

МИНИСТЕРСТВО ЦИФРОВОГО РАЗВИТИЯ, СВЯЗИ И МАССОВЫХ
КОММУНИКАЦИЙ РОССИЙСКОЙ ФЕДЕРАЦИИ
Ордена Трудового Красного Знамени федеральное государственное
бюджетное образовательное учреждение высшего образования
«Московский технический университет связи и информатики»

Кафедра «Математическая кибернетика и информационные технологии»

Лабораторная работа № 1
Введение в Python и Git
по дисциплине
«Введение в информационные технологии»

Выполнил: студент гр. БВТ2201
Шамсутдинов Р.Ф.

Проверил:

Москва, 2023 г.

Устанавливаем Git, Python и Pycharm

```
Activities Terminal feb 10 01:30 sypoo@sypoo-desktop: ~  
sypoo@sypoo-desktop:~$ sudo apt update  
Hit:1 https://dl.google.com/linux/chrome/deb stable InRelease  
Get:2 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]  
Hit:3 https://download.docker.com/linux/ubuntu jammy InRelease  
Hit:4 http://us.archive.ubuntu.com/ubuntu jammy InRelease  
Hit:5 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease  
Hit:6 http://us.archive.ubuntu.com/ubuntu jammy-security InRelease  
Hit:7 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease  
Ign:8 https://repo.radeon.com/andgpu/22.20/ubuntu jammy InRelease  
Ign:9 https://repo.radeon.com/rocn/apt/5.2 ubuntu InRelease  
Hit:8 https://repo.radeon.com/andgpu/22.20/ubuntu jammy InRelease  
Hit:9 https://repo.radeon.com/rocn/apt/5.2 ubuntu InRelease  
Fetched 110 kB in 1min 26s (1 289 B/s)  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
0 packages can be upgraded. Run 'apt list --upgradable' to see them.  
sypoo@sypoo-desktop:~$ sudo apt install software-properties-common  
Reading package lists... Done  
Building dependency tree... Done  
Reading state information... Done  
The following packages were automatically installed and are no longer required:  
  libflashrom1 libltdl-2 liblvm2  
Use 'sudo apt autoremove' to remove them.  
The following additional packages will be installed:  
  python3-software-properties software-properties-gtk ubuntu-advantage-tools  
The following packages will be upgraded:  
  python3-software-properties software-properties-common software-properties-gtk ubuntu-advantage-tools  
4 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.  
Need to get 286 kB of archives.  
After this operation, 1 439 kB disk space will be freed.  
Do you want to continue? [Y/n] y  
Get:1 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 ubuntu-advantage-tools amd64 27.13.3-22.04.1 [172 kB]  
Get:2 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 software-properties-common all 0.99.22.5 [14.1 kB]  
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 software-properties-gtk all 0.99.22.5 [70.9 kB]  
Get:4 http://us.archive.ubuntu.com/ubuntu jammy-updates/main amd64 python3-software-properties all 0.99.22.5 [20.8 kB]  
Fetched 286 kB in 1s (325 kB/s)  
Preconfiguring packages ...  
(Reading database ... 202110 files and directories currently installed.)  
Preparing to unpack .../ubuntu-advantage-tools_27.13.3-22.04.1_amd64.deb ...  
Unpacking ubuntu-advantage-tools (27.13.3-22.04.1) over (27.9-22.04.1) ...  
Preparing to unpack .../software-properties-common_0.99.22.5_all.deb ...  
Unpacking software-properties-common (0.99.22.5) over (0.99.22.2) ...  
Preparing to unpack .../software-properties-gtk_0.99.22.5_all.deb ...  
Unpacking software-properties-gtk (0.99.22.5) over (0.99.22.2) ...  
Preparing to unpack .../python3-software-properties_0.99.22.5_all.deb ...  
Unpacking python3-software-properties (0.99.22.5) over (0.99.22.2) ...  
Setting up python3-software-properties (0.99.22.5) ...  
Setting up ubuntu-advantage-tools (27.13.3-22.04.1) ...  
Installing new version of config file /etc/apt/conf.d/20apt-esn-hook.conf ...  
Installing new version of config file /etc/ubuntu-advantage/help_data.yaml ...  
Processing triggers for man-db (2.10.2-1) ...
```

```
Activities Terminal feb 10 01:31 sypoo@sypoo-desktop: ~  
sypoo@sypoo-desktop:~$ sudo add-apt-repository ppa:deadsnakes/ppa  
Repository: 'deb https://ppa.launchpadcontent.net/deadsnakes/ppa/ubuntu/ jammy main'  
Description:  
This PPA contains more recent Python versions packaged for Ubuntu.  
Disclaimer: there's no guarantee of timely updates in case of security problems or other issues. If you want to use them in a security-or-otherwise-critical environment (say, on a production server), you do so at your own risk.  
Update Note  
=====
```

