33 2025 +0300
|
|   Added standard HTML page tags
|:
```

1.33 Добавление ветки наблюдения

1.33.1 Добавьте локальную ветку, которая отслеживает удаленную ветку

```
→ hello git:(style) git checkout master
Switched to branch 'master'
→ hello git:(master) cat lib/hello.html
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
→ hello git:(master) |
```

Рис. 10: Добавление локальной ветки для отслеживания удаленной ветки

1.34 Чистые репозитории

```
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
        <!-- no style -->
    </head>
    <body>
        <h1>Hello, World!</h1>
    </body>
</html>
```

Рис. 11: Чистые репозитории

1.35 Создайте чистый репозиторий

```
<!-- Author: Gleb S. Polyakov (1132222845@rudn.ru) -->
<html>
    <head>
        <!-- no style -->
    </head>
    <body>
        <h1>Hello, World! Life is great! </h1>
    </body>
</html>
```

Рис. 12: Создание чистого репозитория

1.36 Добавление удаленного репозитория

```
→ hello git:(master) ✘ git add lib/hello.html
→ hello git:(master) ✘ git commit -m "Life is great"
[master 3ac7d14] Life is great
 1 file changed, 2 insertions(+), 1 deletion(-)
→ hello git:(master) |
```

Рис. 13: Добавление удаленного репозитория

1.37 Отправка изменений

```
* commit 3ac7d147b3979031563fcc279e1ef72562339d6f (HEAD -> master)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 12:15:44 2025 +0300

    Life is great

* commit bd62cbe5f530f39609fe843cd23debcfc7c803fd2 (style)
| Merge: f329350
| Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
| Date: Sat Feb 22 12:12:24 2025 +0300

    Merge branch 'master' into style

* commit f3293506f7a3ff0e5c81386f38e53c63386a9fd
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 12:11:38 2025 +0300

    Added README

* commit 7e34bf69a088b68416fd9fb5f28eo13ff02fa28d
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 12:09:17 2025 +0300

    Updated index.html

* commit 297221e0db17188313d096787132b42b78c1794
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 12:07:38 2025 +0300

    Hello uses style.css

* commit 6080416f1a2a04443ba0f34e6ba2528452d889d00
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 12:06:26 2025 +0300

    Added css stylesheet

* commit 3467daea546fa9ff0105f424a10606437f3f97d9e
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 11:57:45 2025 +0300

    Added index.html

* commit doc8b73776e234f08585a8b17Fec74171821834
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 11:55:02 2025 +0300

    Moved hello.html to lib

* commit adbe6d4445abc43fb6d927e08dd4849d1175bb
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 11:52:04 2025 +0300

    Add an author/email comment

* commit ed73856e127ef5682123a322110<2764f8617f0c (tag: v1)
Author: Gleb Polyakov <76563597+1GLEB0$1@users.noreply.github.com>
Date: Sat Feb 22 11:36:01 2025 +0300

    Added HTML header
```

1.38 Извлечение общих изменений

```
→ hello git:(master) git checkout style
Switched to branch 'style'
→ hello git:(style) git merge master
Auto-merging lib/hello.html
CONFLICT (content): Merge conflict in lib/hello.html
Automatic merge failed; fix conflicts and then commit the result.
→ hello git:(style) x |
```

Рис. 15: Извлечение общих изменений