

Лабораторная работа N1

Работа с git

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Информация

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Приобретить практические навыки работы с Git.

Теоретическое введение

Git-это мощный инструмент, созданный 7 апреля 2005 года для управления ядром linux.

Выполнение лабораторной работы

Установка имени и электронной почты

```
git config --global user.name "Your Name"
```

```
git config --global user.email "your_email@whatever.com"
```

Если git уже установлен, можете переходить к разделу окончания строк.


```
ghislain@ghislain-VirtualBox:~$ mkdir hello
ghislain@ghislain-VirtualBox:~$ cd hello
ghislain@ghislain-VirtualBox:~/hello$ touch hello.html
ghislain@ghislain-VirtualBox:~/hello$ echo "Hello, World!" > hello.html
ghislain@ghislain-VirtualBox:~/hello$
```

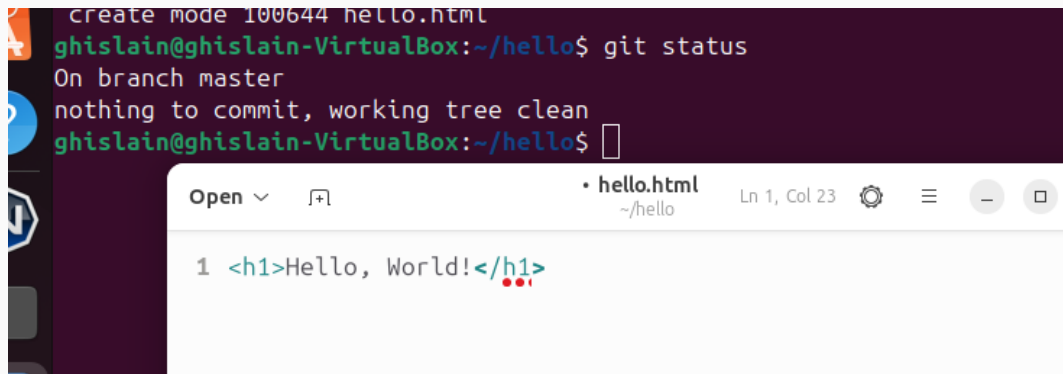
Рис. 1: Создайте страницу «Hello, World»

Создание репозитория, добавление файла в репозиторий и Проверка состояние репозитория

```
ghislain@ghislain-VirtualBox:~/hello$ git init
Initialized empty Git repository in /home/ghislain/hello/.git/
ghislain@ghislain-VirtualBox:~/hello$ git add hello.html
ghislain@ghislain-VirtualBox:~/hello$ git commit -m "Initial Commit"
[master (root-commit) 985f8dd] Initial Commit
 1 file changed, 1 insertion(+)
 create mode 100644 hello.html
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 2: fig4

Измените страницу «Hello, World» и Проверьте состояние рабочего каталога.

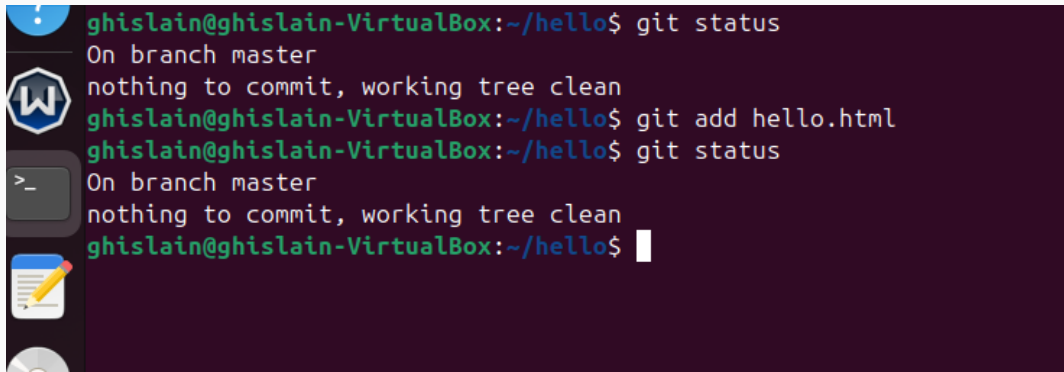


The image shows a terminal window and a code editor. The terminal window, titled 'ghislain@ghislain-VirtualBox:~/hello', displays the output of the 'git status' command: 'On branch master', 'nothing to commit, working tree clean'. The code editor, titled 'hello.html', shows the content of the file: '<h1>Hello, World!</h1>'. The cursor is at the end of the line.

