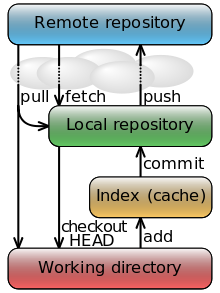
**Lab 1 - Основы работы с системой контроля версий Git**



При сдаче лабораторной необходимо уметь демонстрировать ниже перечисленные возможности Git.

Работа должна вестись из командной строки.

Для слияния конфликтующих изменений можно использовать графические средства.

В качестве удаленного репозитория можно использовать GitHub, BitBucket, ...

1. Создавать Git-репозиторий и добавлять в него файлы

2. Клонировать существующий репозиторий, вносить изменения, просматривать изменения, отменять изменения

3. Просматривать историю изменений, выводить граф изменений

4. Работа с удаленным репозиторием

- получение данных из удаленного репозитория, различия между git fetch и git pull

- сохранение данных в удаленные репозиторий (учитывать сценарий, когда данные в нем были изменены после последнего получения)

5. Создание и работа с бранчами

- создание новой ветки и переключение между ветками

- слияние веток

- разрешение конфликтов при слиянии

- ветки на удаленном репозитории

6. Работа с Git internals

* команды git cat-file -p <hash>, git cat-file -t <hash>
* просмотр содержимого [Commit Objects](https://git-scm.com/book/en/v2/Git-Internals-Git-Objects#Commit-Objects)

### [Tree Objects](https://git-scm.com/book/en/v2/Git-Internals-Git-Objects#Tree-Objects)

1. **$ git init**

Initialized empty Git repository in C:/Users/Sergey/Desktop/Учеба/lab1/.git/

$nano README.md

This is sample readme file

**$ git add README.md**

warning: LF will be replaced by CRLF in README.md.

The file will have its original line endings in your working directory

1. **$ git clone git://github.com/schacon/grit.git**

Cloning into 'grit'...

remote: Enumerating objects: 4051, done.

Receremote: Total 4051 (delta 0), reused 0 (delta 0), pack-reused 4051

Receiving objects: 100% (4051/4051), 2.04 MiB | 3.04 MiB/s, done.

Resolving deltas: 100% (1465/1465), done.

**$ git add grit/**

**$ git status**

On branch master

No commits yet

Changes to be committed:

(use "git rm --cached <file>..." to unstage)

new file: README.md

new file: grit/.gitignore

new file: grit/API.txt

new file: grit/History.txt

new file: grit/LICENSE

new file: grit/PURE\_TODO

new file: grit/README.md

**….**

….

**$git commit -m 'first commit'**

[master (root-commit) 828f77a] first commit

1385 files changed, 15456 insertions(+)

create mode 100644 README.md

create mode 100644 grit/.gitignore

create mode 100644 grit/API.txt

create mode 100644 grit/History.txt

create mode 100644 grit/LICENSE

create mode 100644 grit/PURE\_TODO

create mode 100644 grit/README.md

create mode 100644 grit/Rakefile

…

…

**$ git status**

On branch master

nothing to commit, working tree clean

**$ git revert HEAD**

[master 61d351e] Revert "first commit"

1385 files changed, 15456 deletions(-)

delete mode 100644 README.md

delete mode 100644 grit/.gitignore

delete mode 100644 grit/API.txt

delete mode 100644 grit/History.txt

delete mode 100644 grit/LICENSE

delete mode 100644 grit/PURE\_TODO

delete mode 100644 grit/README.md

delete mode 100644 grit/Rakefile

1. **$ git log -p**

commit 61d351e203f1470bddcdf6b3f7e6302e74c40311 (HEAD -> master)

Author: Git <you@example.com>

Date: Thu Jun 20 00:13:57 2019 +0300

Revert "first commit"

This reverts commit 828f77a66747233f008f1e0b361d73884d650e16.

diff --git a/README.md b/README.md

deleted file mode 100644

index cadd046..0000000

--- a/README.md

+++ /dev/null

@@ -1 +0,0 @@

-This is sample readme file

diff --git a/grit/.gitignore b/grit/.gitignore

deleted file mode 100644

index c06a73d..0000000

--- a/grit/.gitignore

+++ /dev/null

@@ -1,2 +0,0 @@

-pkg

-.DS\_Store

diff --git a/grit/API.txt b/grit/API.txt

deleted file mode 100644

index 01dfb7b..0000000

--- a/grit/API.txt

+++ /dev/null

@@ -1,101 +0,0 @@

**$ git log --graph**

\* commit 61d351e203f1470bddcdf6b3f7e6302e74c40311 (HEAD -> master)

| Author: Git <you@example.com>

| Date: Thu Jun 20 00:13:57 2019 +0300

|

| Revert "first commit"

|

| This reverts commit 828f77a66747233f008f1e0b361d73884d650e16.

|

\* commit 828f77a66747233f008f1e0b361d73884d650e16

Author: Git <you@example.com>

Date: Thu Jun 20 00:11:28 2019 +0300

first commit

1. **$ git remote -v**

origin git://github.com/schacon/grit.git (fetch)

origin git://github.com/schacon/grit.git (push)

**$git remote add pb https://github.com/garnera416/Lab1.git**

**$ git remote -v**

origin https://github.com/garnera416/Lab1.git (fetch)

origin https://github.com/garnera416/Lab1.git (push)

**$ git fetch pb**

warning: no common commits

remote: Enumerating objects: 3, done.

remote: Counting objects: 100% (3/3), done.

remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0

Unpacking objects: 100% (3/3), done.

