

Лабораторная работа №1

Работа с git

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Информация

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- https://github.com/NzitaKatendi/Math_modeling

Вводная часть

Цель работы

Приобретение практических навыков работы с системой управления версиями Git.

Задачи

- Создать репозиторий
- Изменить его содержимое, изучить работу с коммитами, версиями и тегами
- Поработать с объектами Git
- Создать дополнительную ветку, провести слияние, разрешение конфликтов
- Создать клон репозитория и слить его с оригинальным
- Залить и извлечь изменения

Выполнение лабораторной работы

```
dknzita@dknzita-VirtualBox:~$ git config --global core.autocrlf input
dknzita@dknzita-VirtualBox:~$ git config --global core.safecrlf true
dknzita@dknzita-VirtualBox:~$ git config --global core.quotepath off
dknzita@dknzita-VirtualBox:~$
```

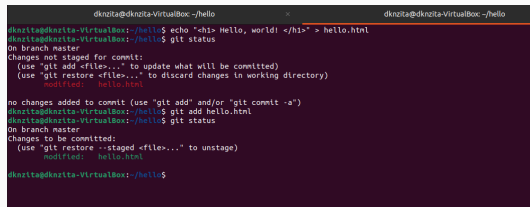
Figure 1: Настройка git

```
dknzita@dknzita-VirtualBox:~$ git config --global core.autocrlf input
dknzita@dknzita-VirtualBox:~$ git config --global core.safecrlf true
dknzita@dknzita-VirtualBox:~$ git config --global core.quotepath off
dknzita@dknzita-VirtualBox:~$ mkdir hello
mkdir: cannot create directory 'hello': File exists
dknzita@dknzita-VirtualBox:~$ cd hello
dknzita@dknzita-VirtualBox:~/hello$ touch hello.html
dknzita@dknzita-VirtualBox:~/hello$ echo "Hello, world! > hello.html
>
```

Figure 2: Создание репозитория


```
dknzita@dknzita-VirtualBox:~/hello$ touch hello.html
dknzita@dknzita-VirtualBox:~/hello$ echo "Hello world!" > hello.html
dknzita@dknzita-VirtualBox:~/hello$ cat hello.html
Hello world!
dknzita@dknzita-VirtualBox:~/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/dknzita/hello/.git/
dknzita@dknzita-VirtualBox:~/hello$ git add hello.html
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Initial Commit"
[master (root-commit) 309c3cd] Initial Commit
 1 file changed, 1 insertion(+)
 create mode 100644 hello.html
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 3: Внесение изменений в содержимое репозитория

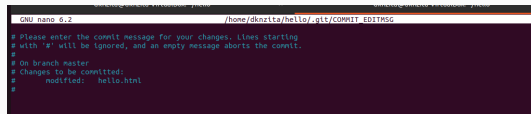


```
dknzita@dknzita-VirtualBox: ~/hello
dknzita@dknzita-VirtualBox:~/hello$ echo "<h1> Hello, world! </h1>" > hello.html
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..."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

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

dknzita@dknzita-VirtualBox:~/hello$
```

Figure 4: Внесение нескольких изменений в содержимое репозитория



```
GNU nano 6.2 /home/dknzita/hello/.git/COMMIT_EDITMSG
# 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
#
```

Figure 5: Просмотр истории

```
dknzita@dknzita-VirtualBox:~/hello$ git commit
Aborting commit due to empty commit message.
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   hello.html

dknzita@dknzita-VirtualBox:~/hello$ mcedit hello.html

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

dknzita@dknzita-VirtualBox:~/hello$
```

Figure 6: Просмотр разных версий репозитория

```
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Added standard HTML tags"
[master b2dfc6a] Added standard HTML tags
 1 file changed, 5 insertions(+), 1 deletion(-)
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
dknzita@dknzita-VirtualBox:~/hello$ git add
Nothing specified, nothing added.
hint: Maybe you wanted to say 'git add .'
hint: Turn this message off by running
hint: "git config advice.addEmptyPathsSpec false"
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Added HTML header"
On branch master
nothing to commit, working tree clean
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 7: Создание тегов версий

```
dknzita@dknzita-VirtualBox:~/hello$ git log
commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

    Initial Commit

dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 8: Переключение по имени тега и просмотр доступных тегов

Отмена локальных изменений (до индексации)

