Лабораторная работа №1

Выполнила: Сугако Татьяна 253503. Вариант 23.

Тема: Система контроля версий Git.

Цель: Познакомиться с возможностями и получить практические навыки работы с системой контроля версий Git.

Задание:

1. *Подготовка рабочего окружения*

   a. Установка Git

   ```
   PS C:\Users\user> git --version
   git version 2.43.0.windows.1
   ```

   b. Выполнение базовых настроек

   ```
   C:\Users\user> git config --global user.name Sugako_Tatyana
   C:\Users\user> git config --global user.email thoosa@mail.ru
   ```

2. *Создание структуры папок (использовать командную строку) и поместить в репозиторий Git на своем локальном компьютере*

   Создание структуры папок:

   ```
   PS C:\Users\user> mkdir 253503_Sugako_23
   ```

   ```
   PS C:\Users\user> cd C:\Users\user\253503_Sugako_23
   ```

   ```
   PS C:\Users\user\253503_Sugako_23> mkdir IGI
   ```

   ```
   PS C:\Users\user\253503_Sugako_23> mkdir STRWEB
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI> mkdir LR1
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI> mkdir LR2
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI> mkdir LR3
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI> mkdir LR4
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI> mkdir LR5
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\STRWEB> mkdir LR1
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\STRWEB> mkdir LR2
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\STRWEB> mkdir LR3
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\STRWEB> mkdir LR4
   ```

   ```
   PS C:\Users\user\253503_Sugako_23> cd IGI
   PS C:\Users\user\253503_Sugako_23\IGI> cd LR1
   PS C:\Users\user\253503_Sugako_23\IGI\LR1> mkdir foo
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI\LR1> cd foo
   PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo> mkdir 775
   ```

   ```
   PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo> mkdir example
   ```

```
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo> cd example
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\example> mkdir 555

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\example> cd ..
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo> mkdir baz

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo> cd baz
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz> mkdir 744

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz> mkdir bin

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz> cd bin
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin> mkdir 777

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin> mkdir foo

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin> cd foo
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> mkdir 447

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin> mkdir foo

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin> cd foo
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> mkdir 447

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> mkdir sed

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> cd sed
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo\sed> mkdir 100

PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> echo 544 > readme.txt
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> echo 001 > test.txt
```

Результат:

```
PS C:\Users\user\253503_Sugako_23\IGI\LR1\foo\baz\bin\foo> tree "C:\Users\user\253503_Sugako_23" /f
Структура папок
Серийный номер тома: 00000048 8AA2:BFFE
C:\USERS\USER\253503_SUGAKO_23
└───IGI
    ├───LR1
    │   └───foo
    │       ├───775
    │       ├───baz
    │       │   ├───744
    │       │   └───bin
    │       │       ├───777
    │       │       └───foo
    │       │               readme.txt
    │       │               test.txt
    │       │
    │       │       ├───447
    │       │       └───sed
    │       │           └───100
    │       └───example
    │               └───555
    ├───LR2
    ├───LR3
    ├───LR4
    └───LR5
└───STRWEB
    ├───LR1
    ├───LR2
    ├───LR3
    └───LR4
```

Создание репозитория:

```
PS C:\Users\user\253503_Sugako_23> git init
Initialized empty Git repository in C:/Users/user/253503_Sugako_23/.git/
```

```
PS C:\Users\user\253503_Sugako_23> git init
Initialized empty Git repository in C:/Users/user/253503_Sugako_23/.git/PS C:\Users\user\25350
3_Sugako_23> git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        IGI/

nothing added to commit but untracked files present (use "git add" to track)
```

3. *Создайте репозиторий внутри папки LR1 с помощью клонирования проекта с сайта github.com (https://github.com/smartiqaorg/geometric_lib)*

```
PS C:\Users\user\253503_Sugako_23\IGI\LR1> git clone https://github.com/smartiqaorg/geometric_lib
Cloning into 'geometric_lib'...
remote: Enumerating objects: 35, done.
remote: Total 35 (delta 0), reused 0 (delta 0), pack-reused 35
Receiving objects: 100% (35/35), 4.60 KiB | 2.30 MiB/s, done.
Resolving deltas: 100% (6/6), done.
```

