

МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ  
РОССИЙСКОЙ ФЕДЕРАЦИИ  
Федеральное государственное автономное образовательное учреждение  
высшего образования  
«КРЫМСКИЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ им. В. И. ВЕРНАДСКОГО»  
ФИЗИКО-ТЕХНИЧЕСКИЙ ИНСТИТУТ  
Кафедра компьютерной инженерии и моделирования

**ОТЧЕТ ПО ПРАКТИЧЕСКОМУ ЗАДАНИЮ №4**  
**«Основы git»**

Практическая работа  
по дисциплине «Современные технологии программирования»  
студента 1 курса группы ПИ-б-о-232  
Халилов Асан Русланович  
направления подготовки 09.03.04 «Программная инженерия»

Симферополь, 2024

## Цель:

Ознакомиться с базовыми возможностями утилиты git, сервисов GitHub, GitLab и возможностей CI/CD, которые они предоставляют.

## Ход выполнения задания.

1,2,3,4

```
asan@asan:~$ sudo apt install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.43.0-1ubuntu7).
git set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upg
raded.
asan@asan:~$ git config --global user.name "Halilov Asan
"
asan@asan:~$ git config --global user.email "asan.khalil
ov.2005@mail.ru"
asan@asan:~$ git config --global --list
user.name=Halilov Asan
user.email=asan.khalilov.2005@mail.ru
asan@asan:~$
```

5,6,7

```
asan@asan:~$ mkdir var_keeper
asan@asan:~$ cd var_keeper/
asan@asan:~/var_keeper$ git init
hint: Using 'master' as the name for the initial branch. This default bra
nch name
hint: is subject to change. To configure the initial branch name to use i
n all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this comm
and:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/asan/var_keeper/.git/
asan@asan:~/var_keeper$ ls -al
total 12
drwxrwxr-x 3 asan asan 4096 May 18 11:24 .
drwxr-x--- 5 asan asan 4096 May 18 11:24 ..
drwxrwxr-x 7 asan asan 4096 May 18 11:24 .git
asan@asan:~/var_keeper$
```

8,9,10,11

```
asan@asan:~/var_keeper$ git config --list --show-origin
file:/home/asan/.gitconfig      user.name=Halilov Asan
file:/home/asan/.gitconfig      user.email=asan.khalilov.2005@mail.ru
file:./git/config               core.repositoryformatversion=0
file:./git/config               core.filemode=true
file:./git/config               core.bare=false
file:./git/config               core.logallrefupdates=true
asan@asan:~/var_keeper$ git status
On branch master

No commits yet

nothing to commit (create/copy files and use "git add" to track)
asan@asan:~/var_keeper$ nano ReadMe.md
asan@asan:~/var_keeper$ git status
On branch master

No commits yet

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

nothing added to commit but untracked files present (use "git add" to track)
asan@asan:~/var_keeper$
```

12,13,14

```
asan@asan:~/var_keeper$ git add ReadMe.md
asan@asan:~/var_keeper$ git status
On branch master

No commits yet

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

asan@asan:~/var_keeper$ nano ReadMe.md
asan@asan:~/var_keeper$ git status
On branch master

No commits yet

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

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.md

asan@asan:~/var_keeper$ git restore ReadMe.md
asan@asan:~/var_keeper$ cat ReadMe.md
# Var_keeper

Приложение позволяет сохранить переменную и затем прочитать её значение п
ри помощи http запроса.
asan@asan:~/var_keeper$ █
```

15,16,17,18,19,20,21,22,23

```
asan@asan:~/var_keeper$ git commit -m "Добавлен ReadMe.md"
[master (root-commit) aaa6d32] Добавлен ReadMe.md
 1 file changed, 3 insertions(+)
 create mode 100644 ReadMe.md
asan@asan:~/var_keeper$ git status
On branch master
nothing to commit, working tree clean
asan@asan:~/var_keeper$ touch .gitignore
asan@asan:~/var_keeper$ nano .gitignore
asan@asan:~/var_keeper$ git add .gitignore
asan@asan:~/var_keeper$ git commit -m "Добавлен .gitignore"
[master 9a56e31] Добавлен .gitignore
 1 file changed, 262 insertions(+)
 create mode 100644 .gitignore
asan@asan:~/var_keeper$ ls -al
total 24
drwxrwxr-x 3 asan asan 4096 May 18 11:36 .
drwxr-x--- 6 asan asan 4096 May 18 11:27 ..
drwxrwxr-x 8 asan asan 4096 May 18 11:36 .git
-rw-rw-r-- 1 asan asan 5813 May 18 11:36 .gitignore
-rw-rw-r-- 1 asan asan  190 May 18 11:29 ReadMe.md
asan@asan:~/var_keeper$ git log
commit 9a56e3105ccee841d862e6b997ff1325b8b304ce (HEAD -> master)
Author: Halilov Asan <asan.khalilov.2005@mail.ru>
Date: Sat May 18 11:36:44 2024 +0000

    Добавлен .gitignore

commit aaa6d321093bbc92699483e32f3bff2f059b8385
Author: Halilov Asan <asan.khalilov.2005@mail.ru>
Date: Sat May 18 11:32:47 2024 +0000

    Добавлен ReadMe.md
asan@asan:~/var_keeper$
```

24,25

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

*Required fields are marked with an asterisk (\*).*

Owner \*



Azon394 ▾



Repository name \*

var\_keeper

✔ var\_keeper is available.



