

Отчет по лабораторной работе №2

дисциплина: Операционные системы

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Содержание

Цель работы	1
Задание	1
Теоретическое введение	1
Выполнение лабораторной работы	3
Выводы	8
Список литературы	8

Цель работы

Изучить идеологию и применение средств контроля версий, освоить навыки работы с git.

Задание

Создать базовую конфигурацию для работы с git. - Создать ключ SSH. - Создать ключ PGP. - Настроить подписи git. - Зарегистрироваться на Github. - Создать локальный каталог для выполнения заданий по предмету.

Теоретическое введение

Наиболее часто используемые команды git: - создание основного дерева репозитория:

`git init`

- получение обновлений (изменений) текущего дерева из центрального репозитория:

`git pull`

- отправка всех произведённых изменений локального дерева в центральный репозиторий:

`git push`

- просмотр списка изменённых файлов в текущей директории:

`git status`

- просмотр текущих изменения:

`git diff`

- сохранение текущих изменений:

- добавить все изменённые и/или созданные файлы и/или каталоги:

`git add .`

- добавить конкретные изменённые и/или созданные файлы и/или каталоги:

`git add имена_файлов`

- удалить файл и/или каталог из индекса репозитория (при этом файл и/или каталог остаётся в локальной директории):

`git rm имена_файлов`

- сохранение добавленных изменений:

- сохранить все добавленные изменения и все изменённые файлы:

`git commit -am 'Описание коммита'`

- сохранить добавленные изменения с внесением комментария через встроенный редактор:

`git commit`

- создание новой ветки, базирующейся на текущей:

`git checkout -b имя_ветки`

- переключение на некоторую ветку:

`git checkout имя_ветки`

(при переключении на ветку, которой ещё нет в локальном репозитории, она будет создана и связана с удалённой) - отправка изменений конкретной ветки в центральный репозиторий:

`git push origin имя_ветки`

- слияние ветки с текущим деревом:

`git merge --no-ff имя_ветки`

- удаление ветки:

- удаление локальной уже слитой с основным деревом ветки:

`git branch -d имя_ветки`

- принудительное удаление локальной ветки:

`git branch -D имя_ветки`

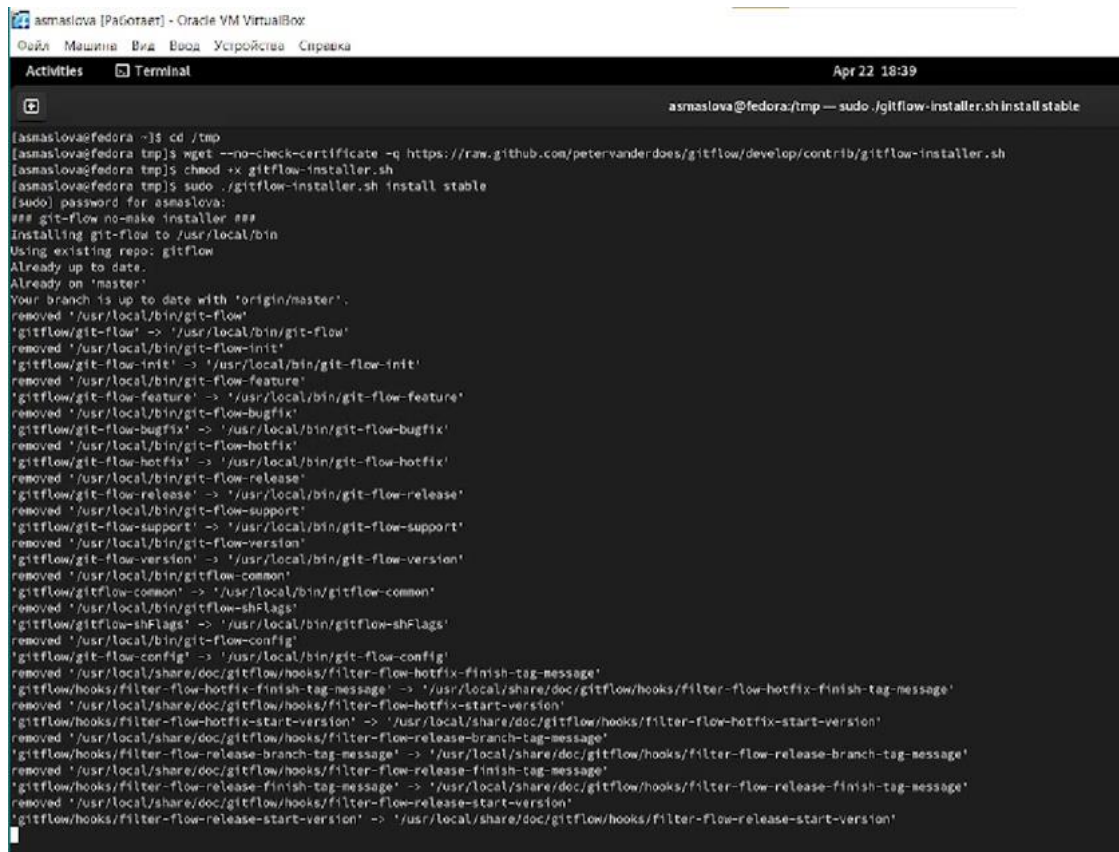
- удаление ветки с центрального репозитория:

`git push origin :имя_ветки`

Более подробную теоретическую часть смотрите [здесь](#).

Выполнение лабораторной работы

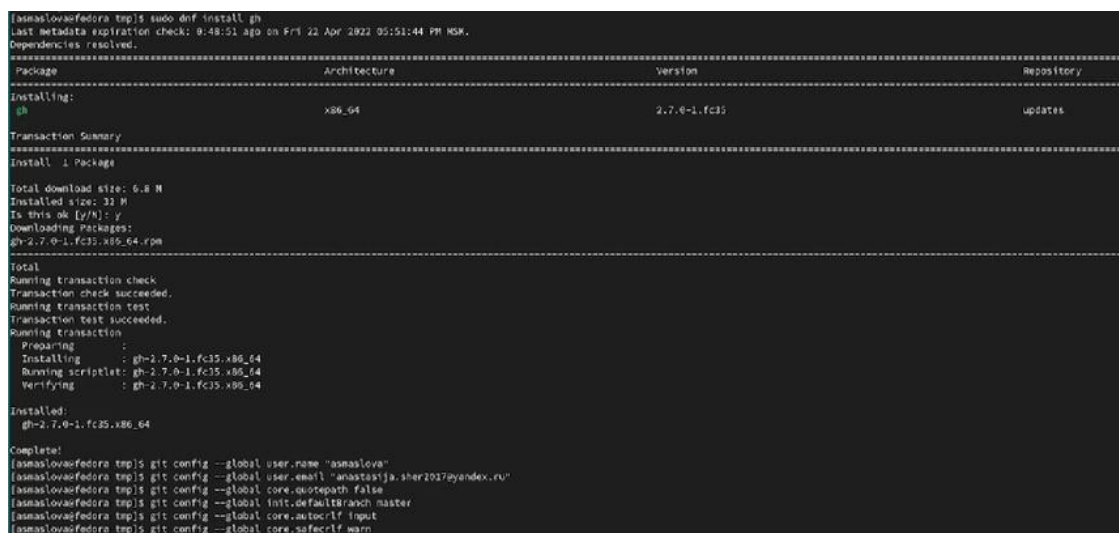
Я создала аккаунт на github.com, заполнила основные данные, после чего приступила к установке программного обеспечения. В первую очередь я занялась установкой git-flow (рис.1), потом gh, затем приступила к настройке git (рис.2).



```
asmaslova [Fedora] - Oracle VM VirtualBox
Файл Машина Вид Ввод Устройство Справка
Activities Terminal Apr 22 18:39
asmaslova@fedora:tmp — sudo ./gitflow-installer.sh install stable

[asmaslova@fedora ~]$ cd /tmp
[asmaslova@fedora tmp]$ wget --no-check-certificate -q https://raw.githubusercontent.com/petervanderdoes/gitflow/develop/contrib/gitflow-installer.sh
[asmaslova@fedora tmp]$ chmod +x gitflow-installer.sh
[asmaslova@fedora tmp]$ sudo ./gitflow-installer.sh install stable
[sudo] password for asmaslova:
### git-flow no-make installer ###
Installing git-flow to /usr/local/bin
Using existing repo: gitflow
Already up to date.
Already on 'master'
Your branch is up to date with 'origin/master'.
removed /usr/local/bin/git-flow
'gitflow/git-flow' -> '/usr/local/bin/git-flow'
removed /usr/local/bin/git-flow-init
'gitflow/git-flow-init' -> '/usr/local/bin/git-flow-init'
removed /usr/local/bin/git-flow-feature
'gitflow/git-flow-feature' -> '/usr/local/bin/git-flow-feature'
removed /usr/local/bin/git-flow-bugfix
'gitflow/git-flow-bugfix' -> '/usr/local/bin/git-flow-bugfix'
removed /usr/local/bin/git-flow-hotfix
'gitflow/git-flow-hotfix' -> '/usr/local/bin/git-flow-hotfix'
removed /usr/local/bin/git-flow-release
