

Министерство образования Республики Беларусь
Учреждение образования
БЕЛОРУССКИЙ ГОСУДАРСТВЕННЫЙ УНИВЕРСИТЕТ
ИНФОРМАТИКИ И РАДИОЭЛЕКТРОНИКИ

Факультет компьютерных систем и сетей
Кафедра информатики
Дисциплина: Избранные главы информатики

ОТЧЁТ
к лабораторной работе 1
на тему

Система контроля версий Git

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Вариант 4

Цель работы

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

Ход работы

1) Подготовьте рабочее окружение в соответствии с типом вашей операционной системы.

```
[main@acdlvv ~]$ git config --global init.defaultBranch main
```

```
[main@acdlvv ~]$ git config --global user.email "yungggblessed@gmail.com"
[main@acdlvv ~]$ git config --global user.name "acdlvv"
[main@acdlvv ~]$
```

2) Создайте структуру папок (использовать командную строку) и поместите в репозиторий Git на своем локальном компьютере.

```
[main@acdlvv ~]$ mkdir 253501_borisevich_4
[main@acdlvv ~]$ cd 253501_borisevich_4
[main@acdlvv 253501_borisevich_4]$ mkdir igl
[main@acdlvv 253501_borisevich_4]$ mkdir strweb
[main@acdlvv 253501_borisevich_4]$ mkdir igl/lr{1..5}
[main@acdlvv 253501_borisevich_4]$ mkdir strweb/lr{1..4}
[main@acdlvv 253501_borisevich_4]$ tree
.
├── igl
│   ├── lr1
│   ├── lr2
│   ├── lr3
│   ├── lr4
│   └── lr5
└── strweb
    ├── lr1
    ├── lr2
    ├── lr3
    └── lr4

12 directories, 0 files
[main@acdlvv 253501_borisevich_4]$ cd igl/lr1
[main@acdlvv lr1]$ mkdir bar bar/755
[main@acdlvv lr1]$ cd bar
[main@acdlvv bar]$ mkdir baz baz/744
[main@acdlvv bar]$ cd baz
[main@acdlvv baz]$ mkdir bin bin/177 example example/555 foo foo/711
[main@acdlvv baz]$ cd foo
[main@acdlvv foo]$ mkdir cp cp/444
[main@acdlvv foo]$ echo 777 > test.txt\
```

- 3) Создайте репозиторий внутри папки LR1 с помощью клонирования проекта с сайта github.com.

```
[main@acd1vv 1g1]$ cd lr1
[main@acd1vv lr1]$ git clone https://github.com/smart1qaorg/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 | 4.60 MiB/s, done.
Resolving deltas: 100% (6/6), done.
[main@acd1vv lr1]$ cd geometric_lib
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
```

- 4) Сделайте индексацию нескольких файлов в вашем Git-репозитории (git add ...).

```
[main@acd1vv geometric_lib]$ touch fl{1..3}.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    fl1.txt
    fl2.txt
    fl3.txt

nothing added to commit but untracked files present (use "git add" to track)
[main@acd1vv geometric_lib]$ git add fl1.txt fl2.txt fl3.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    new file:   fl1.txt
    new file:   fl2.txt
    new file:   fl3.txt
```

- 5) Внесите изменения в файлы.

```
[main@acdlvv geometric_lib]$ echo 1 > fl1.txt
[main@acdlvv geometric_lib]$ echo 2 > fl2.txt
[main@acdlvv geometric_lib]$ echo 3 > fl3.txt
```

- 6) Выполните коммиты к проиндексированным файлам.

```
[main@acdlvv geometric_lib]$ git commit -m "added 3 new files"
[main 8c4cb26] added 3 new files
3 files changed, 0 insertions(+), 0 deletions(-)
create mode 100644 fl1.txt
create mode 100644 fl2.txt
create mode 100644 fl3.txt
[main@acdlvv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)

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:   fl1.txt
        modified:   fl2.txt
        modified:   fl3.txt

no changes added to commit (use "git add" and/or "git commit -a")
[main@acdlvv geometric_lib]$ git commit -am "changing files"
[main 49775b1] changing files
3 files changed, 3 insertions(+)
[main@acdlvv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
```

7) Добавьте и удалите файлы (один и группу файлов с определенным расширением).

```
[main@acd1vv geometric_lib]$ touch file4.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
(use "git push" to publish your local commits)

Untracked files:
  (use "git add <file>..." to include in what will be committed)
  file4.txt

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