```
create mode 100644 hello.html
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$
```

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

Рис. 3: fig1

A terminal window with a dark purple background. On the left side, there is a vertical toolbar with icons: a blue circle with a white exclamation mark, a blue hexagon with a white 'W', a grey terminal icon with a white prompt character, a yellow notepad with a red pencil, and a grey floppy disk. The terminal text is as follows:

```
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$ git add hello.html
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 4: проиндексировать изменения

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

Рис. 5: проверьте состояние

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

Рис. 6: Измените страницу

Создание тегов версий

```
ghislain@ghislain-VirtualBox:~/hello$ git tag v1
ghislain@ghislain-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 e8cd743 Added standard HTML page tags
ghislain@ghislain-VirtualBox:~/hello$ cat hello.html
Added h1 tag
<html>
  <body>
    <h1>Hello, World!</h1>
  </body>
</html>
ghislain@ghislain-VirtualBox:~/hello$ git tag v1-beta
ghislain@ghislain-VirtualBox:~/hello$
```

Просмотр тегов с помощью команды tag

```
ghislain@ghislain-VirtualBox:~/hello$ git tag
v1
v1-beta
ghislain@ghislain-VirtualBox:~/hello$ git log master --all
commit 19ebbc142650504a2c49b0e3f45eeac6c591b2d0 (tag: v1, master)
Author: Ghislain <ghislaindadou5297@gmail.com>
Date:   Fri Feb 21 21:28:57 2025 +0300

    Added HTML header

commit e8cd743e33f32d5f177691e6aae8f1cfac84f366 (HEAD, tag: v1-beta)
Author: Ghislain <ghislaindadou5297@gmail.com>
Date:   Fri Feb 21 21:25:16 2025 +0300

    Added standard HTML page tags

commit 985f8ddf1ca7003b1460ea736eb0e6d7f72388
Author: Ghislain <ghislaindadou5297@gmail.com>
Date:   Fri Feb 21 20:46:55 2025 +0300

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



```
ghislain@ghislain-VirtualBox:~/hello$ git checkout master
Previous HEAD position was e8cd743 Added standard HTML page tags
Switched to branch 'master'
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 12: fig28

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

Измените файл и проиндексируйте изменения

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

```
ghislain@ghislain-VirtualBox:~/hello$ git checkout hello.html
Updated 1 path from the index
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch master
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 15: fig35

Наш рабочий каталог опять чист

```
1 Added h1 tag
2 <html>
3   <head>
4   </head>
5   <body>
6     <h1>Hello, World!</h1>
7     <!-- This is an unwanted but committed change -->
8   </body>
9 </html>
```

Рис. 16: Изменить файл и сделать коммит

Удаление коммитов из ветки

Для начала отметьте эту ветку Сброс коммитов к предшествующим коммиту Oops Удаление тега oops

```
ghislain@ghislain-VirtualBox:~/hello$ git tag oops
ghislain@ghislain-VirtualBox:~/hello$ git reset --hard v1
HEAD is now at 19ebbc1 Added HTML header
ghislain@ghislain-VirtualBox:~/hello$ git log
```

Рис. 17: fig42

```
ghislain@ghislain-VirtualBox:~/hello$ git tag oops
ghislain@ghislain-VirtualBox:~/hello$ git reset --hard v1
HEAD is now at 19ebbc1 Added HTML header
ghislain@ghislain-VirtualBox:~/hello$ git log
commit 19ebbc142650504a2c49b0e3f45eeac6c591b2d0 (HEAD -> master, tag: v1)
Author: Ghislain <ghislaindadou5297@gmail.com>
Date:   Fri Feb 21 21:28:57 2025 +0300
```

fig46

```
Initial commit
ghislain@ghislain-VirtualBox:~/hello$ git add hello.html
ghislain@ghislain-VirtualBox:~/hello$ git commit -m "Add an author comment"
[master 8ac6e48] Add an author comment
1 file changed, 1 insertion(+)
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 19: fig47