4. *Выполните следующие действия, каждый раз проверяя состояние файлов в локальном репозитории до и после выполнения операции:*

a. сделать индексацию нескольких файлов в вашем Git-репозитории (git add …)

```
PS C:\Users\user\253503_Sugako_23> git status
On branch main

No commits yet

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        IGI/

nothing added to commit but untracked files present (use "git add" to track)
PS C:\Users\user\253503_Sugako_23> git add .
warning: adding embedded git repository: IGI/LR1/geometric_lib
hint: You've added another git repository inside your current repository.
hint: Clones of the outer repository will not contain the contents of
hint: the embedded repository and will not know how to obtain it.
hint: If you meant to add a submodule, use:
hint:
hint:   git submodule add <url> IGI/LR1/geometric_lib
hint:
hint: If you added this path by mistake, you can remove it from the
hint: index with:
hint:
hint:   git rm --cached IGI/LR1/geometric_lib
hint:
hint: See "git help submodule" for more information.
PS C:\Users\user\253503_Sugako_23> git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   IGI/LR1/foo/baz/bin/foo/readme.txt
        new file:   IGI/LR1/foo/baz/bin/foo/test.txt
        new file:   IGI/LR1/geometric_lib
        new file:   IGI/LR1/tree.txt
```

b. внесите изменения в файлы

```
PS C:\Users\user\253503_Sugako_23> echo "hello git" > IGI/LR1/foo/baz/bin/foo/readme.txt
PS C:\Users\user\253503_Sugako_23> cat IGI/LR1/foo/baz/bin/foo/readme.txt
hello git
PS C:\Users\user\253503_Sugako_23> git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   IGI/LR1/foo/baz/bin/foo/readme.txt
        new file:   IGI/LR1/foo/baz/bin/foo/test.txt
        new file:   IGI/LR1/geometric_lib
        new file:   IGI/LR1/tree.txt

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:   IGI/LR1/foo/baz/bin/foo/readme.txt
```

c. выполните коммиты к проиндексированным файлам

```
PS C:\Users\user\253503_Sugako_23> git commit -a -m "File change"
[main (root-commit) 98dedbe] File change
 4 files changed, 1 insertion(+)
 create mode 100644 IGI/LR1/foo/baz/bin/foo/readme.txt
 create mode 100644 IGI/LR1/foo/baz/bin/foo/test.txt
 create mode 160000 IGI/LR1/geometric_lib
 create mode 100644 IGI/LR1/tree.txt
```

```
PS C:\Users\user\253503_Sugako_23> git status
On branch main
nothing to commit, working tree clean
```

d. добавьте и удалите файлы (один и группу файлов с определенным расширением)

```
PS C:\Users\user\253503_Sugako_23> ls

    Каталог: C:\Users\user\253503_Sugako_23


----                -------------        ------ ----
d-----        11.02.2024     15:21              IGI
d-----        11.02.2024     15:23              STRWEB
```

```
PS C:\Users\user\253503_Sugako_23> echo > 1.txt

Командлет Write-Output в конвейере команд в позиции 1
Укажите значения для следующих параметров:
InputObject[0]:
```

```
PS C:\Users\user\253503_Sugako_23> echo > 2.txt

Командлет Write-Output в конвейере команд в позиции 1
Укажите значения для следующих параметров:
InputObject[0]:
PS C:\Users\user\253503_Sugako_23> echo > 3.mw

Командлет Write-Output в конвейере команд в позиции 1
Укажите значения для следующих параметров:
InputObject[0]:
PS C:\Users\user\253503_Sugako_23> echo > 4.mw

Командлет Write-Output в конвейере команд в позиции 1
Укажите значения для следующих параметров:
InputObject[0]:
PS C:\Users\user\253503_Sugako_23> ls


    Каталог: C:\Users\user\253503_Sugako_23


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        11.02.2024     15:21                IGI
d-----        11.02.2024     15:23                STRWEB
-a----        24.02.2024     22:09              0 1.txt
-a----        24.02.2024     22:09              0 2.txt
-a----        24.02.2024     22:09              0 3.mw
-a----        24.02.2024     22:10              0 4.mw
```

```
PS C:\Users\user\253503_Sugako_23> rm *.txt
PS C:\Users\user\253503_Sugako_23> ls


    Каталог: C:\Users\user\253503_Sugako_23


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        11.02.2024     15:21                IGI
d-----        11.02.2024     15:23                STRWEB
-a----        24.02.2024     22:09              0 3.mw
-a----        24.02.2024     22:10              0 4.mw


PS C:\Users\user\253503_Sugako_23> rm 3.mw
PS C:\Users\user\253503_Sugako_23> ls


    Каталог: C:\Users\user\253503_Sugako_23


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        11.02.2024     15:21                IGI
d-----        11.02.2024     15:23                STRWEB
-a----        24.02.2024     22:10              0 4.mw
```