26,27,28,29,30,31,32,33

```
asan@asan:~/var_keeper$ git remote add origin https://github.com/Azon394/
var_keeper.git
asan@asan:~/var_keeper$ git branch -M main
asan@asan:~/var_keeper$ git push -u origin main
Username for 'https://github.com': Azon394
Password for 'https://Azon394@github.com':
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 6 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 2.28 KiB | 2.28 MiB/s, done.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/Azon394/var_keeper.git
 * [new branch]      main -> main
branch 'main' set up to track 'origin/main'.
asan@asan:~/var_keeper$ git config --global credential.helper store
asan@asan:~/var_keeper$ git branch
* main
asan@asan:~/var_keeper$ git branch dev
asan@asan:~/var_keeper$ git branch
  dev
* main
asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
asan@asan:~/var_keeper$ git branch
* dev
  main
asan@asan:~/var_keeper$
```

34,35,36,37,38,39,40,41,42

```
asan@asan:~/var_keeper$ mkdir .github
asan@asan:~/var_keeper$ mkdir .github/workflows
asan@asan:~/var_keeper$ cd .github/workflows/
asan@asan:~/var_keeper/.github/workflows$ nano welcome.yml
asan@asan:~/var_keeper/.github/workflows$ cd ../../
asan@asan:~/var_keeper$ ls -al
total 28
drwxrwxr-x 4 asan asan 4096 May 18 11:53 .
drwxr-x--- 6 asan asan 4096 May 18 11:46 ..
drwxrwxr-x 8 asan asan 4096 May 18 11:49 .git
drwxrwxr-x 3 asan asan 4096 May 18 11:53 .github
-rw-rw-r-- 1 asan asan 5813 May 18 11:36 .gitignore
-rw-rw-r-- 1 asan asan 190 May 18 11:29 ReadMe.md
asan@asan:~/var_keeper$ git add .
asan@asan:~/var_keeper$ git commit -m "Добавлен workflow welcome"
[test f50190a] Добавлен workflow welcome
1 file changed, 6 insertions(+)
create mode 100644 .github/workflows/welcome.yml
asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
asan@asan:~/var_keeper$ ls -al
total 24
drwxrwxr-x 3 asan asan 4096 May 18 11:56 .
drwxr-x--- 6 asan asan 4096 May 18 11:46 ..
drwxrwxr-x 8 asan asan 4096 May 18 11:56 .git
-rw-rw-r-- 1 asan asan 5813 May 18 11:36 .gitignore
-rw-rw-r-- 1 asan asan 190 May 18 11:29 ReadMe.md
asan@asan:~/var_keeper$ □
```

43,44

```
asan@asan:~/var_keeper$ git checkout test
Switched to branch 'test'
asan@asan:~/var_keeper$ ls -al
total 28
drwxrwxr-x 4 asan asan 4096 May 18 11:58 .
drwxr-x--- 6 asan asan 4096 May 18 11:46 ..
drwxrwxr-x 8 asan asan 4096 May 18 11:58 .git
drwxrwxr-x 3 asan asan 4096 May 18 11:58 .github
-rw-rw-r-- 1 asan asan 5813 May 18 11:36 .gitignore
-rw-rw-r-- 1 asan asan 190 May 18 11:29 ReadMe.md
asan@asan:~/var_keeper$ git push -u origin test
Username for 'https://github.com': Azon394
Password for 'https://Azon394@github.com':
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 6 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (5/5), 522 bytes | 522.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'test' on GitHub by visiting:
remote: https://github.com/Azon394/var_keeper/pull/new/test
remote:
To https://github.com/Azon394/var_keeper.git
 * [new branch] test -> test
branch 'test' set up to track 'origin/test'.
asan@asan:~/var_keeper$ □
```

45,46,47

← .github/workflows/welcome.yml

✓ **Добавлен workflow welcome #1**

✓ **welcome** ▾

---

**welcome** ↺ ⚙️

succeeded 3 minutes ago in 0s

---

> ✓ Set up job 1s

▾ ✓ Run echo "Hello new commits" 0s

1 ▶ Run echo "Hello new commits"

4 Hello new commits

> ✓ Complete job 0s

48,49

```
asan@asan:~/var_keeper$ nano .github/workflows/welcome.yml
asan@asan:~/var_keeper$ git add .
asan@asan:~/var_keeper$ git commit -m "Обновлѐн workflow welcome"
[test 43d07ea] Обновлѐн workflow welcome
 1 file changed, 2 insertions(+)
asan@asan:~/var_keeper$ git push
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 6 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (5/5), 545 bytes | 545.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/Azon394/var_keeper.git
   f50190a..43d07ea test -> test
asan@asan:~/var_keeper$
```



## 2 workflow runs

Event ▾   Status ▾   Branch ▾   Actor ▾

### ✔ Welcome new commits

Welcome workflow #2: Commit [43d07ea](#) pushed by Azon394

...