Please use this repository instead of ppa:fkrull/deadsnakes.

```
Reporting Issues  
=====
```

Issues can be reported in the master issue tracker at:
<https://github.com/deadsnakes/issues/issues>

```
Supported Ubuntu and Python Versions  
=====
```

• Ubuntu 18.04 (bionic) Python2.7 - Python 2.6, Python 3.1 - Python 3.5, Python3.7 - Python3.11
• Ubuntu 20.04 (focal) Python3.5 - Python3.7, Python3.9 - Python3.11
• Ubuntu 22.04 (jammy) Python3.7 - Python3.9, Python3.11
• Note: Python2.7 (all), Python 3.6 (bionic), Python 3.8 (focal), Python 3.10 (jammy) are not provided by deadsnakes as upstream ubuntu provides those packages.

```
Why some packages aren't built:  
• Note: for focal, older python versions require libssl<1.1 so they are not currently built  
• Note: for jammy, older python versions require libssl<3 so they are not currently built  
• If you need these, reach out to asottile to set up a private ppa
```

The packages may also work on other versions of Ubuntu or Debian, but that is not tested or supported.

```
Packages  
=====
```

The packages provided here are loosely based on the debian upstream packages with some modifications to make them more usable as non-default pythons and on ubuntu. As such, the packages follow debian's patterns and often do not include a full python distribution with just 'apt install python#.#'. Here is a list of packages that may be useful along with the default install:

```
• 'python#.#-dev': includes development headers for building C extensions  
• 'python#.#-venv': provides the standard library 'venv' module  
• 'python#.#-distutils': provides the standard library 'distutils' module  
• 'python#.#-lib2to3': provides the '2to3-#.#' utility as well as the standard library 'lib2to3' module  
• 'python#.#-gdbm': provides the standard library 'dbm.gnu' module  
• 'python#.#-tk': provides the standard library 'tkinter' module
```

```
Third-Party Python Modules  
=====
```