e. переименуйте файлы

```
PS C:\Users\user\253503_Sugako_23> mv 4.mw 5.mw
PS C:\Users\user\253503_Sugako_23> ls


    Каталог: C:\Users\user\253503_Sugako_23


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        11.02.2024     15:21                IGI
d-----        11.02.2024     15:23                STRWEB
-a----        24.02.2024     22:10              0 5.mw
```

f. создайте для IGI и STRWEB, а также для каждой ЛР, вложенной в них, <u>отдельные ветки</u>, переместите папки и файлы на соответствующие ветки

```
PS C:\Users\user\253503_Sugako_23> git branch
* main
```

```
PS C:\Users\user\253503_Sugako_23> git add .
PS C:\Users\user\253503_Sugako_23> git commit -m "add readme files"
[main 4359aba] add readme files
 8 files changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 IGI/LR2/readme.txt
 create mode 100644 IGI/LR3/readme.txt
 create mode 100644 IGI/LR4/readme.txt
 create mode 100644 IGI/LR5/readme.txt
 create mode 100644 STRWEB/LR1/readme.txt
 create mode 100644 STRWEB/LR2/readme.txt
 create mode 100644 STRWEB/LR3/readme.txt
 create mode 100644 STRWEB/LR4/readme.txt
```

IGI:

```
PS C:\Users\user\253503_Sugako_23> git checkout -b IGI
Switched to a new branch 'IGI'
PS C:\Users\user\253503_Sugako_23> git rm -r STRWEB
rm 'STRWEB/LR1/readme.txt'
rm 'STRWEB/LR2/readme.txt'
rm 'STRWEB/LR3/readme.txt'
rm 'STRWEB/LR4/readme.txt'
```

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR1/foo/baz/bin/foo/readme.txt
IGI/LR1/foo/baz/bin/foo/test.txt
IGI/LR1/geometric_lib
IGI/LR1/tree.txt
IGI/LR2/readme.txt
IGI/LR3/readme.txt
IGI/LR4/readme.txt
IGI/LR5/readme.txt
```

IGI_LR1:

```
PS C:\Users\user\253503_Sugako_23> git checkout -b IGI_LR1
Switched to a new branch 'IGI_LR1'
```

```
PS C:\Users\user\253503_Sugako_23> git rm -r IGI/LR2/ IGI/LR3/ IGI/LR4
/ IGI/LR5/
rm 'IGI/LR2/readme.txt'
rm 'IGI/LR3/readme.txt'
rm 'IGI/LR4/readme.txt'
rm 'IGI/LR5/readme.txt'
```

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR1/foo/baz/bin/foo/readme.txt
IGI/LR1/foo/baz/bin/foo/test.txt
IGI/LR1/geometric_lib
IGI/LR1/tree.txt
```

```
PS C:\Users\user\253503_Sugako_23> git commit -m "IGI_LR1 branch init"

[IGI_LR1 90466ab] IGI_LR1 branch init
 4 files changed, 0 insertions(+), 0 deletions(-)
 delete mode 100644 IGI/LR2/readme.txt
 delete mode 100644 IGI/LR3/readme.txt
 delete mode 100644 IGI/LR4/readme.txt
 delete mode 100644 IGI/LR5/readme.txt
```

IGI_LR2:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR2/readme.txt
```

IGI_LR3:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR3/readme.txt
```