📅 2 minutes ago   ⌚ 12s   [test](#)

### ✔ Добавлен workflow welcome

Welcome workflow #1: Commit [f50190a](#) pushed by Azon394

...

📅 9 minutes ago   ⌚ 11s   [test](#)

50,51,52

2 workflow runs

Event ▾	Status ▾	Branch ▾	Actor ▾
✓	Добавлен	dump_context.yml	welcome
Context testing #1: Commit <a href="#">2869841</a> pushed by Azon394			
📅 now	🕒 12s	test	...
✓	Welcome	new commits	
Welcome workflow #3: Commit <a href="#">2869841</a> pushed by Azon394			
📅 now	🕒 12s	test	...

53,54,55,56,57,58,59,60

```
asan@asan:~/var_keeper$ git branch template
asan@asan:~/var_keeper$ git checkout template
Switched to branch 'template'
asan@asan:~/var_keeper$ python3 -m venv venv
asan@asan:~/var_keeper$ source venv/bin/activate
(venv) asan@asan:~/var_keeper$ pip install flask
Collecting flask
  Downloading flask-3.0.3-py3-none-any.whl.metadata (3.2 kB)
Collecting Werkzeug>=3.0.0 (from flask)
  Downloading werkzeug-3.0.3-py3-none-any.whl.metadata (3.7 kB)
Collecting Jinja2>=3.1.2 (from flask)
  Downloading jinja2-3.1.4-py3-none-any.whl.metadata (2.6 kB)
Collecting itsdangerous>=2.1.2 (from flask)
  Downloading itsdangerous-2.2.0-py3-none-any.whl.metadata (1.9 kB)
Collecting click>=8.1.3 (from flask)
  Downloading click-8.1.7-py3-none-any.whl.metadata (3.0 kB)
Collecting blinker>=1.6.2 (from flask)
  Downloading blinker-1.8.2-py3-none-any.whl.metadata (1.6 kB)
Collecting MarkupSafe>=2.0 (from Jinja2>=3.1.2->flask)
  Downloading MarkupSafe-2.1.5-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl.metadata (3.0 kB)
Downloading flask-3.0.3-py3-none-any.whl (101 kB)
 101.7/101.7 kB 716.7 kB/s eta 0:00:00
Downloading blinker-1.8.2-py3-none-any.whl (9.5 kB)
Downloading click-8.1.7-py3-none-any.whl (97 kB)
 97.9/97.9 kB 2.0 MB/s eta 0:00:00
Downloading itsdangerous-2.2.0-py3-none-any.whl (16 kB)
Downloading jinja2-3.1.4-py3-none-any.whl (133 kB)
 133.3/133.3 kB 5.3 MB/s eta 0:00:00
Downloading werkzeug-3.0.3-py3-none-any.whl (227 kB)
 227.3/227.3 kB 6.7 MB/s eta 0:00:00
Downloading MarkupSafe-2.1.5-cp312-cp312-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (28 kB)
Installing collected packages: MarkupSafe, itsdangerous, click, blinker, Werkzeug, Jinja2, flask
Successfully installed Jinja2-3.1.4 MarkupSafe-2.1.5 Werkzeug-3.0.3 blinker-1.8.2 click-8.1.7 flask-3.0.3 itsdangerous-2.2.0
```

61,62

```
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$  
asan@asan:~$ curl http://127.0.0.1:5000/  
Hello, World!asan@asan:~$  
  
(venv) asan@asan:~/var_keeper$ mkdir src  
(venv) asan@asan:~/var_keeper$ cd src  
(venv) asan@asan:~/var_keeper/src$ mkdir app  
(venv) asan@asan:~/var_keeper/src$ cd app  
(venv) asan@asan:~/var_keeper/src/app$ nano app.py  
(venv) asan@asan:~/var_keeper/src/app$ python app.py  
* Serving Flask app 'app'  
* Debug mode: on  
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.  
* Running on all addresses (0.0.0.0)  
* Running on http://127.0.0.1:5000  
* Running on http://192.168.0.110:5000  
Press CTRL+C to quit  
* Restarting with stat  
* Debugger is active!  
* Debugger PIN: 168-085-089  
127.0.0.1 - - [18/May/2024 12:48:46] "GET / HTTP/1.1" 200 -  
127.0.0.1 - - [18/May/2024 12:49:19] "GET / HTTP/1.1" 200 -
```