```
[main@acd1vv geometric_lib]$ git rm fl2.txt fl3.txt
rm 'fl2.txt'
rm 'fl3.txt'
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 2 commits.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    deleted:   fl2.txt
    deleted:   fl3.txt

Untracked files:
  (use "git add <file>..." to include in what will be committed)
  file4.txt

[main@acd1vv geometric_lib]$ rm file4.txt
[main@acd1vv geometric_lib]$ git commit -am "deleted 2 files"
[main 219d9e9] deleted 2 files
 2 files changed, 2 deletions(-)
 delete mode 100644 fl2.txt
 delete mode 100644 fl3.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 3 commits.
(use "git push" to publish your local commits)

nothing to commit, working tree clean
```

8) Переименуйте файлы.

```

[main@acdlvv geometric_lib]$ mv fl1.txt fl.txt
[main@acdlvv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 3 commits.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        deleted:    fl1.txt

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

no changes added to commit (use "git add" and/or "git commit -a")
[main@acdlvv geometric_lib]$ git add fl.txt
[main@acdlvv geometric_lib]$ git commit -am "renamed file"
[main 21af1f3] renamed file
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename fl1.txt => fl.txt (100%)
[main@acdlvv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 4 commits.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean

```

9) Создайте для IGI и STRWEB, а также для каждой ЛР, вложенной в них, отдельные ветки, переместите папки и файлы на соответствующие ветки (чтобы это реализовать, мне пришлось заполнить конечные для всех папок подпапки файлами filler.txt, чтобы папки сохранялись при коммите).

```

[main@acdlvv geometric_lib]$ cd ../../..
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > strweb/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > strweb/lr1/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > strweb/lr2/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > strweb/lr3/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > strweb/lr4/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/lr1/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/lr2/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/lr3/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/lr4/readme.txt
[main@acdlvv 253501_borisevich_4]$ echo 1 > igi/lr5/readme.txt
[main@acdlvv 253501_borisevich_4]$ git init
Initialized empty Git repository in /home/main/253501_borisevich_4/.git/

```



```

[main@acd1vv 253501_borisevich_4]$ git status
On branch main

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   igi/lr1/bar/baz/foo/test.txt
    new file:   igi/lr1/bar/baz/readme.txt
    new file:   igi/lr1/geometric_lib
    new file:   igi/lr1/readme.txt
    new file:   igi/lr2/readme.txt
    new file:   igi/lr3/readme.txt
    new file:   igi/lr4/readme.txt
    new file:   igi/lr5/readme.txt
    new file:   igi/readme.txt
    new file:   strweb/lr1/readme.txt
    new file:   strweb/lr2/readme.txt
    new file:   strweb/lr3/readme.txt
    new file:   strweb/lr4/readme.txt
    new file:   strweb/readme.txt

[main@acd1vv 253501_borisevich_4]$ git commit -m "all files"
[main (root-commit) 6dafb0d] all files
14 files changed, 14 insertions(+)
create mode 100644 igi/lr1/bar/baz/foo/test.txt
create mode 100644 igi/lr1/bar/baz/readme.txt
create mode 160000 igi/lr1/geometric_lib
create mode 100644 igi/lr1/readme.txt
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 igi/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
create mode 100644 strweb/readme.txt

```

```

[main@acdlvv igi]$ git checkout -b igilr4
Switched to a new branch 'igilr4'
[main@acdlvv igi]$ rm -rf lr1 lr2 lr3 lr5
[main@acdlvv igi]$ git commit -am "igi lr4"
[igilr4 f68f191] igi lr4
7 files changed, 7 deletions(-)
delete mode 100644 igi/lr1/bar/baz/foo/test.txt
delete mode 100644 igi/lr1/bar/baz/readme.txt
delete mode 160000 igi/lr1/geometric_lib
delete mode 100644 igi/lr1/readme.txt
delete mode 100644 igi/lr2/readme.txt
delete mode 100644 igi/lr3/readme.txt
delete mode 100644 igi/lr5/readme.txt
[main@acdlvv igi]$ git checkout igi
Switched to branch 'igi'
[main@acdlvv igi]$ git checkout -b igilr5
Switched to a new branch 'igilr5'
[main@acdlvv igi]$ rm -rf lr1 lr2 lr3 lr4
[main@acdlvv igi]$ git commit -am "igi lr5"
[igilr5 baabd72] igi lr5
7 files changed, 7 deletions(-)
delete mode 100644 igi/lr1/bar/baz/foo/test.txt
delete mode 100644 igi/lr1/bar/baz/readme.txt
delete mode 160000 igi/lr1/geometric_lib
delete mode 100644 igi/lr1/readme.txt
delete mode 100644 igi/lr2/readme.txt
delete mode 100644 igi/lr3/readme.txt
delete mode 100644 igi/lr4/readme.txt

```