'gitflow/git-flow-release' -> '/usr/local/bin/git-flow-release'
removed /usr/local/bin/git-flow-support
'gitflow/git-flow-support' -> '/usr/local/bin/git-flow-support'
removed /usr/local/bin/git-flow-version
'gitflow/git-flow-version' -> '/usr/local/bin/git-flow-version'
removed /usr/local/bin/gitflow-common
'gitflow/gitflow-common' -> '/usr/local/bin/gitflow-common'
removed /usr/local/bin/gitflow-shFlags
'gitflow/gitflow-shFlags' -> '/usr/local/bin/gitflow-shFlags'
removed /usr/local/bin/git-flow-config
'gitflow/git-flow-config' -> '/usr/local/bin/git-flow-config'
removed /usr/local/share/doc/gitflow/hooks/filter-flow-hotfix-finish-tag-message
'gitflow/hooks/filter-flow-hotfix-finish-tag-message' -> '/usr/local/share/doc/gitflow/hooks/filter-flow-hotfix-finish-tag-message'
removed /usr/local/share/doc/gitflow/hooks/filter-flow-hotfix-start-version
'gitflow/hooks/filter-flow-hotfix-start-version' -> '/usr/local/share/doc/gitflow/hooks/filter-flow-hotfix-start-version'
removed /usr/local/share/doc/gitflow/hooks/filter-flow-release-branch-tag-message
'gitflow/hooks/filter-flow-release-branch-tag-message' -> '/usr/local/share/doc/gitflow/hooks/filter-flow-release-branch-tag-message'
removed /usr/local/share/doc/gitflow/hooks/filter-flow-release-finish-tag-message
'gitflow/hooks/filter-flow-release-finish-tag-message' -> '/usr/local/share/doc/gitflow/hooks/filter-flow-release-finish-tag-message'
removed /usr/local/share/doc/gitflow/hooks/filter-flow-release-start-version
'gitflow/hooks/filter-flow-release-start-version' -> '/usr/local/share/doc/gitflow/hooks/filter-flow-release-start-version'
```