63,64,65,66,67,68

```
^C(venv) asan@asan:~/var_keeper/src/app$ cd ~/var_keeper/  
(venv) asan@asan:~/var_keeper$ pip freeze > requirements.txt  
(venv) asan@asan:~/var_keeper$ git status  
On branch template  
Untracked files:  
  (use "git add <file>..." to include in what will be committed)  
        requirements.txt  
        src/  
  
nothing added to commit but untracked files present (use "git add" to track)  
(venv) asan@asan:~/var_keeper$ git add .  
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен шаблон приложения"  
[template 825135f] Добавлен шаблон приложения  
2 files changed, 17 insertions(+)  
create mode 100644 requirements.txt  
create mode 100644 src/app/app.py  
(venv) asan@asan:~/var_keeper$ mkdir test  
(venv) asan@asan:~/var_keeper$ nano unit-tests.sh  
(venv) asan@asan:~/var_keeper$ git add .  
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлены unit тесты"  
[template 24c607e] Добавлены unit тесты  
1 file changed, 1 insertion(+)  
create mode 100644 unit-tests.sh  
(venv) asan@asan:~/var_keeper$
```



69,70,71,72

```
(venv) asan@asan:~/var_keeper$ mkdir .github
(venv) asan@asan:~/var_keeper$ mkdir .github/workflows
(venv) asan@asan:~/var_keeper$ nano .github/workflows/unit_tests.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлены unit_tests.yml"
[template 2d61c7e] Добавлены unit_tests.yml
 1 file changed, 16 insertions(+)
 create mode 100644 .github/workflows/unit_tests.yml
(venv) asan@asan:~/var_keeper$ git push
fatal: The current branch template has no upstream branch.
To push the current branch and set the remote as upstream, use


    git push --set-upstream origin template

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.



(venv) asan@asan:~/var_keeper$ git branch
  dev
  main
* template
(venv) asan@asan:~/var_keeper$ git push -u origin template
Enumerating objects: 15, done.
Counting objects: 100% (15/15), done.
Delta compression using up to 6 threads
Compressing objects: 100% (9/9), done.
Writing objects: 100% (14/14), 1.47 KiB | 751.00 KiB/s, done.
Total 14 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), done.
remote:
remote: Create a pull request for 'template' on GitHub by visiting:
remote:   https://github.com/Azon394/var_keeper/pull/new/template
remote:
To https://github.com/Azon394/var_keeper.git
 * [new branch]      template -> template
branch 'template' set up to track 'origin/template'.
(venv) asan@asan:~/var_keeper$ □
```



73

 **Run Unit Tests**

Unit Tests #1: Commit [2d61c7e](#) pushed by Azon394


 2 minutes ago  11s [template](#)

...



74

```
(venv) asan@asan:~/var_keeper$ nano .github/workflows/unit_tests.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Исправлен unit_tests.yml"
[template 0259443] Исправлен unit_tests.yml
 2 files changed, 6 insertions(+), 6 deletions(-)
 rename unit-tests.sh => test/unit-tests.sh (100%)
(venv) asan@asan:~/var_keeper$ git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 6 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (6/6), 546 bytes | 546.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/Azon394/var_keeper.git
   0a9fc3c..0259443  template -> template
(venv) asan@asan:~/var_keeper$
```


75

 **Run Unit Tests**



Unit Tests #7: Commit [0259443](#) pushed by Azon394

 now  15s [template](#)

...

 **Run Unit Tests**

Unit Tests #1: Commit [2d61c7e](#) pushed by Azon394

 1 hour ago  11s [template](#)

...

76,77,78,79,80,81,82

```
(venv) asan@asan:~/var_keeper$ nano .github/workflows/pull-request-to-dev.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен pull-request-to-dev.yml"
[template ba81124] Добавлен pull-request-to-dev.yml
 1 file changed, 24 insertions(+)
 create mode 100644 .github/workflows/pull-request-to-dev.yml
(venv) asan@asan:~/var_keeper$ git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 6 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (5/5), 772 bytes | 772.00 KiB/s, done.
Total 5 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/Azon394/var_keeper.git
   0259443..ba81124  template -> template
(venv) asan@asan:~/var_keeper$ git push -u origin dev
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'dev' on GitHub by visiting:
remote:   https://github.com/Azon394/var_keeper/pull/new/dev
remote:
To https://github.com/Azon394/var_keeper.git
 * [new branch]      dev -> dev
branch 'dev' set up to track 'origin/dev'.
(venv) asan@asan:~/var_keeper$ □
```

83,84,85,86,87,88

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#). [Learn more about diff comparisons here](#).



base: dev ▾



compare: template ▾

✓ **Able to merge.** These branches can be automatically merged.

### Add a title

Шаблон приложения

### Add a description

Write

Preview



Add your description here...



#### Require approval from specific reviewers before merging

[Rulesets](#) ensure specific people approve pull requests before they're merged.