python modules in the official Ubuntu repositories are packaged to work with the Python interpreters from the official repositories. Accordingly, they generally won't work with the Python interpreters from this

```
Activities Terminal feb 10 01:37 sypoo@sypoo-desktop: -
sypoo@sypoo-desktop:~$ python3 --version
Python 3.10.6
sypoo@sypoo-desktop:~$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.34.1-1ubuntu1.6).
git set to manually installed.
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm1
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.
sypoo@sypoo-desktop:~$ sudo snap install pycharm-community --classic
pycharm-community 2022.3.2 from JetBrains✓ installed
sypoo@sypoo-desktop:~$
```

```
Activities Terminal feb 10 01:42 sypoo@sypoo-desktop: -
sypoo@sypoo-desktop:~$ python3 --version
Python 3.10.6
sypoo@sypoo-desktop:~$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.34.1-1ubuntu1.6).
git set to manually installed.
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm1
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 5 not upgraded.
sypoo@sypoo-desktop:~$ sudo snap install pycharm-community --classic
pycharm-community 2022.3.2 from JetBrains✓ installed
sypoo@sypoo-desktop:~$ mkdir MyApp
sypoo@sypoo-desktop:~$ cd M
sypoo@sypoo-desktop:~/MyApp$
sypoo@sypoo-desktop:~/MyApp$ cd MyApp/
sypoo@sypoo-desktop:~/MyApp$ python3 -m venv venv
The virtual environment was not created successfully because ensurepip is not
available. On Debian/Ubuntu systems, you need to install the python3-venv
package using the following command.

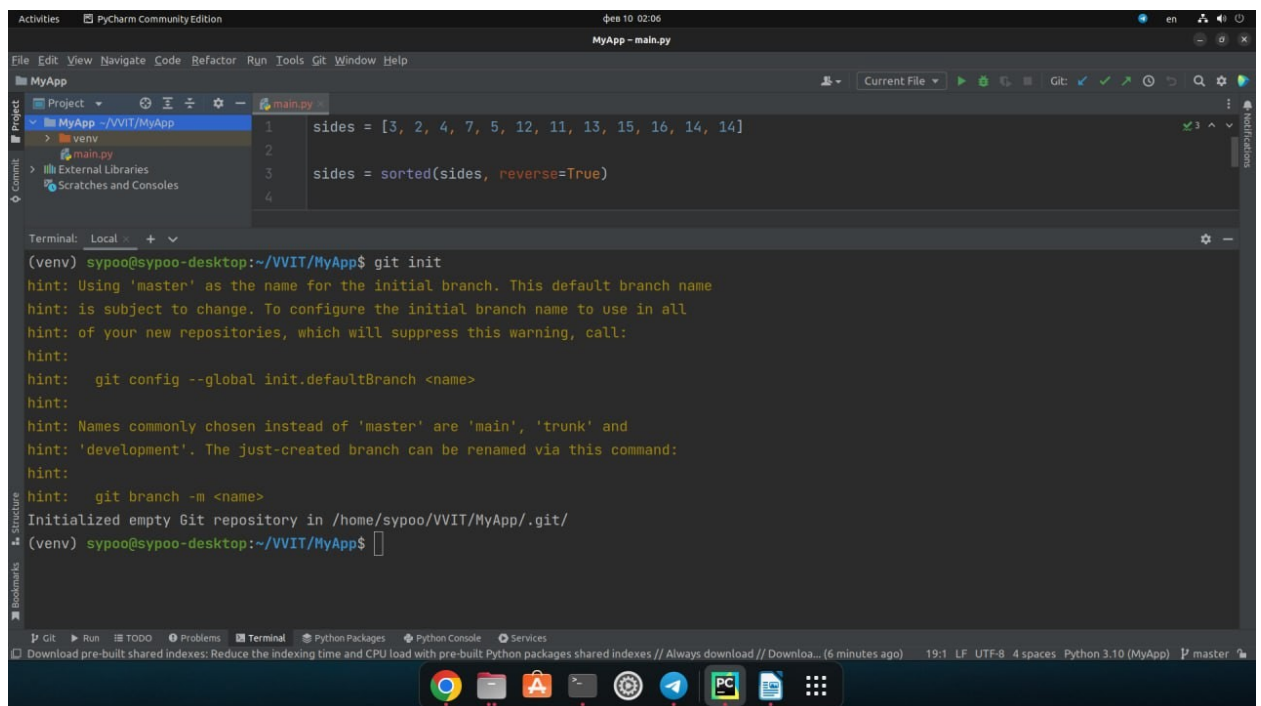
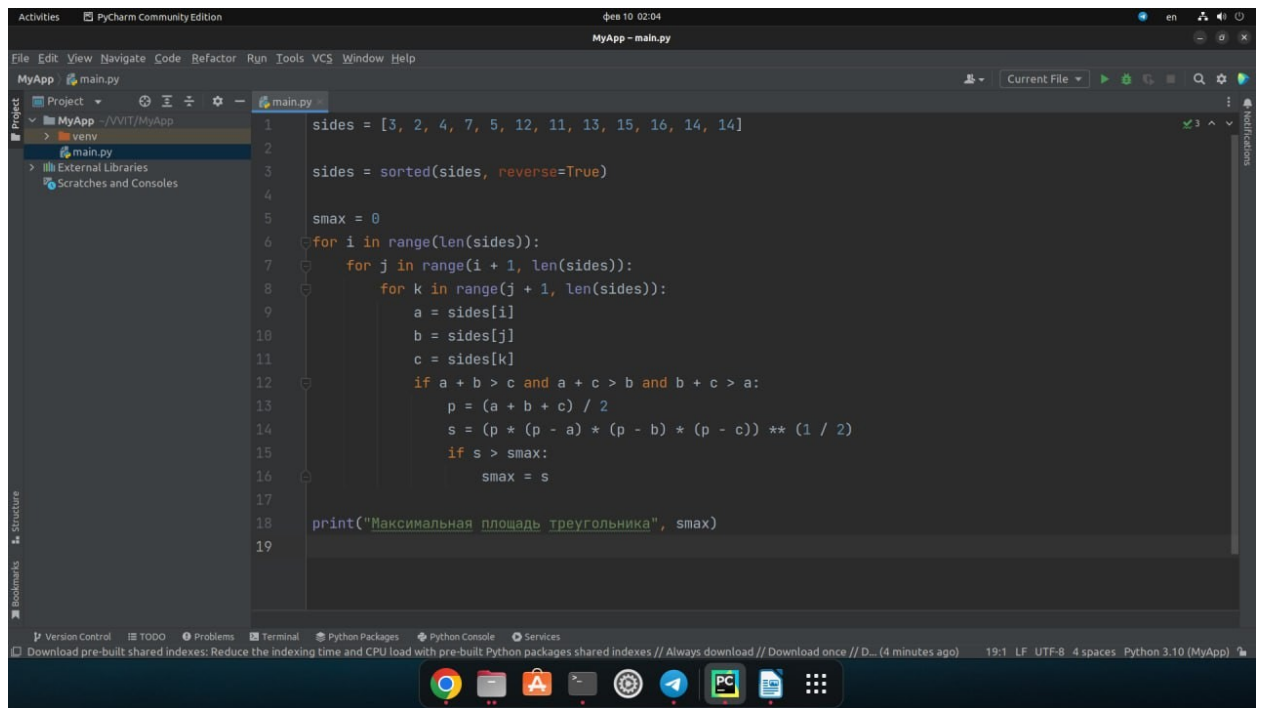
    apt install python3.10-venv

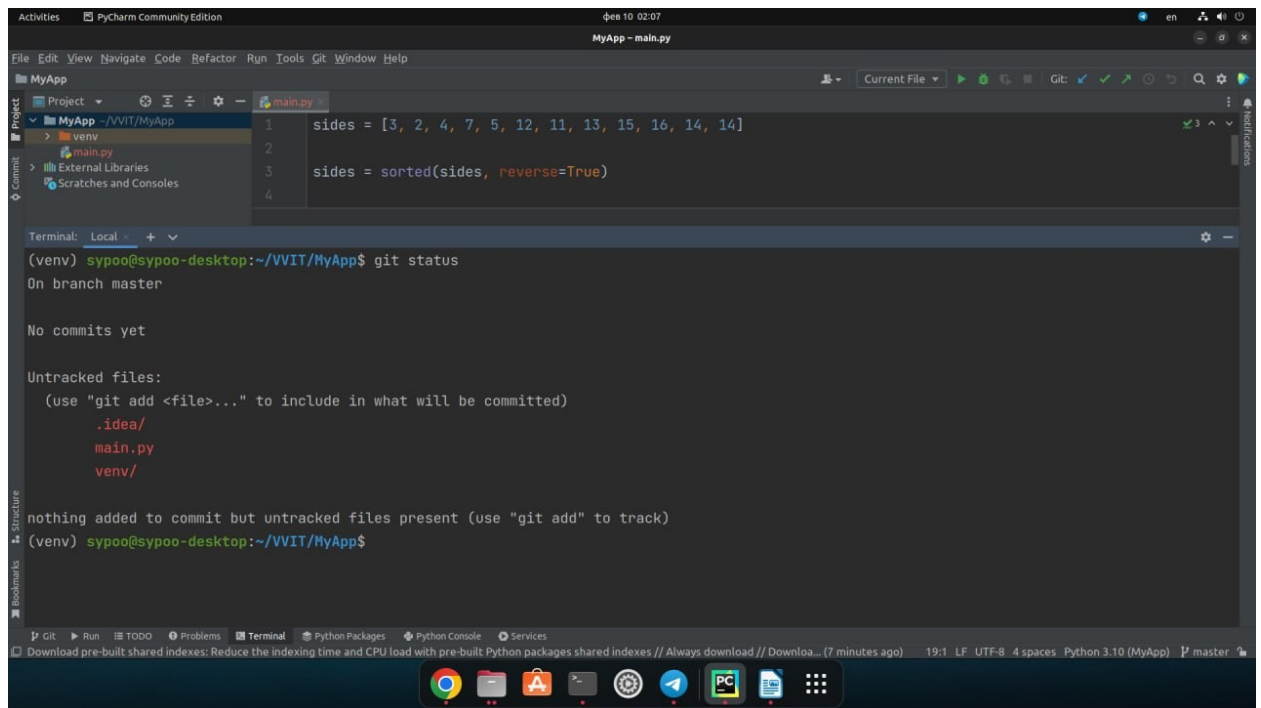
You may need to use sudo with that command. After installing the python3-venv
package, recreate your virtual environment.

Falling command: ['/home/sypoo/MyApp/venv/bin/python3', '-ln', 'ensurepip', '--upgrade', '--default-pip']
sypoo@sypoo-desktop:~/MyApp$ apt install python3.10-venv
Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
sypoo@sypoo-desktop:~/MyApp$ cd ..
sypoo@sypoo-desktop:~$ apt install python3.10-venv
Could not open lock file /var/lib/dpkg/lock-frontent - open (13: Permission denied)
Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), are you root?
sypoo@sypoo-desktop:~$ sudo apt install python3.10-venv
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm1
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  python3-distutils python3-pip-whl python3-setuptools-whl
The following NEW packages will be installed:
  python3-distutils python3-pip-whl python3-setuptools-whl python3.10-venv
0 upgraded, 4 newly installed, 0 to remove and 5 not upgraded.
Need to get 2 682 kB of archives.
After this operation, 3 657 kB of additional disk space will be used.
```