рис.1



```
[asmaslova@fedora tmp]$ sudo dnf install gh
Last metadata expiration check: 0:49:51 ago on Fri 22 Apr 2022 05:51:44 PM MSK.
Dependencies resolved.
=====
Package                                Architecture      Version           Repository
-----
Installing:
gh                                      x86_64            2.7.0-1.fc35     updates

Transaction Summary
=====
Install 1 Package

Total download size: 6.8 M
Installed size: 31 M
Is this ok [y/N]: y
Downloading Packages:
gh-2.7.0-1.fc35.x86_64.rpm
=====
Total
Running transaction check
Transaction check succeeded.
Running transaction test
Transaction test succeeded.
Running transaction
  Preparing      : 
  Installing     : gh-2.7.0-1.fc35.x86_64 
  Running scriptlet: gh-2.7.0-1.fc35.x86_64 
  Verifying      : gh-2.7.0-1.fc35.x86_64 

Installed:
gh-2.7.0-1.fc35.x86_64

Complete!
[asmaslova@fedora tmp]$ git config --global user.name "asmaslova"
[asmaslova@fedora tmp]$ git config --global user.email "anastasija.sher2017@yandex.ru"
[asmaslova@fedora tmp]$ git config --global core.quotepath false
[asmaslova@fedora tmp]$ git config --global init.defaultbranch master
[asmaslova@fedora tmp]$ git config --global core.autocrlf input
[asmaslova@fedora tmp]$ git config --global core.safecrlf warn
```

рис.2

Следующим шагом я создала ключи ssh (рис.3) и pgr (рис.4).

```

[asmaslova@fedora tmp]$ ssh-keygen -t rsa -b 4096
Generating public/private rsa key pair.
Enter file in which to save the key (/home/asmaslova/.ssh/id_rsa):
Created directory '/home/asmaslova/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/asmaslova/.ssh/id_rsa
Your public key has been saved in /home/asmaslova/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:TBj4kkib5Gwfr2dMFjCgiDUYSpGnHGPRDfGG65TrCU4 asmaslova@fedora
The key's randomart image is:
+---[RSA 4096]-----+
|..+0++..|
|+80++..o|
|B==+ B..|
|o0 0 oo|
|. = + .S|
|..o +|
|E . =|
|o o o +|
|. o o|
+-----[SHA256]-----+
[asmaslova@fedora tmp]$ ssh-keygen -t ed25519
Generating public/private ed25519 key pair.
Enter file in which to save the key (/home/asmaslova/.ssh/id_ed25519):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/asmaslova/.ssh/id_ed25519
Your public key has been saved in /home/asmaslova/.ssh/id_ed25519.pub
The key fingerprint is:
SHA256:Lu4H14hdyJwg5Xex5JkBv8FrG7Uw2mK5diQFnbYraPs asmaslova@fedora
The key's randomart image is:
+---[ED25519 256]---+
|..o..=+++|
|+ o=+B +|
|...oB.B+B|
|oo.B0+|
|oS=o o.|
|o.+o.o..|
|.+. .|
|. .o|
|.o. .E|
+-----[SHA256]-----+
[asmaslova@fedora tmp]$

```

рис.3

```
[asmaslova@fedora tmp]$ gpg --full-generate-key
gpg (GnuPG) 2.3.2; Copyright (C) 2021 Free Software Foundation, Inc.
This is free software: you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.

gpg: directory '/home/asmaslova/.gnupg' created
gpg: keybox '/home/asmaslova/.gnupg/pubring.kbx' created
Please select what kind of key you want:
  (1) RSA and RSA
  (2) DSA and Elgamal
  (3) DSA (sign only)
  (4) RSA (sign only)
  (9) ECC (sign and encrypt) +default+
 (10) ECC (sign only)
 (14) Existing key from card
Your selection? 1
RSA keys may be between 1024 and 4096 bits long.
What keysize do you want? (3072) 4096
Requested keysize is 4096 bits
Please specify how long the key should be valid.
    0 = key does not expire
    <n> = key expires in n days
    <n>w = key expires in n weeks
    <n>m = key expires in n months
    <n>y = key expires in n years
Key is valid for? (0) 0
Key does not expire at all
Is this correct? (y/N) y

GnuPG needs to construct a user ID to identify your key.

Real name: Anastasia
Email address: anastasija.sher2017@yandex.ru
Comment: sheesh
You selected this USER-ID:
    "Anastasia (sheesh) <anastasija.sher2017@yandex.ru>"

Change (N)ame, (C)omment, (E)mail or (O)kay/(Q)uit? █
```