Add rule



#### All checks have passed

2 successful checks

[Hide all checks](#)



Pull Request To Dev / integration\_testing (pull\_request) Successful in 13s

[Details](#)



Unit Tests / unit\_testing (push) Successful in 8s

[Details](#)



#### This branch has no conflicts with the base branch

Merging can be performed automatically.

Merge pull request ▾

or view [command line instructions](#).



#### Pull request successfully merged and closed

You're all set—the `template` branch can be safely deleted.

Delete branch

89,90

```
(venv) asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
Your branch is up to date with 'origin/dev'.
(venv) asan@asan:~/var_keeper$ git pull
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (1/1), 934 bytes | 934.00 KiB/s, done.
From https://github.com/Azon394/var_keeper
   9a56e31..60d165f  dev      -> origin/dev
Updating 9a56e31..60d165f
Fast-forward
 .github/workflows/pull-request-to-dev.yml | 24 ++++++
 .github/workflows/unit_tests.yml          | 18 ++++++
 requirements.txt                          |  7 ++++++
 src/app/app.py                           | 10 ++++++
 test/unit-tests.sh                       |  1 +
 5 files changed, 60 insertions(+)
 create mode 100644 .github/workflows/pull-request-to-dev.yml
 create mode 100644 .github/workflows/unit_tests.yml
 create mode 100644 requirements.txt
 create mode 100644 src/app/app.py
 create mode 100644 test/unit-tests.sh
(venv) asan@asan:~/var_keeper$ git branch -d template
Deleted branch template (was ba81124).
(venv) asan@asan:~/var_keeper$ git push origin -d template
To https://github.com/Azon394/var_keeper.git
 - [deleted]          template
```



91,92,93,94,95,96,97,98,99


```
(venv) asan@asan:~/var_keeper$ git branch docker
(venv) asan@asan:~/var_keeper$ git checkout docker
Switched to branch 'docker'
(venv) asan@asan:~/var_keeper$ nano .github/workflows/staging.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен staging.yml"
[docker f38ccb0] Добавлен staging.yml
1 file changed, 37 insertions(+)
create mode 100644 .github/workflows/staging.yml
(venv) asan@asan:~/var_keeper$ mkdir docker
(venv) asan@asan:~/var_keeper$ nano docker/Dockerfile
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен Dockerfile"
[docker 03a9be5] Добавлен Dockerfile
1 file changed, 7 insertions(+)
create mode 100644 docker/Dockerfile
(venv) asan@asan:~/var_keeper$ git push
fatal: The current branch docker has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin docker



To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.



(venv) asan@asan:~/var_keeper$ git push -u origin docker
Enumerating objects: 12, done.
Counting objects: 100% (12/12), done.
Delta compression using up to 6 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (9/9), 1.42 KiB | 727.00 KiB/s, done.
Total 9 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
remote:
remote: Create a pull request for 'docker' on GitHub by visiting:
remote:   https://github.com/Azon394/var_keeper/pull/new/docker
remote:
To https://github.com/Azon394/var_keeper.git
* [new branch]      docker -> docker
branch 'docker' set up to track 'origin/docker'.
(venv) asan@asan:~/var_keeper$ □
```

100


**Azon394** merged commit **34fc839** into **dev** now
 Hide details
Revert

**2 checks passed**




**integration\_testing**
Details



**unit\_testing**
Details


```

(venv) asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
Your branch is up to date with 'origin/dev'.
(venv) asan@asan:~/var_keeper$ git branch -d docker
git push origin -d docker
warning: deleting branch 'docker' that has been merged to
        'refs/remotes/origin/docker', but not yet merged to HEAD
Deleted branch docker (was 03a9be5).
error: unable to delete 'docker': remote ref does not exist
error: failed to push some refs to 'https://github.com/Azon394/var_keeper.git'
(venv) asan@asan:~/var_keeper$ git pull
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (1/1), 885 bytes | 885.00 KiB/s, done.
From https://github.com/Azon394/var_keeper
    60d165f..34fc839  dev          -> origin/dev
Updating 60d165f..34fc839
Fast-forward
 .github/workflows/staging.yml | 37 ++++++
 docker/Dockerfile              |  7 ++++++
 2 files changed, 44 insertions(+)
 create mode 100644 .github/workflows/staging.yml
 create mode 100644 docker/Dockerfile
  
```

101


**Merge pull request #2 from Azon394/docker**
...

Push Stage version to DockerHub #1: Commit [34fc839](#) pushed by Azon394
 6 minutes ago
22s
dev



**Run Integration Tests**
...

Pull Request To Dev #3: Pull request [#2](#) opened by Azon394
 6 minutes ago
17s
docker


**azon394 / var\_keeper**


Contains:
 