IGI_LR4:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR4/readme.txt
```

IGI_LR5:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
IGI/LR5/readme.txt
```

STRWEB:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
STRWEB/LR1/readme.txt
STRWEB/LR2/readme.txt
STRWEB/LR3/readme.txt
STRWEB/LR4/readme.txt
```

STRWEB_LR1:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
STRWEB/LR1/readme.txt
```

STRWEB_LR2:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
STRWEB/LR2/readme.txt
```

STRWEB_LR3:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
STRWEB/LR3/readme.txt
```

STRWEB_LR4:

```
PS C:\Users\user\253503_Sugako_23> git ls-files
STRWEB/LR4/readme.txt
```

Итог:

```
PS C:\Users\user\253503_Sugako_23> git branch
  IGI
  IGI_LR1
  IGI_LR2
  IGI_LR3
  IGI_LR4
  IGI_LR5
  STRWEB
  STRWEB_LR1
  STRWEB_LR2
  STRWEB_LR3
  STRWEB_LR4
```

g. выведите историю коммитов: полностью и с ограничением вывода – отобрать только последние, до и после указанной даты, по автору файлов, коммитов (флаги n, since, after, until, before, author, committer, grep) https://code.mu/ru/tool/git/basis/limit-output-commit-history-flags/

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

n:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline -3
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
```

since:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --since="2024-02-23"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

after:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --after="2024-02-23"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

until:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --until="2024-02-25"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

before:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --before="2024-02-25"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

author:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --author="Sugako_Tatyana"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba (HEAD -> main) add readme files
* 98dedbe File change
```

grep:

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline --grep="STRWEB"
* 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
|/
| * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
|/
| * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
|/
* 53c6b53 (STRWEB) STRWEB Init
```

h. исследуйте флаги для git log: p , stat ,shortstat, name-only, name-status,
    relative-date, pretty, graph
    p:

```
PS C:\Users\user\253503_Sugako_23> git log -p
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sun Feb 25 13:19:23 2024 +0300

    add readme files

diff --git a/IGI/LR2/readme.txt b/IGI/LR2/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/IGI/LR3/readme.txt b/IGI/LR3/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/IGI/LR4/readme.txt b/IGI/LR4/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/IGI/LR5/readme.txt b/IGI/LR5/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/STRWEB/LR1/readme.txt b/STRWEB/LR1/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/STRWEB/LR2/readme.txt b/STRWEB/LR2/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/STRWEB/LR3/readme.txt b/STRWEB/LR3/readme.txt
new file mode 100644
index 0000000..e69de29
diff --git a/STRWEB/LR4/readme.txt b/STRWEB/LR4/readme.txt
new file mode 100644
index 0000000..e69de29

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sat Feb 24 22:01:09 2024 +0300

    File change
```

```
diff --git a/IGI/LR1/foo/baz/bin/foo/readme.txt b/IGI/LR1/foo/baz/bin/foo/readme.txt
new file mode 100644
index 0000000..239f218
Binary files /dev/null and b/IGI/LR1/foo/baz/bin/foo/readme.txt differ
diff --git a/IGI/LR1/foo/baz/bin/foo/test.txt b/IGI/LR1/foo/baz/bin/foo/test.txt
new file mode 100644
index 0000000..acbd0b4
Binary files /dev/null and b/IGI/LR1/foo/baz/bin/foo/test.txt differ
diff --git a/IGI/LR1/geometric_lib b/IGI/LR1/geometric_lib
new file mode 160000
index 0000000..d078c8d
--- /dev/null
+++ b/IGI/LR1/geometric_lib
@@ -0,0 +1 @@
+Subproject commit d078c8d9ee6155f3cb0e577d28d337b791de28e2
diff --git a/IGI/LR1/tree.txt b/IGI/LR1/tree.txt
new file mode 100644
index 0000000..df475ce
Binary files /dev/null and b/IGI/LR1/tree.txt differ
```

stat:

```
PS C:\Users\user\253503_Sugako_23> git log --stat
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sun Feb 25 13:19:23 2024 +0300

    add readme files

 IGI/LR2/readme.txt     | 0
 IGI/LR3/readme.txt     | 0
 IGI/LR4/readme.txt     | 0
 IGI/LR5/readme.txt     | 0
 STRWEB/LR1/readme.txt | 0
 STRWEB/LR2/readme.txt | 0
 STRWEB/LR3/readme.txt | 0
 STRWEB/LR4/readme.txt | 0
 8 files changed, 0 insertions(+), 0 deletions(-)

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sat Feb 24 22:01:09 2024 +0300

    File change

 IGI/LR1/foo/baz/bin/foo/readme.txt | Bin 0 -> 24 bytes
 IGI/LR1/foo/baz/bin/foo/test.txt   | Bin 0 -> 12 bytes
 IGI/LR1/geometric_lib              |   1 +
 IGI/LR1/tree.txt                   | Bin 0 -> 12 bytes
 4 files changed, 1 insertion(+)
```

shortstat:

```
PS C:\Users\user\253503_Sugako_23> git log --shortstat
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sun Feb 25 13:19:23 2024 +0300

    add readme files

 8 files changed, 0 insertions(+), 0 deletions(-)

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:   Sat Feb 24 22:01:09 2024 +0300

    File change

 4 files changed, 1 insertion(+)
```

name-only:

```
PS C:\Users\user\253503_Sugako_23> git log --name-only
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    Sun Feb 25 13:19:23 2024 +0300

    add readme files

IGI/LR2/readme.txt
IGI/LR3/readme.txt
IGI/LR4/readme.txt
IGI/LR5/readme.txt
STRWEB/LR1/readme.txt
STRWEB/LR2/readme.txt
STRWEB/LR3/readme.txt
STRWEB/LR4/readme.txt

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    Sat Feb 24 22:01:09 2024 +0300

    File change

IGI/LR1/foo/baz/bin/foo/readme.txt
IGI/LR1/foo/baz/bin/foo/test.txt
IGI/LR1/geometric_lib
IGI/LR1/tree.txt
```

name-status:

```
PS C:\Users\user\253503_Sugako_23> git log --name-status
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    Sun Feb 25 13:19:23 2024 +0300

    add readme files

A       IGI/LR2/readme.txt
A       IGI/LR3/readme.txt
A       IGI/LR4/readme.txt
A       IGI/LR5/readme.txt
A       STRWEB/LR1/readme.txt
A       STRWEB/LR2/readme.txt
A       STRWEB/LR3/readme.txt
A       STRWEB/LR4/readme.txt

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    Sat Feb 24 22:01:09 2024 +0300

    File change

A       IGI/LR1/foo/baz/bin/foo/readme.txt
A       IGI/LR1/foo/baz/bin/foo/test.txt
A       IGI/LR1/geometric_lib
A       IGI/LR1/tree.txt
```

relative-date:

```
PS C:\Users\user\253503_Sugako_23> git log --relative-date
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    3 hours ago

    add readme files

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Date:    19 hours ago

    File change
```

pretty:

```
PS C:\Users\user\253503_Sugako_23> git log --pretty=oneline
4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main) add readme files
98dedbec4d9364ad78b9a32c28ffd232a252c174 File change
```

```
PS C:\Users\user\253503_Sugako_23> git log --pretty=short
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>

    add readme files

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>

    File change
```

```
PS C:\Users\user\253503_Sugako_23> git log --pretty=full
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author: Sugako_Tatyana <thoosa@mail.ru>
Commit: Sugako_Tatyana <thoosa@mail.ru>

    add readme files

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author: Sugako_Tatyana <thoosa@mail.ru>
Commit: Sugako_Tatyana <thoosa@mail.ru>

    File change
```

```
PS C:\Users\user\253503_Sugako_23> git log --pretty=fuller
commit 4359abaf84580f0b9db7a2fd21dd5bfcd23a904f (HEAD -> main)
Author:     Sugako_Tatyana <thoosa@mail.ru>
AuthorDate: Sun Feb 25 13:19:23 2024 +0300
Commit:     Sugako_Tatyana <thoosa@mail.ru>
CommitDate: Sun Feb 25 13:19:23 2024 +0300

    add readme files

commit 98dedbec4d9364ad78b9a32c28ffd232a252c174
Author:     Sugako_Tatyana <thoosa@mail.ru>
AuthorDate: Sat Feb 24 22:01:09 2024 +0300
Commit:     Sugako_Tatyana <thoosa@mail.ru>
CommitDate: Sat Feb 24 22:01:09 2024 +0300