```
dknzita@dknzita-VirtualBox:~/hello$ git log
commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

    Initial Commit

dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git log --prretty=oneline --max-count=2
fatal: unrecognized argument: --prretty=oneline
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --max-count=2
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --since= '5 minute ago'
fatal: ambiguous argument '5 minute ago': unknown revision or path not in the working tree.
Use '-' to separate paths from revisions, like this:
'git <command> [<revision>...] -- [<file>...]'
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --since='5 minutes ago'
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --until='5 minutes ago'
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --author=<dknzita>
bash: syntax error near unexpected token `newline'
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --author='dknzita'
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git log --pretty=oneline --all
b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master) Added standard HTML tags
309c3cdde59c789445c10d1e1851b4b5fe1051eb Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Отмена проиндексированных изменений (перед коммитом)



```
Thunderbird Mail      Git Manual      GIT-LOG(1)

NAME
  git-log - Show commit logs

SYNOPSIS
  git log [<options>] [<revision range>] [--<path>...]

DESCRIPTION
  Shows the commit logs.

  List commits that are reachable by following the parent links from the given commit(s), but exclude commits that are
  reachable from the one(s) given with a ^ in front of them. The output is given in reverse chronological order by default.

  You can think of this as a set operation. Commits reachable from any of the commits given on the command line form a set,
  and then commits reachable from any of the ones given with ^ in front are subtracted from that set. The remaining commits
  are what comes out in the command's output. Various other options and paths parameters can be used to further limit the
  result.

  Thus, the following command:

      $ git log foo bar ^baz

  means "list all the commits which are reachable from foo or bar, but not from baz".

  A special notation "<commit1>..<commit2>" can be used as a short-hand for "^<commit1> <commit2>". For example, either of
  the following may be used interchangeably:

      $ git log origin..HEAD
      $ git log HEAD ^origin

  Another special notation is "<commit1>...<commit2>" which is useful for merges. The resulting set of commits is the
  symmetric difference between the two operands. The following two commands are equivalent:

      $ git log A B --not $(git merge-base --all A B)
      $ git log A...B

Manual page git-log(1) line 1 (press h for help or q to quit)
```

Figure 10: Отмена проиндексированных изменений (перед коммитом)


```
Author: dknzita <diatezilua.n@gmail.com>
Date:   Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb
Author: dknzita <diatezilua.n@gmail.com>
Date:   Mon Apr 22 11:45:32 2024 +0300

    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 11: Отмена коммитов

```
Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git checkout <hash>
bash: syntax error near unexpected token `newline'
dknzita@dknzita-VirtualBox:~/hello$ cat hello.html
<html>
  <body>
    <h1> Hello, World! </h1>
  </body>
</html>dknzita@dknzita-VirtualBox:~/hello$
```

Figure 12: Удаление коммитов из ветки

```
</html>dknzita@dknzita-VirtualBox:~/hello$ git tag v1
dknzita@dknzita-VirtualBox:~/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 309c3cd Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ cat hello.html
Hello world!
dknzita@dknzita-VirtualBox:~/hello$ git tag v1-beta
dknzita@dknzita-VirtualBox:~/hello$ git checkout v1
Previous HEAD position was 309c3cd Initial Commit
HEAD is now at b2dfc6a Added standard HTML tags
dknzita@dknzita-VirtualBox:~/hello$ git checkout v1-beta
Previous HEAD position was b2dfc6a Added standard HTML tags
HEAD is now at 309c3cd Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 13: Удаление тега oops

Изменение предыдущего коммита

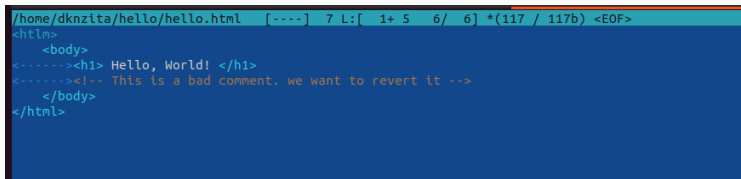
```
dknzita@dknzita-VirtualBox:~/hello$ git tag
v1
v1-beta
dknzita@dknzita-VirtualBox:~/hello$ git log master --all
commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (tag: v1, master)
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb (HEAD, tag: v1-beta)
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 14: Изменение предыдущего коммита