- Last pushed: 5 minutes ago


 Security
 

unknown


 0


 1


 Public

102


```
sudo docker run --rm -p 80:5000 azon394/var_keeper
[sudo] password for asan:
Connection to db:Failure 2003: Can't connect to MySQL server on '%-.100s:%u' (%s)
(Warning: %u format: a real number is required, not str)
* Serving Flask app 'app'
* Debug mode: on
WARNING: This is a development server. Do not use it in a production deployment. Use a production WSGI server instead.
* Running on all addresses (0.0.0.0)
* Running on http://127.0.0.1:5000
* Running on http://172.17.0.2:5000
Press CTRL+C to quit
* Restarting with stat
* Debugger is active!
* Debugger PIN: 105-957-610
192.168.0.112 - - [18/May/2024 16:22:10] "GET / HTTP/1.1" 404 -
192.168.0.112 - - [18/May/2024 16:22:10] "GET /favicon.ico HTTP/1.1" 404 -
192.168.0.112 - - [18/May/2024 16:22:27] "GET / HTTP/1.1" 404 -
□
```


103








```
(venv) asan@asan:~/var_keeper$ git checkout dev
Already on 'dev'
Your branch is up to date with 'origin/dev'.
(venv) asan@asan:~/var_keeper$ git pull
Already up to date.
(venv) asan@asan:~/var_keeper$ git branch -d docker
error: branch 'docker' not found
(venv) asan@asan:~/var_keeper$ git push origin -d docker
error: unable to delete 'docker': remote ref does not exist
error: failed to push some refs to 'https://github.com/Azon394/var_keeper.git'
(venv) asan@asan:~/var_keeper$ □
```


Ветку докер удалил случайно до этого


104,105,106,107,108109

 **Azon394** Изменён ReadMe


now 

 .github/workflows	Добавлен staging.yml	1 hour ago
 docker	Добавлен Dockerfile	1 hour ago
 src/app	Добавлен шаблон приложения	4 hours ago
 test	Исправлен unit_tests.yml	2 hours ago
 .gitignore	Добавлен .gitignore	5 hours ago
 ReadMe.md	Изменён ReadMe	now
 requirements.txt	Добавлен шаблон приложения	4 hours ago

 **README**



# Var\_keeper

 Push Stage version to DockerHub

passing

build for commit

26.9 MB


Приложение позволяет сохранить переменную и затем прочитать её значение при помощи http запроса.




110,111,112,113,114


```
(venv) asan@asan:~/var_keeper$ nano test/all-mega-hard-tests.sh
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен all-mega-hard-tests.sh"
[dev c2c6200] Добавлен all-mega-hard-tests.sh
 1 file changed, 1 insertion(+)
 create mode 100644 test/all-mega-hard-tests.sh
(venv) asan@asan:~/var_keeper$ nano .github/workflows/pull-request-to-main.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Добавлен pull-request-to-main.yml"
[dev 34c7e99] Добавлен pull-request-to-main.yml
 1 file changed, 46 insertions(+)
 create mode 100644 .github/workflows/pull-request-to-main.yml
(venv) asan@asan:~/var_keeper$ git push
Enumerating objects: 13, done.
Counting objects: 100% (13/13), done.
Delta compression using up to 6 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (9/9), 1.22 KiB | 624.00 KiB/s, done.
Total 9 (delta 3), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (3/3), completed with 2 local objects.
To https://github.com/Azon394/var_keeper.git
   b25cf20..34c7e99  dev -> dev
(venv) asan@asan:~/var_keeper$
```

115





**Require approval from specific reviewers before merging**  
[Rulesets](#) ensure specific people approve pull requests before they're merged.



Add rule ×

**All checks have passed**  
4 successful checks



Hide all checks

 Pull Request To Main / unit\_testing (pull\_request) Successful in 2s



Details

 Push Stage version to DockerHub / build (push) Successful in 20s


Details

 Pull Request To Main / integration\_testing (pull\_request) Successful in 11s

Details

 Pull Request To Main / mega\_hard\_testing (pull\_request) Successful in 7s

Details

**This branch has no conflicts with the base branch**  
Merging can be performed automatically.

Merge pull request ▾

or view [command line instructions](#).

116

Triggered via pull request 2 minutes ago

Status

Total duration

Artifacts

Azon394 opened #3 dev

**Success**

**44s**

-

**pull-request-to-main.yml**  
on: pull\_request

unit\_testing 2s

integration\_testing 11s

mega\_hard\_testing 7s

117

main

Go to file

+

<> Code

Azon394 Merge pull request #3 from Azon394/dev 2 minutes ago

github/workflows	Добавлен pull-request-to-main.yml	6 minutes ago
docker	Добавлен Dockerfile	1 hour ago
src/app	Добавлен шаблон приложения	4 hours ago
test	Добавлен all-mega-hard-tests.sh	7 minutes ago
.gitignore	Добавлен .gitignore	5 hours ago
ReadMe.md	Изменён ReadMe	11 minutes ago
requirements.txt	Добавлен шаблон приложения	4 hours ago