рис.4

После этого я добавила PGP ключ в GitHub (рис.5-7), разобралась с настройкой автоматических подписей коммитов git (рис.8) и настройкой gh (рис.8-9).

```
[asmaslova@fedora tmp]$ gpg --list-secret-keys --keyid-format LONG
/home/asmaslova/.gnupg/pubring.kbx
-----
sec   rsa4096/634FA41420809FD2 2022-04-22 [SC]
      94CA5A7A4DB9A0521902302E634FA41420809FD2
uid           [ultimate] Anastasia (sheesh) <anastasija.sher2017@yandex.ru>
ssb   rsa4096/005F0D9AE9272EB9 2022-04-22 [E]
```

рис.5

```
[asmaslova@fedora tmp]$ gpg --armor --export 634FA41420809FD2 | xclip -sel clip
```

рис.6

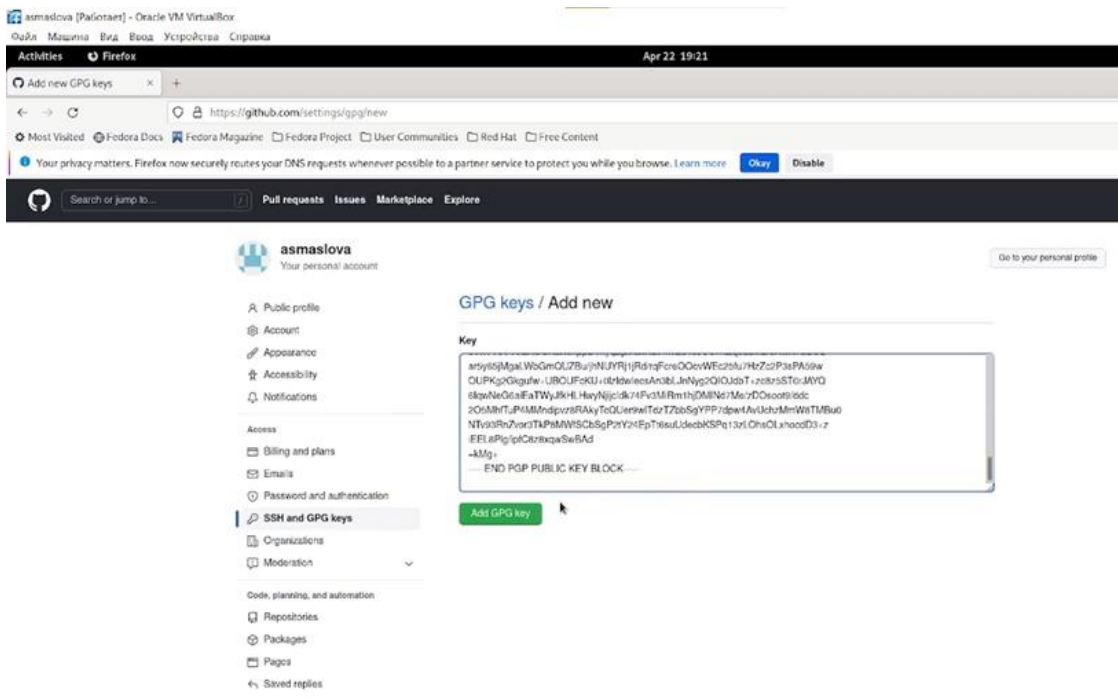


рис.7

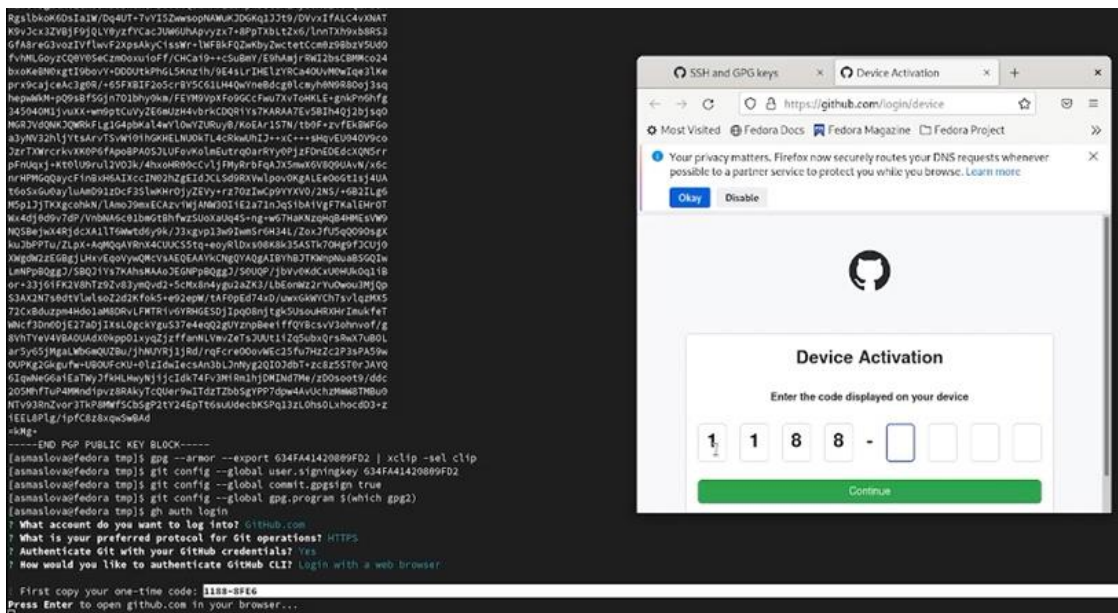


рис.8

```
[asmaslova@fedora tmp]$ gh auth login
? What account do you want to log into? GitHub.com
? What is your preferred protocol for Git operations? HTTPS
? Authenticate Git with your GitHub credentials? Yes
? How would you like to authenticate GitHub CLI? Login with a web browser

! First copy your one-time code: 1188-8FEE6
Press Enter to open github.com in your browser...
✓ Authentication complete.
- gh config set -h github.com git_protocol https
✓ Configured git protocol
✓ Logged in as asmaslova
[asmaslova@fedora tmp]$
```

рис.9

Затем я создала репозиторий на основе шаблона (рис.10-11) и настроила каталог курса (рис.12-13).

```
[asmaslova@fedora tmp]$ cd
[asmaslova@fedora ~]$ mkdir -p ~/work/study/2021-2022/"OC"
[asmaslova@fedora ~]$ cd ~/work/study/2021-2022/"OC"
[asmaslova@fedora OC]$ gh repo create study_2021-2022_os-intro --template=yamadharm/course-directory-student-template --public
✓ Created repository asmaslova/study_2021-2022_os-intro on GitHub
```

рис.10

```