```
/home/dknzita/hello/hello.html [----] 7 L:[ 1+ 5 6/ 6] *(117 / 117b) <EOF>
<html>
  <body>
<-----><h1> Hello, World! </h1>
<-----><!-- This is a bad comment. we want to revert it -->
  </body>
</html>
```

Figure 15: Перемещение файлов

```
dknzita@dknzita-VirtualBox:~/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")
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 16: Добавление нового файла в репозиторий

```
dknzita@dknzita-VirtualBox:~/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")
dknzita@dknzita-VirtualBox:~/hello$ git checkout hello.html
Updated 1 path from the index
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
dknzita@dknzita-VirtualBox:~/hello$ cat hello.html
<html>
  <body>
    <h1> Hello, World! </h1>
  </body>
</html>dknzita@dknzita-VirtualBox:~/hello$
```

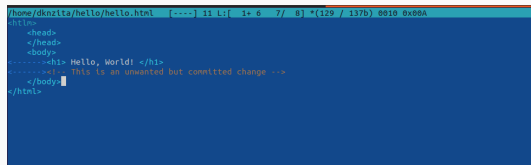
Figure 17: Добавление нового файла в репозиторий

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

Figure 18: Каталог .git

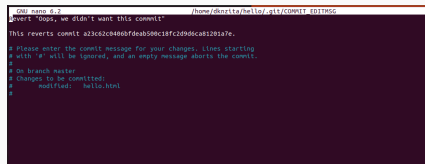

```
dknzita@dknzita-VirtualBox:~/hello$ git reset HEAD hello.html
Unstaged changes after reset:
M    hello.html
dknzita@dknzita-VirtualBox:~/hello$ git checkout hello.html
Updated 1 path from the index
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean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

Figure 19: Работа непосредственно с объектами git



```
/home/dknzita/hello/hello.html [----] 11 L: 1+ 6 7/ 8) *(129 / 137b) 0010 0x00A
<html>
  <head>
  </head>
  <body>
    <h1> Hello, World! </h1>
    <!-- This is an unwanted but committed change -->
  </body>
</html>
```

Figure 20: Поиск оригинального файла hello.html



```
GNU nano 6.2 /home/denisito/hello/.git/COMMIT_EDITMSG
Revert "Oops, we didn't want this commit"

This reverts commit a23c62c40ebfdeab50ec18fc2d9dca81201a7e.

# 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
#
```

Figure 21: Создание ветки

```
dknzita@dknzita-VirtualBox:~/hello$ git log
commit 2e9dc8b2d983efcecafee96493bbc989ab55176 (HEAD -> master)
Author: dknzita <dlatezilua.n@gmail.com>
Date:   Mon Apr 22 12:27:57 2024 +0300

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

    This reverts commit a23c62c0406bfdeab508c18fc2d9d6ca81201a7e.

commit a23c62c0406bfdeab508c18fc2d9d6ca81201a7e
Author: dknzita <dlatezilua.n@gmail.com>
Date:   Mon Apr 22 12:27:44 2024 +0300

    Oops, we didn't want this commit

commit b2dfc6a1e869e33f2583d988c1a933cf6d667160 (tag: v1)
Author: dknzita <dlatezilua.n@gmail.com>
Date:   Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3c0de59c789445c10d1e1851b4b5fe1051eb (tag: v1-beta)
Author: dknzita <dlatezilua.n@gmail.com>
Date:   Mon Apr 22 11:45:32 2024 +0300