README

# Var\_keeper

Push Stage version to DockerHub passing build for commit 26.9 MB

Приложение позволяет сохранить переменную и затем прочитать её значение при помощи http запроса.

```

(venv) asan@asan:~/var_keeper$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
(venv) asan@asan:~/var_keeper$ git pull
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (1/1), 881 bytes | 881.00 KiB/s, done.
From https://github.com/Azon394/var_keeper
   9a56e31..14c7063  main       -> origin/main
Updating 9a56e31..14c7063
Fast-forward
 .github/workflows/pull-request-to-dev.yml | 24 ++++++
 .github/workflows/pull-request-to-main.yml | 46 ++++++
 .github/workflows/staging.yml             | 37 ++++++
 .github/workflows/unit_tests.yml          | 18 ++++++
 README.md                                | 3 +++
 docker/Dockerfile                         | 7 +++++
 requirements.txt                           | 7 +++++
 src/app/app.py                             | 10 ++++++
 test/all-mega-hard-tests.sh                | 1 +
 test/unit-tests.sh                         | 1 +
10 files changed, 154 insertions(+)
create mode 100644 .github/workflows/pull-request-to-dev.yml
create mode 100644 .github/workflows/pull-request-to-main.yml
create mode 100644 .github/workflows/staging.yml
create mode 100644 .github/workflows/unit_tests.yml
create mode 100644 docker/Dockerfile
create mode 100644 requirements.txt
create mode 100644 src/app/app.py
create mode 100644 test/all-mega-hard-tests.sh
create mode 100644 test/unit-tests.sh
(venv) asan@asan:~/var_keeper$ 

```





119,120,121,122,123,124,125,126,127,128,129

```
(venv) asan@asan:~/var_keeper$ git checkout d
dev
(venv) asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
Your branch is up to date with 'origin/dev'.
(venv) asan@asan:~/var_keeper$ git branch add_data_base
(venv) asan@asan:~/var_keeper$ git checkout add_data_base
Switched to branch 'add_data_base'
(venv) asan@asan:~/var_keeper$ nano src/app/app.py
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Изменён app.py"
[add_data_base 84efcc0] Изменён app.py
1 file changed, 75 insertions(+), 8 deletions(-)
(venv) asan@asan:~/var_keeper$ pip install mysql-connector-python
Collecting mysql-connector-python
  Downloading mysql_connector_python-8.4.0-cp312-cp312-manylinux_2_17_x86_64.whl.m
etadata (1.9 kB)
  Downloading mysql_connector_python-8.4.0-cp312-cp312-manylinux_2_17_x86_64.whl (19
.5 MB)
    19.5/19.5 MB 547.8 kB/s eta 0:00:00
Installing collected packages: mysql-connector-python
Successfully installed mysql-connector-python-8.4.0
(venv) asan@asan:~/var_keeper$ pip freeze > requirements.txt
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Изменён requirements.txt"
[add_data_base e0a326b] Изменён requirements.txt
1 file changed, 1 insertion(+)
(venv) asan@asan:~/var_keeper$ nano .github/workflows/pull-request-to-dev.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Изменён pull-request-to-dev.yml"
[add_data_base ba58a2f] Изменён pull-request-to-dev.yml
1 file changed, 18 insertions(+), 3 deletions(-)
(venv) asan@asan:~/var_keeper$ nano .github/workflows/pull-request-to-main.yml
(venv) asan@asan:~/var_keeper$ nano .github/workflows/pull-request-to-main.yml
(venv) asan@asan:~/var_keeper$ git add .
(venv) asan@asan:~/var_keeper$ git commit -m "Изменён pull-request-to-main.yml"
[add_data_base 53912ae] Изменён pull-request-to-main.yml
1 file changed, 32 insertions(+), 17 deletions(-)
(venv) asan@asan:~/var_keeper$ git push -u origin add_data_base
Enumerating objects: 27, done.
Counting objects: 100% (27/27), done.
Delta compression using up to 6 threads
Compressing objects: 100% (14/14), done.
Writing objects: 100% (18/18), 3.22 KiB | 659.00 KiB/s, done.
Total 18 (delta 5), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (5/5), done.
remote:
remote: Create a pull request for 'add_data_base' on GitHub by visiting:
remote:   https://github.com/Azon394/var_keeper/pull/new/add_data_base
remote:
To https://github.com/Azon394/var_keeper.git
* [new branch]      add_data_base -> add_data_base
branch 'add_data_base' set up to track 'origin/add_data_base'.
(venv) asan@asan:~/var_keeper$ □
```




130





 **Require approval from specific reviewers before merging**  
[Rulesets](#) ensure specific people approve pull requests before they're merged.



Add rule ×

 **All checks have passed**  
2 successful checks


Hide all checks

  **Pull Request To Dev / integration\_testing (pull\_request)** Successful in 42s

Details

  **Unit Tests / unit\_testing (push)** Successful in 3s

Details


 **This branch has no conflicts with the base branch**  
Merging can be performed automatically.


Merge pull request ▾

or view [command line instructions](#).


131

Add more commits by pushing to the [dev](#) branch on [Azon394/var\\_keeper](#).