Измените предыдущий коммит и переместите файл hello.html в каталог lib

```
ghislain@ghislain-VirtualBox:~/hello$ git add hello.html
ghislain@ghislain-VirtualBox:~/hello$ git commit --amend -m "Add an author/email
comment"
[master e433326] Add an author/email comment
Date: Fri Feb 21 23:07:55 2025 +0300
1 file changed, 1 insertion(+)
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 20: fig50

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

```
ghislain@ghislain-VirtualBox:~/hello$ git commit -m "Moved hello.html to lib"
[master 77d7ccd] Moved hello.html to lib
1 file changed, 0 insertions(+), 0 deletions(-)
rename hello.html => lib/hello.html (100%)
ghislain@ghislain-VirtualBox:~/hello$
```

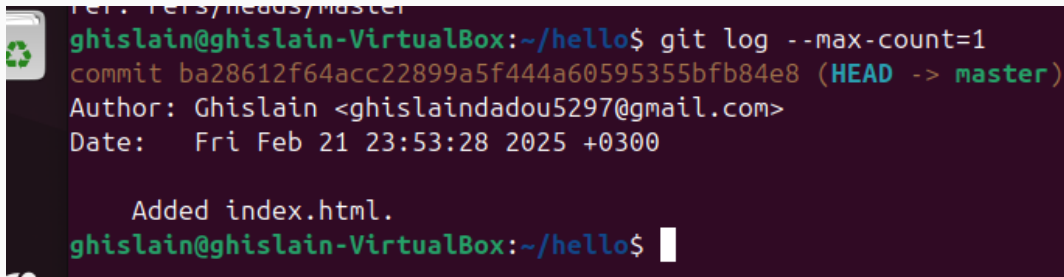
Рис. 22: fig53


```
ghislain@ghislain-VirtualBox:~/hello/lib$ touch index.html
ghislain@ghislain-VirtualBox:~/hello/lib$ git add index.html
ghislain@ghislain-VirtualBox:~/hello/lib$ git commit -m "Added index.html."
[master ba28612] Added index.html.
 1 file changed, 5 insertions(+)
 create mode 100644 lib/index.html
ghislain@ghislain-VirtualBox:~/hello/lib$
```

Рис. 23: fig54

Работа непосредственно с объектами git

- Поиск последнего коммита
- Вывод последнего коммита с помощью SHA1 хэша

A terminal window with a dark purple background. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'. The command 'git log --max-count=1' has been executed. The output shows a commit hash 'ba28612f64acc22899a5f444a60595355bfb84e8' followed by '(HEAD -> master)'. Below this, the author 'Ghislain <ghislaindadou5297@gmail.com>' and the date 'Fri Feb 21 23:53:28 2025 +0300' are displayed. A message 'Added index.html.' is shown with a green checkmark icon. The prompt 'ghislain@ghislain-VirtualBox:~/hello\$' is visible again at the bottom.

```
ghislain@ghislain-VirtualBox:~/hello$ git log --max-count=1
commit ba28612f64acc22899a5f444a60595355bfb84e8 (HEAD -> master)
Author: Ghislain <ghislaindadou5297@gmail.com>
Date:   Fri Feb 21 23:53:28 2025 +0300

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

Рис. 24: fig62

Создание ветки, Добавьте файл стилей style.css, Измените основную страницу и Измените index.html

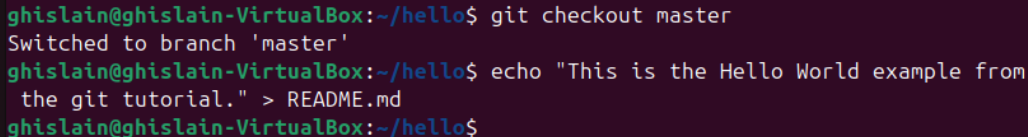
```
ghislain@ghislain-VirtualBox:~/hello$ git checkout -b style
Switched to a new branch 'style'
ghislain@ghislain-VirtualBox:~/hello$ git status
On branch style
nothing to commit, working tree clean
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 26: fig68

```
ghislain@ghislain-VirtualBox:~/hello$ mkdir lib
ghislain@ghislain-VirtualBox:~/hello$ touch lib/style.css
ghislain@ghislain-VirtualBox:~/hello$
```

Изменения в ветке master

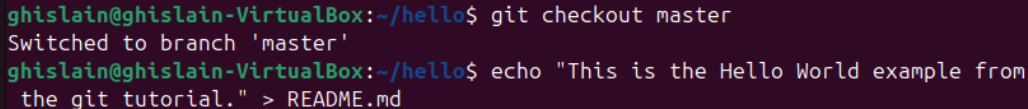
- Создайте файл README в ветке master

A terminal window with a dark purple background. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'. The first command is 'git checkout master', followed by 'Switched to branch 'master''. The second command is 'echo "This is the Hello World example from the git tutorial." > README.md'. The prompt returns to 'ghislain@ghislain-VirtualBox:~/hello\$'.