Создаем директорию МуАрр, в ней создаем виртуальное окружение и активируем его.

С помощью `pycharm` открываем папку МуАрр как новый проект, создаем в нем питоновский файл `main.py` и пишем в нем код





The screenshot shows the PyCharm Community Edition interface. The editor window displays the file `main.py` with the following code:

```
1 sides = [3, 2, 4, 7, 5, 12, 11, 13, 15, 16, 14, 14]
2
3 sides = sorted(sides, reverse=True)
4
```

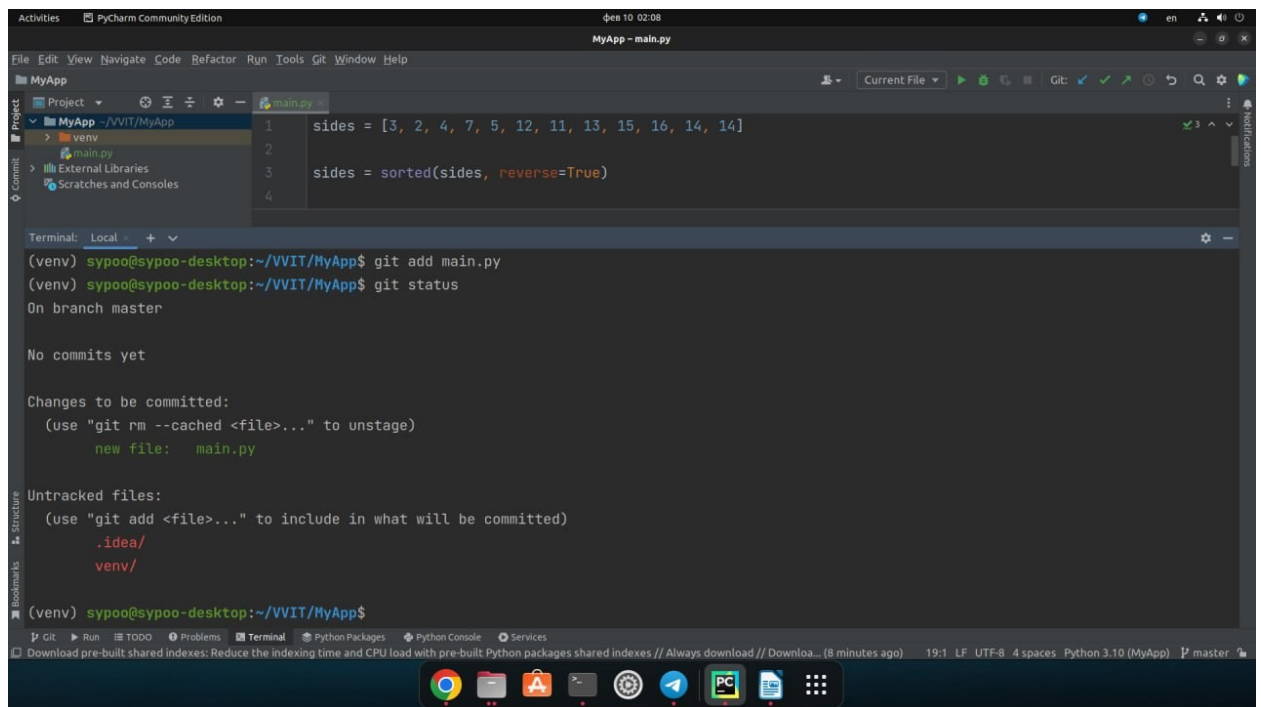
The terminal window shows the output of the `git status` command:

```
(venv) sypoo@sypoo-desktop:~/VVIT/MyApp$ git status
On branch master

No commits yet

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

nothing added to commit but untracked files present (use "git add" to track)
(venv) sypoo@sypoo-desktop:~/VVIT/MyApp$
```



The screenshot shows the PyCharm Community Edition interface after running `git add main.py`. The editor window displays the same code as the first screenshot.