    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 22: Просмотр логов новой ветки

```
dknzita@dknzita-VirtualBox:~/hello$ git tag oops
dknzita@dknzita-VirtualBox:~/hello$ git reset --hard v1
HEAD is now at b2dfc6a Added standard HTML tags
dknzita@dknzita-VirtualBox:~/hello$ git log
commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master, tag: v1)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb (tag: v1-beta)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 23: Переключение между ветками

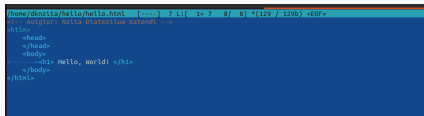
```
Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git log -all
error: switch `l' expects a numerical value
dknzita@dknzita-VirtualBox:~/hello$ git tag -d oops
Deleted tag 'oops' (was 2e9dc8b)
dknzita@dknzita-VirtualBox:~/hello$ git log --all
commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (HEAD -> master, tag: v1)
Author: dknzita <diatezilua.n@gmail.com>
Date:   Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb (tag: v1-beta)
Author: dknzita <diatezilua.n@gmail.com>
Date:   Mon Apr 22 11:45:32 2024 +0300

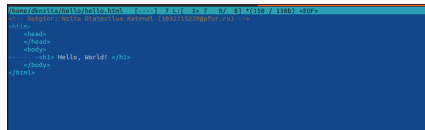
    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 24: Изменения в ветке master



```
/home/dknight/hello/hello.html [1:1] 1: 7 8 / 8] *(129 / 129b) <EOF>
<!-- Author: Nikita Dknightius Katend -->
<html>
  <head>
  </head>
  <body>
    <p>Hello, World! </p>
  </body>
</html>
```

Figure 25: Просмотр веток



```
/home/dknzita/hello/hello.html [-...-] 7 L: [ 1+ 7 0/ 8] *(150 / 150b) <EOF>
$ cat /home/dknzita/hello/hello.html
<!DOCTYPE html>
<html>
  <head>
  </head>
  <body>
    <h1> Hello, World! </h1>
  </body>
</html>
```

Figure 26: Слияние веток


```
commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb (tag: v1-beta)
Author: dknzita <dlatezilua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ ncedit hello.html
dknzita@dknzita-VirtualBox:~/hello$ ncedit hello.html
dknzita@dknzita-VirtualBox:~/hello$ git add hello.html
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Add an author comment"
[master cb62330] Add an author comment
1 file changed, 3 insertions(+)
dknzita@dknzita-VirtualBox:~/hello$ ncedit hello.html
dknzita@dknzita-VirtualBox:~/hello$ git add hello.html
dknzita@dknzita-VirtualBox:~/hello$ git commit --amend -m "Add author/email comment"
[master e1b3a6e] Add author/email comment
Date: Mon Apr 22 12:37:24 2024 +0300
1 file changed, 3 insertions(+)
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 27: Создание конфликта

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

Figure 28: Разрешение конфликта

```
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Moved hello to lib"
[master f4d67b8] Moved hello to lib
 1 file changed, 0 insertions(+), 0 deletions(-)
  rename hello.html => lib/hello.html (100%)
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 29: Поиск коммита перед слиянием

```
/home/dknzita/hello/index.html [-M-] 6 L:[ 14 4 5/ 5] *(98 / 97b) 0062 0x03E
<html>
  <body>
    <iframe src = "lib/hello.html" width="200" height="200" />
  </body>
</html>
```

Figure 30: Сброс ветки style

```
dknrita@dknrita-VirtualBox:~/hello$ git commit -m "Moved hello to lib"
[master f4d07b8] Moved hello to lib
1 file changed, 0 insertions(+), 0 deletions(-)
rename hello.html => lib/hello.html (100%)
dknrita@dknrita-VirtualBox:~/hello$ ls
lib
dknrita@dknrita-VirtualBox:~/hello$ touch index.html
dknrita@dknrita-VirtualBox:~/hello$ mcedit index.html

dknrita@dknrita-VirtualBox:~/hello$ git add index.html
dknrita@dknrita-VirtualBox:~/hello$ git commit -m "Added index.html."
[master a8c0a58] Added index.html.
1 file changed, 5 insertions(+)
create mode 100644 index.html
dknrita@dknrita-VirtualBox:~/hello$ ls -C .git
branches COMMIT_EDITMSG config description HEAD hooks index info logs objects ORIG_HEAD packed-refs refs
dknrita@dknrita-VirtualBox:~/hello$ ls -C .git/objects
ls: cannot access '.git/objects': No such file or directory
dknrita@dknrita-VirtualBox:~/hello$ ls -C .git/objects
10 2e 30 57 6a 80 97 99 a1 a3 a6 ad b2 b4 b8 bd c1 cb cc cd e1 f4 fa info pack
dknrita@dknrita-VirtualBox:~/hello$
```