From https://github.com/garnera416/Lab1

\* [new branch] master -> pb/master

**$ git pull -f pb master --allow-unrelated-histories**

From https://github.com/garnera416/Lab1

\* branch master -> FETCH\_HEAD

Merge made by the 'recursive' strategy.

grit | 1 +

1 file changed, 1 insertion(+)

create mode 160000 grit

**$ git push -f pb master**

Enumerating objects: 1640, done.

Counting objects: 100% (1640/1640), done.

Delta compression using up to 8 threads

Compressing objects: 100% (1604/1604), done.

Writing objects: 100% (1640/1640), 1.66 MiB | 635.00 KiB/s, done.

Total 1640 (delta 16), reused 0 (delta 0)

remote: Resolving deltas: 100% (16/16), done.

To https://github.com/garnera416/Lab1.git

+ a2bda78...77bdd2b master -> master (forced update)

1. **$ git branch demoversion**

**$ git branch**

demoversion

master

**$ git checkout -b demo master**

Previous HEAD position was 97251f8 Merge branch 'master' of https://github.com/garnera416/Lab1 into HEAD

Switched to a new branch 'demo'

**$ nano readmeas**

123

**$ git add readmeas**

**$ git commit -m 't'**

**$ git checkout master**

Switched to branch 'master'

**$ git merge demo**

Updating 77bdd2b..6684586

Fast-forward

readmeas | 1 +

1 file changed, 1 insertion(+)

create mode 100644 readmeas

**$ git push -f pb demo**

Enumerating objects: 4, done.

Counting objects: 100% (4/4), done.

Delta compression using up to 8 threads

Compressing objects: 100% (2/2), done.

Writing objects: 100% (3/3), 264 bytes | 264.00 KiB/s, done.

Total 3 (delta 0), reused 0 (delta 0)

remote:

remote: Create a pull request for 'demo' on GitHub by visiting:

remote: https://github.com/garnera416/Lab1/pull/new/demo

remote:

To https://github.com/garnera416/Lab1.git

\* [new branch] demo -> demo

**$ git push -f pb --delete demo**

To https://github.com/garnera416/Lab1.git

- [deleted] demo

1. **$ git hash-object readmeas**

b4144d2f49eb598d72716fdf01df135a50b71f3d

**$ git cat-file -p b4144d2f49eb598d72716fdf01df135a50b71f3d**

qweqweqwe

**$ git cat-file -t b4144d2f49eb598d72716fdf01df135a50b71f3d**

blob

**$ git cat-file -p master^{tree}**

160000 commit 0bd0c5ff037c7368b2b1827fadc66741d1ed14ed grit

100644 blob b4144d2f49eb598d72716fdf01df135a50b71f3d readmeas

**$ git write-tree**

8e8f7de5f090966502f58f70e59bc6d3b0085303

**$ git cat-file -p 8e8f7de5f090966502f58f70e59bc6d3b0085303**

160000 commit 0bd0c5ff037c7368b2b1827fadc66741d1ed14ed grit

100644 blob b4144d2f49eb598d72716fdf01df135a50b71f3d readmeas

**$ git cat-file -t 8e8f7de5f090966502f58f70e59bc6d3b0085303**

tree

**$ echo 'first commit' | git commit-tree d8f722244a5199ee2ed0d9e27ac59b2697d9bca3**

8f2485ad1bf19894954c552ef484216bcf3de47f

**$ git cat-file -p 8f2485ad1bf19894954c552ef484216bcf3de47f**

tree d8f722244a5199ee2ed0d9e27ac59b2697d9bca3

author Git <you@example.com> 1561020558 +0300

committer Git <you@example.com> 1561020558 +0300

first commit

**$ echo 'second commit' | git commit-tree d8f722244a5199ee2ed0d9e27ac59b2697d9bca3 -p 8f2485ad1bf19894954c552ef484216bcf3de47f**

73ab9cca793be19dddf3471e7bca3e1766b2027b

**$ git log --stat 73ab9cca793be19dddf3471e7bca3e1766b2027b**

commit 73ab9cca793be19dddf3471e7bca3e1766b2027b

Author: Git <you@example.com>

Date: Thu Jun 20 11:52:42 2019 +0300

second commit

commit 8f2485ad1bf19894954c552ef484216bcf3de47f

Author: Git <you@example.com>

Date: Thu Jun 20 11:49:18 2019 +0300

first commit

grit | 1 +

new.txt | 1 +

readmeas | 1 +

test.txt | 1 +

4 files changed, 4 insertions(+)