    File change
```

graph:

i. найдите разницу в изменениях для каждого коммита

j. создайте новый файл test.txt и вставьте в него строчку 'номер варианта'. затем сделайте коммит и отмените его

```
PS C:\Users\user\253503_Sugako_23> git add .
PS C:\Users\user\253503_Sugako_23> git commit -a -m "add text.txt"
[main 542a402] add text.txt
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 text.txt
```

```
PS C:\Users\user\253503_Sugako_23> git revert HEAD
hint: Waiting for your editor to close the file... unix2dos: converting file C:/Users/user/253
503_Sugako_23/.git/COMMIT_EDITMSG to DOS format...
dos2unix: converting file C:/Users/user/253503_Sugako_23/.git/COMMIT_EDITMSG to Unix format...
[main b2ffbe5] Revert "add text.txt"
 1 file changed, 0 insertions(+), 0 deletions(-)
 delete mode 100644 text.txt
```

k. проиндексируйте файл в вашем Git-репозитории, затем отмените его индексацию

```
PS C:\Users\user\253503_Sugako_23> echo > file.txt

Командлет Write-Output в конвейере команд в позиции 1
Укажите значения для следующих параметров:
InputObject[0]:
PS C:\Users\user\253503_Sugako_23> git add .
PS C:\Users\user\253503_Sugako_23> git status
On branch main
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   file.txt
```

```
PS C:\Users\user\253503_Sugako_23> git restore --staged .
PS C:\Users\user\253503_Sugako_23> git status
On branch main
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        file.txt

nothing added to commit but untracked files present (use "git add" to track)
```

l. внесите изменения в файл в вашем Git-репозитории и затем верните его в исходное состояние.

```
PS C:\Users\user\253503_Sugako_23\IGI\LR1> echo "HELLO GIIIIT" > readme.txt
PS C:\Users\user\253503_Sugako_23\IGI\LR1> git status
```

```
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   readme.txt
```
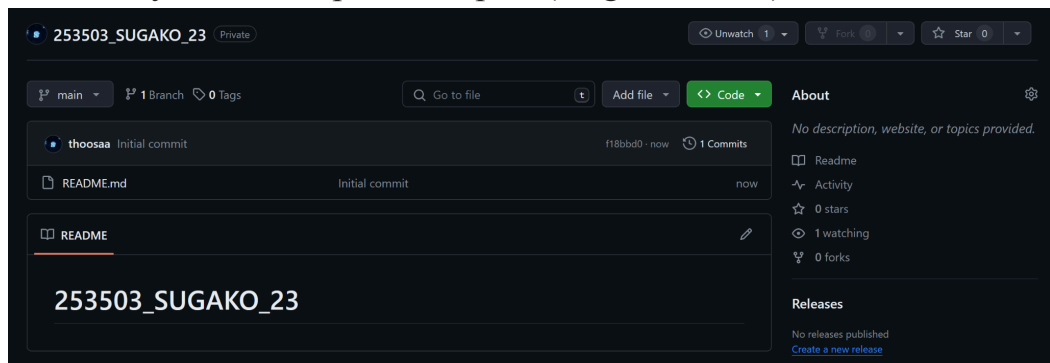
```
PS C:\Users\user\253503_Sugako_23\IGI\LR1> git restore .
PS C:\Users\user\253503_Sugako_23\IGI\LR1> git status
On branch main
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   readme.txt


PS C:\Users\user\253503_Sugako_23\IGI\LR1> cat readme.txt
HELLO GIT
```

5. *Выполните следующие действия с удаленным репозиторием:*
   a. создайте удаленный репозиторий (на github.com)

   b. просмотрите информацию о нем, внесите изменения и опять просмотрите (remote, fetch).