```

[main@acdlvv strweb]$ git branch
error: cannot run less: No such file or directory
igi
igilr1
igilr2
igilr3
igilr4
igilr5
* main
sw
swlr1
swlr2
swlr3
swlr4

```

10) Выведите историю коммитов: полностью и с ограничением вывода – отобразить только последние, до и после указанной даты, по автору файлов, коммитов (флаги n, since, after, until, before, author, committer, grep).

```
[main@acd1vv geometric_lib]$ git log
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added
[main@acd1vv geometric_lib]$ git log -2
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added
[main@acd1vv geometric_lib]$ git log --since="2024-02-02"
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file
```

```

[main@acd1vv geometric_lib]$ git log --until="2024-02-02"
error: cannot run less: No such file or directory
commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

[main@acd1vv geometric_lib]$ git log --author="acd1vv"
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

[main@acd1vv geometric_lib]$ git log --committer="smartika"
error: cannot run less: No such file or directory
commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

```

```

[main@acd1vv geometric_lib]$ git log --grep "added"
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

```

```
[main@acd1vv geometric_lib]$ git log -p
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

diff --git a/yyy.txt b/yyy.txt
new file mode 100644
index 0000000..e69de29

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

diff --git a/docs/README.md b/docs/README.md
new file mode 100644
index 0000000..63f8727
--- /dev/null
+++ b/docs/README.md
@@ -0,0 +1,10 @@
+# Math formulas
+## Area
+- Circle:  $S = \pi R^2$ 
+- Rectangle:  $S = ab$ 
+- Square:  $S = a^2$ 
+
+## Perimeter
+- Circle:  $P = 2\pi R$ 
+- Rectangle:  $P = 2a + 2b$ 
+- Square:  $P = 4a$ 
\ No newline at end of file
```

```
commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300
```

```
    L-03: Circle and square added

diff --git a/circle.py b/circle.py
new file mode 100644
index 0000000..c3eb864
--- /dev/null
+++ b/circle.py
@@ -0,0 +1,10 @@
+import math
+
+def area(r):
+    return math.pi * r * r
+
+def perimeter(r):
+    return 2 * math.pi * r
diff --git a/square.py b/square.py
new file mode 100644
index 0000000..0f98724
--- /dev/null
+++ b/square.py
@@ -0,0 +1,7 @@
+def area(a):
+    return a * a
+
+def perimeter(a):
+    return 4 * a
```

```

[main@acd1vv geometric_lib]$ git log --stat
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

yyy.txt | 0
1 file changed, 0 insertions(+), 0 deletions(-)

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

docs/README.md | 10 ++++++++
1 file changed, 10 insertions(+)

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

circle.py | 10 ++++++++
square.py | 7 +++++
2 files changed, 17 insertions(+)

```

```

[main@acd1vv geometric_lib]$ git log --shortstat
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

1 file changed, 0 insertions(+), 0 deletions(-)

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

1 file changed, 10 insertions(+)

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smartika <info@smartika.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

2 files changed, 17 insertions(+)

```

```

[main@acd1vv geometric_lib]$ git log --name-only
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

yyy.txt

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

docs/README.md

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

circle.py
square.py

```

```

[main@acd1vv geometric_lib]$ git log --name-status
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

A      yyy.txt

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

A      docs/README.md

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

A      circle.py
A      square.py

```

```

[main@acd1vv geometric_lib]$ git log --relative-date
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggbblessed@gmail.com>
Date: 8 minutes ago

    added file

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: 3 years ago

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smart1qa <info@smart1qa.ru>
Date: 3 years ago

    L-03: Circle and square added

```

```

[main@acd1vv geometric_lib]$ git log --graph
error: cannot run less: No such file or directory
* commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
  Author: acd1vv <yunggblessed@gmail.com>
  Date:   Mon Feb 19 22:47:45 2024 +0300

    added file

* commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
  Author: smart1qa <info@smart1qa.ru>
  Date:   Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

* commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
  Author: smart1qa <info@smart1qa.ru>
  Date:   Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added
[main@acd1vv geometric_lib]$ git log --pretty=oneline
error: cannot run less: No such file or directory
304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main) added file
d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD) L-03: Docs added
8ba9aeb3cea847b63a91ac378a2a6db758682460 L-03: Circle and square added

```

11) Найдите разницу в изменениях для каждого коммита.