Figure 31: Поиск коммита перед конфликтом

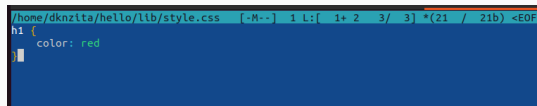
```
dkniztag@dknizta-VirtualBox: ~/hello$ ls -C .git
branches  COMMIT_EDITMSG  config  description  HEAD  hooks  index  info  logs  objects  ORIG_HEAD  packed-refs  refs
dkniztag@dknizta-VirtualBox:~/hello$ ls -C .git/objects
ls: cannot access '.git/objects': No such file or directory
dkniztag@dknizta-VirtualBox:~/hello$ ls -C .git/objects
10 2e 30 57 6e 88 97 99 a1 a2 a6 a8 b2 b4 b8 bd c1 cb cc cd e1 f4 fa info pack
dkniztag@dknizta-VirtualBox:~/hello$ ls -C .git/objects/<dir>
bash: syntax error near unexpected token `newline'
dkniztag@dknizta-VirtualBox:~/hello$ cat .git/config
[core]
    repositoryformatversion = 0
    filemode = true
    bare = false
    logallrefupdates = true
dkniztag@dknizta-VirtualBox:~/hello$ ls .git/refs
heads  tags
dkniztag@dknizta-VirtualBox:~/hello$ ls .git/refs/heads
master
dkniztag@dknizta-VirtualBox:~/hello$ ls .git/refs/tags
v1  v1-beta
dkniztag@dknizta-VirtualBox:~/hello$ ls .git/refs/tags/v1
.git/refs/tags/v1
dkniztag@dknizta-VirtualBox:~/hello$
```

Figure 32: Сброс ветки master

```
dknzita@dknzita-VirtualBox:~/hello$ ls -C .git/objects/<dir>
bash: syntax error near unexpected token 'newline'
dknzita@dknzita-VirtualBox:~/hello$ cat .git/config
[core]
  repositoryformatversion = 0
  filemode = true
  bare = false
  logallrefupdates = true
dknzita@dknzita-VirtualBox:~/hello$ ls .git/refs
heads  tags
dknzita@dknzita-VirtualBox:~/hello$ ls .git/refs/heads
master
dknzita@dknzita-VirtualBox:~/hello$ ls .git/refs/tags
v1  v1-beta
dknzita@dknzita-VirtualBox:~/hello$ ls .git/refs/tags/v1
.git/refs/tags/v1
dknzita@dknzita-VirtualBox:~/hello$ cat .git/HEAD
ref: refs/heads/master
dknzita@dknzita-VirtualBox:~/hello$ git log --max-count=1
commit a0c6a58e91c398ec2929e31cdfa01c3a49382abe (HEAD -> master)
Author: dknzita <diatezilua.n@gmail.com>
Date:   Mon Apr 22 12:46:28 2024 +0300

    Added index.html.
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 33: Перебазирование

A screenshot of a code editor window. The title bar shows the file path `/home/dknzita/hello/lib/style.css` and some editor status information. The code content shows a CSS rule for `h1` with `color: red`. The text is color-coded: `h1` is blue, `{` is red, `color: red` is green, and `}` is red. A white cursor is positioned at the end of the closing curly brace on the third line.