The terminal window shows the output of the `git add main.py` and `git status` commands:

```
(venv) sypoo@sypoo-desktop:~/VVIT/MyApp$ git add main.py
(venv) sypoo@sypoo-desktop:~/VVIT/MyApp$ git status
On branch master

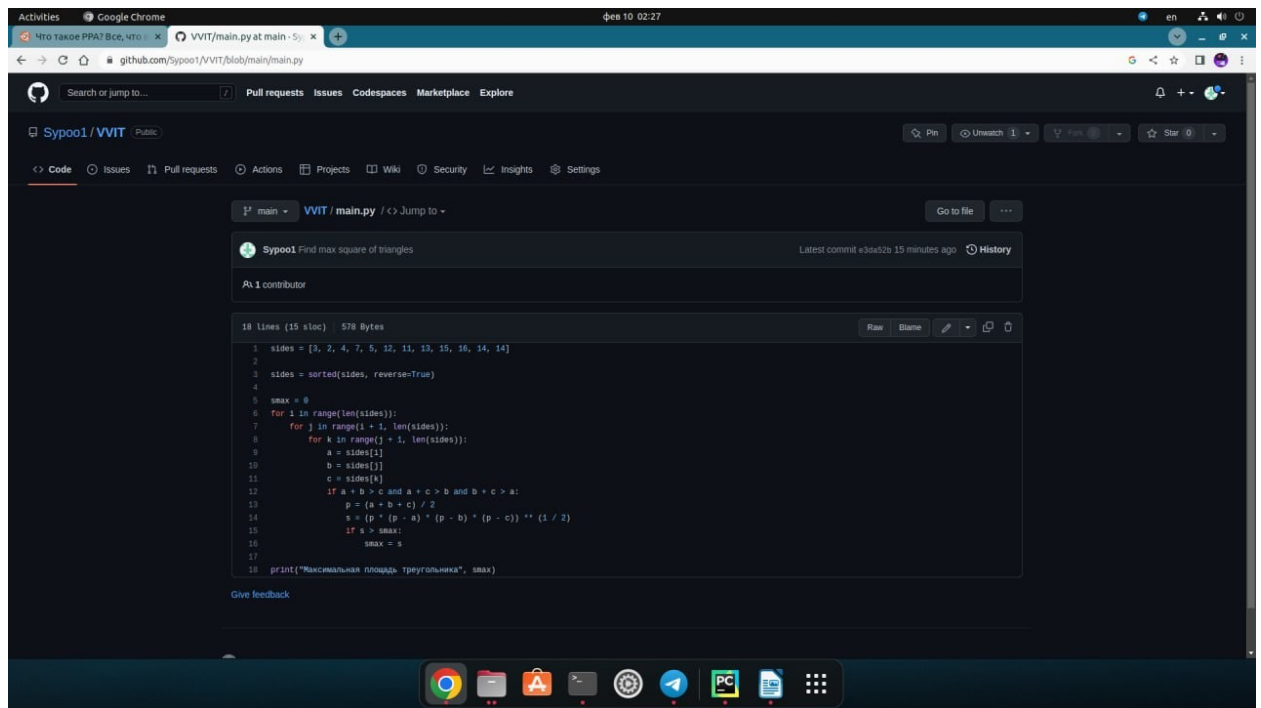
No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   main.py

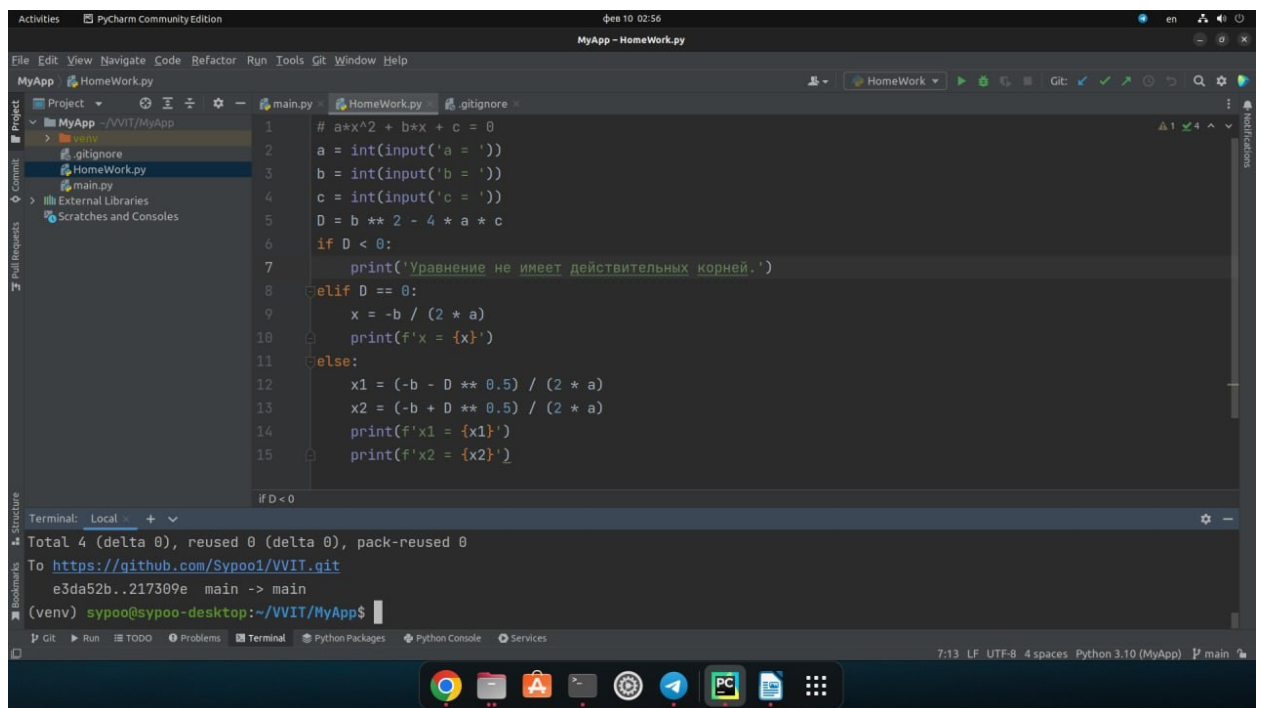
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    .idea/
    venv/

(venv) sypoo@sypoo-desktop:~/VVIT/MyApp$
```