[asmaslova@fedora OC]$ git clone --recursive https://github.com/asmaslova/study_2021-2022_os-intro.git os-intro
Cloning into 'os-intro'...
remote: Enumerating objects: 20, done.
remote: Counting objects: 100% (20/20), done.
remote: Compressing objects: 100% (18/18), done.
remote: Total 20 (delta 2), reused 15 (delta 2), pack-reused 0
Receiving objects: 100% (20/20), 12.49 KiB | 1.39 MiB/s, done.
Resolving deltas: 100% (2/2), done.
Submodule 'template/presentation' (https://github.com/yamadharm/academic-presentation-markdown-template.git) registered for path 'template/presentation'
Submodule 'template/report' (https://github.com/yamadharm/academic-laboratory-report-template.git) registered for path 'template/report'
Cloning into '/home/asmaslova/work/study/2021-2022/OC/os-intro/template/presentation'...
remote: Enumerating objects: 42, done.
remote: Counting objects: 100% (42/42), done.
remote: Compressing objects: 100% (34/34), done.
remote: Total 42 (delta 9), reused 40 (delta 7), pack-reused 0
Receiving objects: 100% (42/42), 31.19 KiB | 403.09 KiB/s, done.
Resolving deltas: 100% (9/9), done.
Cloning into '/home/asmaslova/work/study/2021-2022/OC/os-intro/template/report'...
remote: Enumerating objects: 70, done.
remote: Counting objects: 100% (70/70), done.
remote: Compressing objects: 100% (52/52), done.
remote: Total 70 (delta 33), reused 60 (delta 22), pack-reused 0
Receiving objects: 100% (70/70), 292.27 KiB | 345.00 KiB/s, done.
Resolving deltas: 100% (33/33), done.
Submodule path 'template/presentation': checked out '3eabb7586f8a9aded2b596cd1010e625b228b93'
Submodule path 'template/report': checked out 'df7b2ef0f0def3b9e406f6695277469a1a7842a'
```