```
ghislain@ghislain-VirtualBox:~/hello$ git checkout master
Switched to branch 'master'
ghislain@ghislain-VirtualBox:~/hello$ echo "This is the Hello World example from
the git tutorial." > README.md
ghislain@ghislain-VirtualBox:~/hello$
```

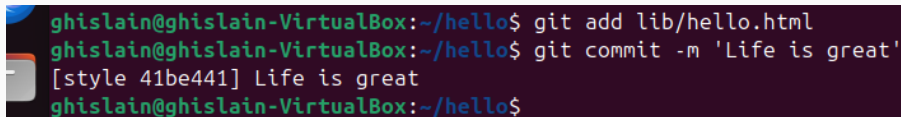
Рис. 33: fig79

- Сделайте коммит изменений README.md в ветку master

A terminal window with a dark purple background. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'. The first command is 'git checkout master', followed by 'Switched to branch 'master''. The second command is 'echo "This is the Hello World example from the git tutorial." > README.md'. The prompt returns to 'ghislain@ghislain-VirtualBox:~/hello\$'.

```
ghislain@ghislain-VirtualBox:~/hello$ git checkout master
Switched to branch 'master'
ghislain@ghislain-VirtualBox:~/hello$ echo "This is the Hello World example from
the git tutorial." > README.md
```

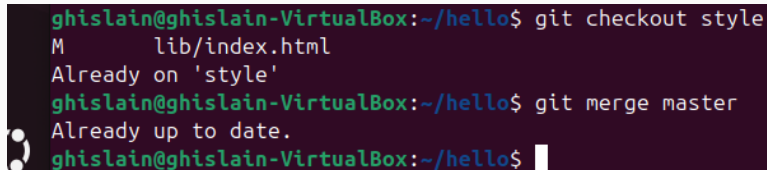
- Вернитесь в master и создайте конфликт

A terminal window with a dark purple background. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'. The first command is 'git add lib/hello.html'. The second command is 'git commit -m 'Life is great''. The output is '[style 41be441] Life is great'. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'.

```
ghislain@ghislain-VirtualBox:~/hello$ git add lib/hello.html
ghislain@ghislain-VirtualBox:~/hello$ git commit -m 'Life is great'
[style 41be441] Life is great
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 35: fig84

Вернемся к ветке style и попытаемся объединить ее с новой веткой master.

A terminal window with a dark purple background and green text. The prompt is 'ghislain@ghislain-VirtualBox:~/hello\$'. The first command is 'git checkout style', which outputs 'M lib/index.html' and 'Already on 'style''. The second command is 'git merge master', which outputs 'Already up to date.'. The prompt is shown again at the end of the output.

```
ghislain@ghislain-VirtualBox:~/hello$ git checkout style
M lib/index.html
Already on 'style'
ghislain@ghislain-VirtualBox:~/hello$ git merge master
Already up to date.
ghislain@ghislain-VirtualBox:~/hello$
```

Рис. 36: fig86

```
ghislain@ghislain-VirtualBox:~/hello$ cd ..  
ghislain@ghislain-VirtualBox:~$ pwd  
/home/ghislain  
ghislain@ghislain-VirtualBox:~$ ls  
Desktop    Downloads  Music      Public    Templates  work  
Documents  hello      Pictures   snap      Videos
```

Рис. 37: fig96

```
ghislain@ghislain-VirtualBox:~$ git clone hello cloned_hello  
Cloning into 'cloned_hello'...  
done.  
ghislain@ghislain-VirtualBox:~$
```

Рис. 38: fig97

```
ghislain@ghislain-VirtualBox:~$ ls  
cloned hello Documents hello Pictures snap Videos
```

Выводы

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