```
/home/dknzita/hello/lib/style.css [-M--] 1 L: [ 1+ 2 3/ 3] *(21 / 21b) <EOF
h1 {
  color: red
}
```

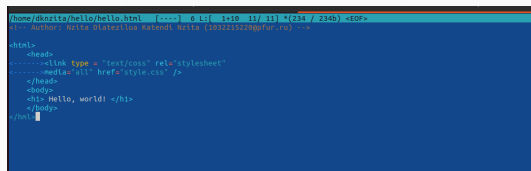
Figure 34: Слияние style в master


```
Added index.html.
dknzita@dknzita-VirtualBox:~/hello$ git checkout -b style
Switched to a new branch 'style'
dknzita@dknzita-VirtualBox:~/hello$ git status
On branch style
nothing to commit, working tree clean
dknzita@dknzita-VirtualBox:~/hello$ touch lib/style.css
dknzita@dknzita-VirtualBox:~/hello$ ncedit lib/style.css

dknzita@dknzita-VirtualBox:~/hello$ git add lib/style.css
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Added css stylesheet"
[style c2df971] Added css stylesheet
1 file changed, 3 insertions(+)
create mode 100644 lib/style.css
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 35: Клонирование репозитория

Что такое origin?



```
/home/dknzita/hello/hello.html [----] 6 L: 1+10 11/ 11] *(234 / 234b) <EOF>
<!-- Author: Nizita Glatzevlua Katendl Nizita (1032215220@pfor.ru) -->

<html>
  <head>
    <-----<link type = "text/css" rela="stylesheet"
    <-----<media="all" href="style.css" />
    </head>
    <body>
      <hi> Hello, world! </hi>
    </body>
  </html>
```

Figure 36: Просмотр имени по умолчанию удаленного репозитория

```
dknzita@dknzita-VirtualBox:~/hello$ touch lib/style.css
dknzita@dknzita-VirtualBox:~/hello$ mcedit lib/style.css

dknzita@dknzita-VirtualBox:~/hello$ git add lib/style.css
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Added css stylesheet"
[style c2df971] Added css stylesheet
1 file changed, 3 insertions(+)
create mode 100644 lib/style.css
dknzita@dknzita-VirtualBox:~/hello$ touch hello.html
dknzita@dknzita-VirtualBox:~/hello$ mcedit hello.html

dknzita@dknzita-VirtualBox:~/hello$ git add lib/hello.html
dknzita@dknzita-VirtualBox:~/hello$ 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

nothing added to commit but untracked files present (use "git add" to track)
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 37: Просмотр доступных веток

Изменение оригинального репозитория

```
dknzita@dknzita-VirtualBox:~/hello$ git log --all
commit c2df971dda80a73fb5a8aac7389e95a20addf428 (HEAD -> style)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:56:50 2024 +0300

    Added css stylesheet

commit a6c6a58e91c398ec2929e31cdfa01c3a49382abe (master)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:46:28 2024 +0300

    Added index.html.

commit f4d67b898f83f15989f9b79d90941cdba2a82538
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:41:48 2024 +0300

    Moved hello to lib

commit e1b3a6e612fec1e0c2081e79c1201ec558f12727
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:37:24 2024 +0300

    Add author/email comment

commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (tag: v1)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

commit 309c3cdde59c789445c10d1e1851b4b5fe1051eb (tag: v1-beta)
Author: dknzita <diatezilua.n@gmail.com>
Date: Mon Apr 22 11:45:32 2024 +0300

    Initial Commit
dknzita@dknzita-VirtualBox:~/hello$
```

Изменение оригинального репозитория

```
Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git checkout master
Switched to branch 'master'
dknzita@dknzita-VirtualBox:~/hello$ cat lib/hello.html
<!-- Autgior: Nzita Diatezilua Katendi (1032215220@pfur.ru) -->
<html>
  <head>
  </head>
  <body>
    <h1> Hello, World! </h1>
  </body>
</html>dknzita@dknzita-VirtualBox:~/hello$
```

Figure 39: Извлечение изменений

```
Initial Commit
dknzita@dknzita-VirtualBox:~/hello$ git checkout master
Switched to branch 'master'
dknzita@dknzita-VirtualBox:~/hello$ cat lib/hello.html
<!-- Autgior: Nzita Diatezilua Katendi (1032215220@pfur.ru) -->
<html>
  <head>
  </head>
  <body>
    <h1> Hello, World! </h1>
  </body>
</html>
dknzita@dknzita-VirtualBox:~/hello$ git checkout master
Already on 'master'
dknzita@dknzita-VirtualBox:~/hello$ touch README.md
dknzita@dknzita-VirtualBox:~/hello$ echo "This is the hello Word example from git tutorial." > README.md
dknzita@dknzita-VirtualBox:~/hello$ git add README.md
dknzita@dknzita-VirtualBox:~/hello$ git commit -m "Added README"
[master d59dfff] Added README
1 file changed, 1 insertion(+)
create mode 100644 README.md
dknzita@dknzita-VirtualBox:~/hello$
```

Figure 40: Слияние извлеченных изменений

Добавление ветки наблюдения