рис.11

```
[asmaslova@fedora OC]$ cd ~/work/study/2021-2022/OC/os-intro/
[asmaslova@fedora os-intro]$ rm package.json
[asmaslova@fedora os-intro]$ make COURSE=os-intro
[asmaslova@fedora os-intro]$ git add .
[asmaslova@fedora os-intro]$ git commit -am 'feat(main): make course structure'
```

рис.12

```

create node 100644 project-personal/stage1/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage1/report/report.md
create node 100644 project-personal/stage2/presentation/Makefile
create node 100644 project-personal/stage2/presentation/presentation.md
create node 100644 project-personal/stage2/report/Makefile
create node 100644 project-personal/stage2/report/bib/cite.bib
create node 100644 project-personal/stage2/report/image/placeimg_800_600_tech.jpg
create node 100644 project-personal/stage2/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage2/report/report.md
create node 100644 project-personal/stage3/presentation/Makefile
create node 100644 project-personal/stage3/presentation/presentation.md
create node 100644 project-personal/stage3/report/Makefile
create node 100644 project-personal/stage3/report/bib/cite.bib
create node 100644 project-personal/stage3/report/image/placeimg_800_600_tech.jpg
create node 100644 project-personal/stage3/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage3/report/report.md
create node 100644 project-personal/stage4/presentation/Makefile
create node 100644 project-personal/stage4/presentation/presentation.md
create node 100644 project-personal/stage4/report/Makefile
create node 100644 project-personal/stage4/report/bib/cite.bib
create node 100644 project-personal/stage4/report/image/placeimg_800_600_tech.jpg
create node 100644 project-personal/stage4/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage4/report/report.md
create node 100644 project-personal/stage5/presentation/Makefile
create node 100644 project-personal/stage5/presentation/presentation.md
create node 100644 project-personal/stage5/report/Makefile
create node 100644 project-personal/stage5/report/bib/cite.bib
create node 100644 project-personal/stage5/report/image/placeimg_800_600_tech.jpg
create node 100644 project-personal/stage5/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage5/report/report.md
create node 100644 project-personal/stage6/presentation/Makefile
create node 100644 project-personal/stage6/presentation/presentation.md
create node 100644 project-personal/stage6/report/Makefile
create node 100644 project-personal/stage6/report/bib/cite.bib
create node 100644 project-personal/stage6/report/image/placeimg_800_600_tech.jpg
create node 100644 project-personal/stage6/report/pandoc/csl/gost-r-7-0-5-2008-numeric.csl
create node 100644 project-personal/stage6/report/report.md
create node 100644 structure
[asmaslova@fedora os-intro]$ git push
Enumerating objects: 20, done.
Counting objects: 100% (20/20), done.
Compressing objects: 100% (16/16), done.
Writing objects: 100% (19/19), 266.53 KiB | 2.54 MiB/s, done.
Total 19 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/asmaslova/study_2021-2022_os-intro.git
   25d228b..2cb9fd4  master -> master
[asmaslova@fedora os-intro]$

```

рис.13

Выводы

В ходе лабораторной работы я получила практические навыки в работе с git.

Список литературы

Лабораторная работа №2. Управление версиями.