```

[main@acd1vv geometric_lib]$ git diff 8ba9aeb3 d078c8d9
error: cannot run less: No such file or directory
diff --git a/docs/README.md b/docs/README.md
new file mode 100644
index 0000000..63f8727
--- /dev/null
+++ b/docs/README.md
@@ -0,0 +1,10 @@
+# Math formulas
+## Area
+- Circle:  $S = \pi R^2$ 
+- Rectangle:  $S = ab$ 
+- Square:  $S = a^2$ 
+
+## Perimeter
+- Circle:  $P = 2\pi R$ 
+- Rectangle:  $P = 2a + 2b$ 
+- Square:  $P = 4a$ 
\ No newline at end of file

```

12) Создайте новый файл test.txt и вставьте в него строчку 'номер варианта'. Затем сделайте коммит и отмените его.


```

[main@acd1vv geometric_lib]$ echo 4 > test.txt
[main@acd1vv geometric_lib]$ git add test.txt
[main@acd1vv geometric_lib]$ git commit -am "added test.txt"
[main 106c0fc] added test.txt
1 file changed, 1 insertion(+)
create mode 100644 test.txt
[main@acd1vv geometric_lib]$ git reset HEAD^
[main@acd1vv geometric_lib]$ git log
error: cannot run less: No such file or directory
commit 304042f0bd501b9b6831e6bd4901421be9a314b0 (HEAD -> main)
Author: acd1vv <yungggblessed@gmail.com>
Date: Mon Feb 19 22:47:45 2024 +0300

    added file

commit d078c8d9ee6155f3cb0e577d28d337b791de28e2 (origin/main, origin/HEAD)
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:55:29 2021 +0300

    L-03: Docs added

commit 8ba9aeb3cea847b63a91ac378a2a6db758682460
Author: smart1qa <info@smart1qa.ru>
Date: Thu Mar 4 14:54:08 2021 +0300

    L-03: Circle and square added

```

13) Проиндексируйте файл в вашем Git-репозитории, затем отмените его индексацию.

```

[main@acd1vv geometric_lib]$ echo 1 > q.txt
[main@acd1vv geometric_lib]$ git add q.txt

[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   q.txt

[main@acd1vv geometric_lib]$ git reset q.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
(use "git push" to publish your local commits)

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

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

```

14) Внесите изменения в файл в вашем Git-репозитории и затем верните его в исходное состояние.

```

[main@acd1vv geometric_lib]$ echo w > yyy.txt
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

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:   yyy.txt

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

no changes added to commit (use "git add" and/or "git commit -a")

```

```

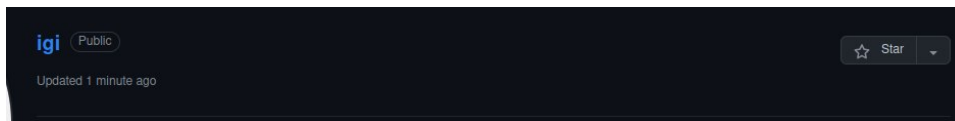
[main@acd1vv geometric_lib]$ git checkout HEAD yyy.txt
Updated 1 path from 1ae9860
[main@acd1vv geometric_lib]$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

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

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

```

15) Создайте удаленный репозиторий (на github.com).



16) Просмотрите информацию о нем, внесите изменения и опять посмотрите (remote, fetch).

```
[main@acd1vv 253501_borisevich_4]$ git remote add origin https://github.com/acd1vvq/igi
[main@acd1vv 253501_borisevich_4]$ git remote -v
origin https://github.com/acd1vvq/igi (fetch)
origin https://github.com/acd1vvq/igi (push)
```

17) Измените несколько файлов в вашем проекте и перенесите их в удаленный репозиторий.