```
dknzita@dknzita-VirtualBox: ~/hello$ git log --graph --all
* commit d59ddffabad8d4ab2ab9270b6ee456aa3a65c461 (HEAD -> master)
  Author: dknzita <diatezilua.n@gmail.com>
  Date: Mon Apr 22 13:09:30 2024 +0300

    Added README

* commit d59ddffabad8d4ab2ab9270b6ee456aa3a65c461 (HEAD -> master)
  Author: dknzita <diatezilua.n@gmail.com>
  Date: Mon Apr 22 13:09:30 2024 +0300

    Added README

* commit c2df971dda80a73fb5a8aac7389e95a20addf428 (style)
  Author: dknzita <diatezilua.n@gmail.com>
  Date: Mon Apr 22 12:56:50 2024 +0300

    Added css stylesheet

* commit a6c6a58e91c398ec2929e31cdfa01c3a49382abe
  Author: dknzita <diatezilua.n@gmail.com>
  Date: Mon Apr 22 12:46:28 2024 +0300

    Added index.html.

* commit f4d67b898f83f159b9f9b79d90941cdba2a82538
  Author: dknzita <diatezilua.n@gmail.com>
  Date: Mon Apr 22 12:41:48 2024 +0300
```

Figure 41: Добавление ветки наблюдения

Создание чистого репозитория

```
* commit d59ddffabad8d4ab2ab9270b6ee456aa3a65c461 (HEAD -> master)
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 13:09:30 2024 +0300

    Added README

* commit c2df971dda80a73fb5a8aac7389e95a20addf428 (style)
/ Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:56:50 2024 +0300

    Added css stylesheet

* commit a6c6a58e91c398ec2929e31cdfa01c3a49382abe
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:46:28 2024 +0300

    Added index.html.

* commit f4d67b898f83f15989f9b79d90941cdba2a82538
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:41:48 2024 +0300

    Moved hello to lib

* commit e1b3a6e612fec1e0c2081e79c1201ec558f12727
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:37:24 2024 +0300

    Add author/email comment

* commit b2dfc6a1e869e33f2583d980c1a933cf6d667160 (tag: v1)
Author: dknzita <diatezllua.n@gmail.com>
Date: Mon Apr 22 12:03:10 2024 +0300

    Added standard HTML tags

:
```

Figure 42: Создание чистого репозитория


```
commit 9d1003b17b70fac7bb2d16b321ad5edd20b437b (HEAD -> style)
Merge: c2df97a d59d0ff
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 13:13:15 2024 +0300

    Merge branch 'master' into style

* commit d59d0ffabadd8d4ab2ab9270b6ee456aa3a05c401 (master)
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 13:09:30 2024 +0300

    Added README

* commit c2df971dda8ba73fb5abaac7389b95a20ad0f42b
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 12:56:50 2024 +0300

    Added css stylesheet

* commit 8dc6a50e91c380ec2028e31cdf0f1ca49382abe
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 12:46:28 2024 +0300

    Added Index.html.

* commit f4d67b898f81f15909f9b79d90941cda2a82538
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 12:41:48 2024 +0300

    Moved hello to lib

* commit 41b3aed12fec1ebc2081e79c1201ec550f12727
Author: dknzita <dlatezilua.ng@gmail.com>
Date: Mon Apr 22 12:37:24 2024 +0300

    Add author/email comment
```

Figure 43: Отправка и извлечение изменений

Выводы

В результате выполнения лабораторной работы были приобретены практические навыки работы с системой управления версиями Git.

Список литературы

1. Git [Электронный ресурс]. Wikimedia Foundation, Inc., 2024. URL: <https://ru.wikipedia.org/wiki/Git>.
2. GitHub [Электронный ресурс]. GitHub, Inc., 2024. URL: <https://github.com/>.