 **Require approval from specific reviewers before merging**  
[Rulesets](#) ensure specific people approve pull requests before they're merged.

Add rule ×

 **All checks have passed**  
1 successful check

Show all checks

 **This branch has no conflicts with the base branch**  
Merging can be performed automatically.

Merge pull request ▾

or view [command line instructions](#).

132,133

```
(venv) asan@asan:~/var_keeper$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
(venv) asan@asan:~/var_keeper$ git pull
remote: Enumerating objects: 1, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 1 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (1/1), 897 bytes | 897.00 KiB/s, done.
From https://github.com/Azon394/var_keeper
   34c7e99..794d823  dev      -> origin/dev
Already up to date.
(venv) asan@asan:~/var_keeper$ git checkout dev
Switched to branch 'dev'
Your branch is behind 'origin/dev' by 5 commits, and can be fast-forwarded.
  (use "git pull" to update your local branch)
(venv) asan@asan:~/var_keeper$ git pull
Updating 34c7e99..794d823
Fast-forward
 .github/workflows/pull-request-to-dev.yml | 21 ++++++--
 .github/workflows/pull-request-to-main.yml | 49 ++++++++-----
 requirements.txt                           |  1 +
 src/app/app.py                             | 83 ++++++++-----
 4 files changed, 126 insertions(+), 28 deletions(-)
(venv) asan@asan:~/var_keeper$ git branch -d add_data_base
Deleted branch add_data_base (was 53912ae).
```

```

(venv) asan@asan:~/var_keeper$ git log --oneline --graph
* 794d823 (HEAD -> dev, origin/dev) Merge pull request #4 from Azon394/add_data_base
| \
| * 53912ae (origin/add_data_base) Изменён pull-request-to-main.yml
| * ba58a2f Изменён pull-request-to-dev.yml
| * e0a326b Изменён requirements.txt
| * 84efcc0 Изменён app.py
| /
* 34c7e99 Добавлен pull-request-to-main.yml
* c2c6200 Добавлен all-mega-hard-tests.sh
* b25cf20 Изменён ReadMe
* 4a38eaf Изменён ReadMe
* 34fc839 Merge pull request #2 from Azon394/docker
| \
| * 03a9be5 (origin/docker) Добавлен Dockerfile
| * f38ccb0 Добавлен staging.yml
| /
* 60d165f Merge pull request #1 from Azon394/template
| \
| * ba81124 Добавлен pull-request-to-dev.yml
| * 0259443 Исправлен unit_tests.yml
| * 0a9fc3c Исправлен unit_tests.yml
| * 8995789 Исправлен unit_tests.yml
| * b117f43 Исправлен unit_tests.yml
| * 19597e8 Исправлен unit_tests.yml
| * ebf7c78 Исправлен unit_tests.yml
| * 2d61c7e Добавлены unit_tests.yml
| * 24c607e Добавлены unit тесты
| * 825135f Добавлен шаблон приложения
| /
* 9a56e31 Добавлен .gitignore
* aaa6d32 Добавлен ReadMe.md
(venv) asan@asan:~/var_keeper$ 

```

### Ответы на вопросы.

1) События, триггирующие рабочие процессы (workflow):

Изменения в репозитории (например, коммиты, создание или удаление веток) и события, связанные с защитой веток (branch protection rules).

Запросы на проверку (check runs) и события, связанные с ними.

Ручные запуски с помощью события workflow\_dispatch.

Запланированные выполнения по расписанию.

В файле .yml раздел on определяет, на какие события реагирует рабочий процесс.

2) Хранение секретной информации на GitHub:

Для безопасного хранения паролей, токенов и других секретов используйте GitHub Secrets. Вы можете создавать секреты на уровне организации, репозитория или окружения. Секреты доступны в рабочих процессах через переменные окружения или входные параметры.

3) Получение почты владельца репозитория во время выполнения рабочего процесса:

В рабочем процессе можно использовать контекстные переменные, такие как `github.repository_owner` или `github.event.repository.owner.email`. Однако по умолчанию эти данные не доступны из-за конфиденциальности. Вам следует использовать собственные секреты для хранения такой информации.

#### 4) Спецификации виртуальных машин для рабочих процессов:

GitHub предоставляет хостинг виртуальных машин для выполнения рабочих процессов. Спецификации зависят от операционной системы:

Linux: На данный момент используются виртуальные машины с 4 vCPU и 16 ГБ оперативной памяти.

Windows: Для точных характеристик виртуальных машин Windows рекомендуется обратиться к официальной документации GitHub.

#### 5) Список установленного ПО на виртуальных машинах:

GitHub предоставляет предустановленные инструменты и пакеты на хостинге виртуальных машин. Для полного списка инструментов, доступных на GitHub-hosted runners, вы можете ознакомиться с документацией.

**Вывод:** Я ознакомился с базовыми возможностями утилиты `git`, сервисов GitHub и возможностями CI/CD, которые он предоставляет.