```
[main@acd1vv 253501_borisevich_4]$ git checkout -b rmt
Switched to a new branch 'rmt'
[main@acd1vv 253501_borisevich_4]$ rm -rf strweb
[main@acd1vv 253501_borisevich_4]$ git status
On branch rmt
Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
  (commit or discard the untracked or modified content in submodules)
        modified:   igi/lr1/geometric_lib (new commits, untracked content)
        deleted:    strweb/lr1/readme.txt
        deleted:    strweb/lr2/readme.txt
        deleted:    strweb/lr3/readme.txt
        deleted:    strweb/lr4/readme.txt
        deleted:    strweb/readme.txt

no changes added to commit (use "git add" and/or "git commit -a")
[main@acd1vv 253501_borisevich_4]$ echo "github remote" > igi/readme.txt
[main@acd1vv 253501_borisevich_4]$ git commit -am "only igi"
[rmt c2058b8] only igi
 7 files changed, 2 insertions(+), 7 deletions(-)
 delete mode 100644 strweb/lr1/readme.txt
 delete mode 100644 strweb/lr2/readme.txt
 delete mode 100644 strweb/lr3/readme.txt
 delete mode 100644 strweb/lr4/readme.txt
 delete mode 100644 strweb/readme.txt
```

```
[main@acd1vv 253501_borisevich_4]$ git push -u origin rmt
Username for 'https://github.com': acd1vv
Password for 'https://acd1vvq@github.com':
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 12 threads
Compressing objects: 100% (9/9), done.
Writing objects: 100% (17/17), 1.12 KiB | 1.12 MiB/s, done.
Total 17 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), done.
To https://github.com/acd1vvq/igi
 * [new branch]      rmt -> rmt
branch 'rmt' set up to track 'origin/rmt'.
```

```

[main@acdlvv igi]$ echo hellogit > readme.txt
[main@acdlvv igi]$ cd ..
[main@acdlvv 253501_borisevich_4]$ git status
On branch rmt
Your branch is up to date with 'origin/rmt'.

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)
  (commit or discard the untracked or modified content in submodules)
        modified:   igi/lr1/geometric_lib (untracked content)
        modified:   igi/readme.txt

no changes added to commit (use "git add" and/or "git commit -a")
[main@acdlvv 253501_borisevich_4]$ git commit -am "edited readme.txt"
[rmt 7a09e84] edited readme.txt
 1 file changed, 1 insertion(+), 1 deletion(-)
[main@acdlvv 253501_borisevich_4]$ git push origin rmt
Username for 'https://github.com': acdlvvq
Password for 'https://acdlvvq@github.com':
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (4/4), 305 bytes | 305.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/acdlvvq/igi
   c2058b8..7a09e84  rmt -> rmt

```

18) Переименуйте свой удаленный репозиторий.

```

[main@acdlvv 253501_borisevich_4]$ git remote set-url origin https://github.com/acdlvvq/igirnmd
[main@acdlvv 253501_borisevich_4]$ git remote -v
origin  https://github.com/acdlvvq/igirnmd (fetch)
origin  https://github.com/acdlvvq/igirnmd (push)

```

19) Получите данные из удаленного репозитория.

```

[main@acdlvv ~]$ mkdir igi
[main@acdlvv ~]$ cd igi
[main@acdlvv igi]$ git init
Initialized empty Git repository in /home/main/igi/.git/
[main@acdlvv igi]$ git remote add origin https://github.com/acdlvvq/igi
[main@acdlvv igi]$ git fetch
remote: Enumerating objects: 21, done.
remote: Counting objects: 100% (21/21), done.
remote: Compressing objects: 100% (8/8), done.
remote: Total 21 (delta 3), reused 21 (delta 3), pack-reused 0
Unpacking objects: 100% (21/21), 1.35 KiB | 689.00 KiB/s, done.
From https://github.com/acdlvvq/igi
 * [new branch]      rmt      -> origin/rmt

```

20) Просмотреть историю изменений.

```
[main@acd1vv ig1]$ git checkout rmt
branch 'rmt' set up to track 'origin/rmt'.
Switched to a new branch 'rmt'
[main@acd1vv ig1]$ git log
error: cannot run less: No such file or directory
commit 7a09e8402ebc08c6b4e04656144136512373d66e (HEAD -> rmt, origin/rmt)
Author: acd1vv <yungggbblessed@gmail.com>
Date: Tue Feb 20 00:00:14 2024 +0300

    edited readme.txt

commit c2058b8d995b187ac45896e95b7cd353717ba97c
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 23:18:01 2024 +0300

    only ig1

commit 6dafb0de76ba61d69502d407a57ce6b97246f2d4
Author: acd1vv <yungggbblessed@gmail.com>
Date: Mon Feb 19 21:57:03 2024 +0300

    all files
```

Вывод

В ходе выполнения данной лабораторной работы я познакомился с возможностями системы контроля версий Git, изучил основные команды по работе с ней, получил практические навыки, работая с локальными и удаленными репозиториями.