```
PS C:\Users\user\253503_Sugako_23> git remote add origin https://github.com/
thoosaa/253503_SUGAKO_23
PS C:\Users\user\253503_Sugako_23> git remote
origin
PS C:\Users\user\253503_Sugako_23> git fetch
From https://github.com/thoosaa/253503_SUGAKO_23
 * [new branch]      main         -> origin/main
PS C:\Users\user\253503_Sugako_23> git add .
PS C:\Users\user\253503_Sugako_23> git commit -a -m "LR1 readme.txt"
[main 6a28e45] LR1 readme.txt
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 IGI/LR1/readme.txt
```

```
PS C:\Users\user\253503_Sugako_23> git push -f origin main
Enumerating objects: 26, done.
Counting objects: 100% (26/26), done.
Delta compression using up to 12 threads
Compressing objects: 100% (14/14), done.
Writing objects: 100% (26/26), 1.72 KiB | 293.00 KiB/s, done.
Total 26 (delta 5), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (5/5), done.
To https://github.com/thoosaa/253503_SUGAKO_23
 + f18bbd0...6a28e45 main -> main (forced update)
```

   c. измените несколько файлов в вашем проекте и перенесите их в удаленный репозиторий

```
PS C:\Users\user\253503_Sugako_23> echo "IGI LAB 1" > IGI\LR1\readme.txt
PS C:\Users\user\253503_Sugako_23> echo "IGI LAB 2" > IGI\LR2\readme.txt
PS C:\Users\user\253503_Sugako_23> git add .
PS C:\Users\user\253503_Sugako_23> git commit -a -m "lab 1 2 readme.txt chan
ged"
[main 6f2afb5] lab 1 2 readme.txt changed
 2 files changed, 0 insertions(+), 0 deletions(-)
PS C:\Users\user\253503_Sugako_23> git status
On branch main
nothing to commit, working tree clean
PS C:\Users\user\253503_Sugako_23> git push origin main
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (7/7), 542 bytes | 271.00 KiB/s, done.
Total 7 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/thoosaa/253503_SUGAKO_23
   6a28e45..6f2afb5  main -> main
```

d. переименуйте свой удаленный репозиторий

```
PS C:\Users\user\253503_Sugako_23> git remote rename origin orig
Renaming remote references: 100% (1/1), done.
PS C:\Users\user\253503_Sugako_23> git remote
orig
```

e. получите данные из удаленного репозитория
добавили файл в самом гитхабе

Name	Last commit message	Last commit date
📁 IGI	lab 1 2 readme.txt changed	12 minutes ago
📁 STRWEB	add readme files	5 hours ago
📄 README.md	Create README.md	now

README.md

253503 SUGAKO TATYANA 23

```
PS C:\Users\user\253503_Sugako_23> git pull orig main
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 1019 bytes | 84.00 KiB/s, done.
From https://github.com/thoosaa/253503_SUGAKO_23
 * branch            main       -> FETCH_HEAD
   6f2afb5..519f5ca  main       -> orig/main
Updating 6f2afb5..519f5ca
Fast-forward
 README.md | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
```

f. просмотреть историю изменений

```
PS C:\Users\user\253503_Sugako_23> git log --all --graph --oneline
* 519f5ca (HEAD -> main, orig/main) Create README.md
* 6f2afb5 lab 1 2 readme.txt changed
* 6a28e45 LR1 readme.txt
* b2ffbe5 Revert "add text.txt"
* 542a402 add text.txt
| * 9004b57 (STRWEB_LR4) STRWEB_LR4 Init
| | * 1623808 (STRWEB_LR3) STRWEB_LR3 Init
| |/
| | * 521fc5d (STRWEB_LR2) STRWEB_LR2 Init
| |/
| | * 378d7c8 (STRWEB_LR1) STRWEB_LR1 Init
| |/
| * 53c6b53 (STRWEB) STRWEB Init
|/
| * 59a4a55 (IGI_LR5) IGI_LR5 Init
| | * 712ae72 (IGI_LR4) IGI_LR4 Init
| |/
| | * 5b74c43 (IGI_LR3) IRI_LR3 Init
| |/
| | * c1127e6 (IGI_LR2) IGI_LR2 Init
| |/
| | * 90466ab (IGI_LR1) IGI_LR1 branch init
| |/
| * 1846550 (IGI) IGI branch init
|/
* 4359aba add readme files
* 98dedbe File change
```