Инициализируем Git репозиторий, добавляем в него `main.py` и делаем первый коммит, пушим данную ветку на удаленный репозиторий GitHub

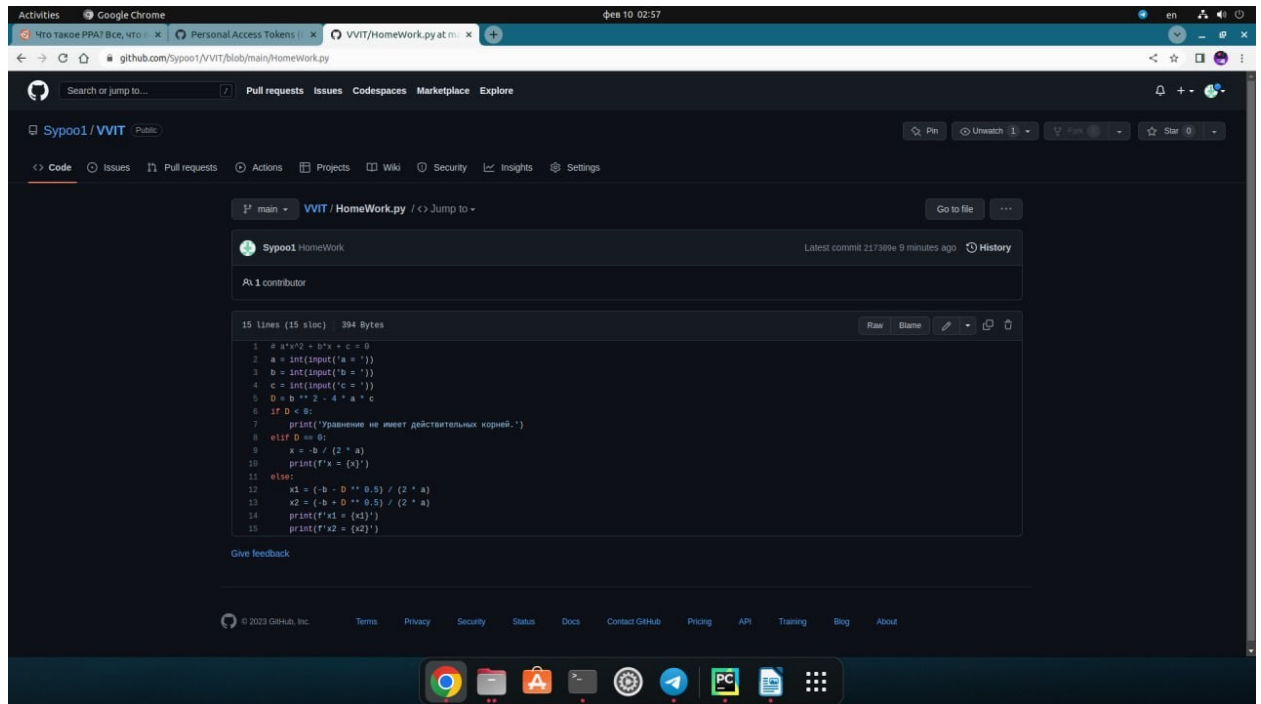


Домашнее задание:



Создаем новый файл HomeWork.py пишем в нем код, создаем файл .gitignore и записываем в него `venv` и `.idea`, чтобы они не отображались в нашем локальном Git репозитории.

Добавляем новые файлы в гит репозиторий, делаем коммит и пушим его на GitHub



Вывод: проделав данную работу, я познакомился с такими инструментами как Git, GitHub, PyCharm и научился отправлять код со своего компьютера на удаленный репозиторий.

Ссылка на гит:

<https://github.com/Sypoo1/VVIT>