

САНКТ-ПЕТЕРБУРГСКИЙ НАЦИОНАЛЬНЫЙ ИССЛЕДОВАТЕЛЬСКИЙ
УНИВЕРСИТЕТ ИТМО

Отчет по домашней работе №6 по курсу “Бэкенд разработка”

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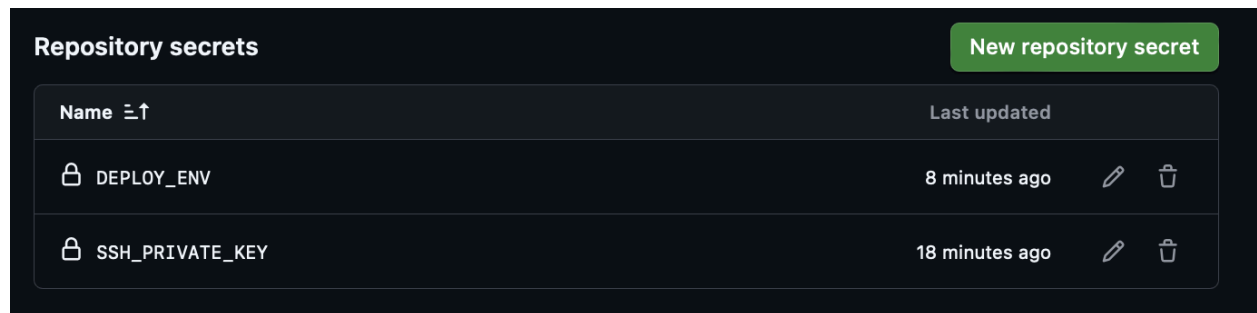
2025 г.

1. Задание:

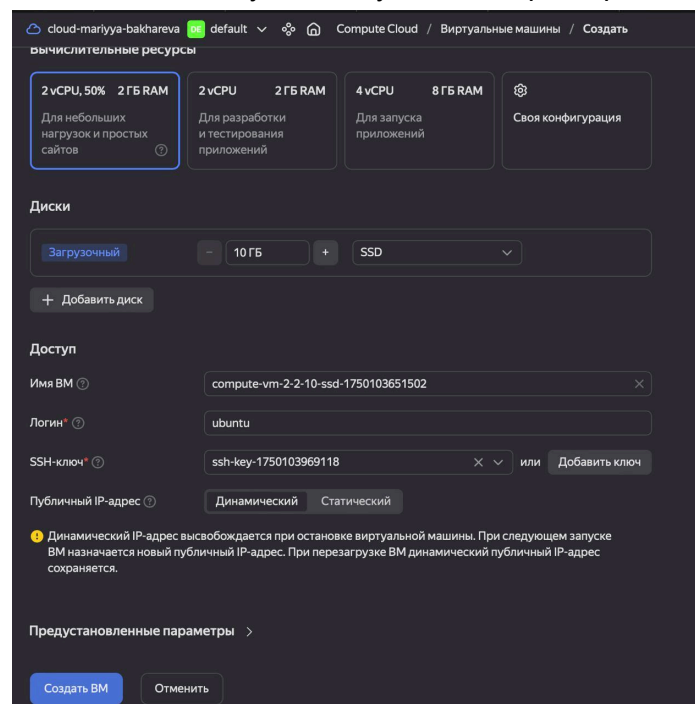
Необходимо настроить автодеплой (с триггером на обновление кода в вашем репозитории, на определённой ветке) для вашего приложения на удалённый сервер с использованием Github Actions или Gitlab CI (любая другая CI-система также может быть использована).

2. Ход работы

1. Создадим ssh ключ с помощью терминала. Добавим его также в Secrets в Github. Туда же добавим наш файл .env, чтобы не пушить в открытый доступ сам файл.



2. Создадим в Yandex Cloud VMку со следующими характеристиками:



3. Попробуем подключиться к VM через терминал. Успешно.

```
mariabakhareva@Marias-MacBook-Air-2 hw6 % ssh ubuntu@89.169.182.4

The authenticity of host '89.169.182.4 (89.169.182.4)' can't be established.
ED25519 key fingerprint is SHA256:z0Yfq5x/fjjjJ1WGdZ/HBB7BVX4VIZwuPpjzZI4xX7E.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '89.169.182.4' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-60-generic x86_64)

* Documentation:  https://help.ubuntu.com
* Management:    https://landscape.canonical.com
* Support:       https://ubuntu.com/pro
```

4. Настроим на VM работу с ключами, установим туда Git, Docker, Docker Compose, клонируем на нее репозиторий. Выдаем права нашему юзеру на работу с Docker

```
ubuntu@compute-vm-2-2-10-ssd-1750103651502:~$ sudo systemctl status docker
● docker.service - Docker Application Container Engine
   Loaded: loaded (/usr/lib/systemd/system/docker.service; enabled; preset: enabled)
   Active: active (running) since Mon 2025-06-16 20:21:27 UTC; 27s ago
     TriggeredBy: ● docker.socket
       Docs: https://docs.docker.com
    Main PID: 2417 (dockerd)
      Tasks: 9
     Memory: 21.7M (peak: 22.2M)
        CPU: 238ms
    CGroup: /system.slice/docker.service
            └─2417 /usr/bin/dockerd -H fd:// --containerd=/run/containerd/containerd.sock

ubuntu@compute-vm-2-2-10-ssd-1750103651502:~$ git clone https://github.com/mariabakhareva/ITMO-ACS-Backend-2025.git
Cloning into 'ITMO-ACS-Backend-2025'...
remote: Enumerating objects: 542, done.
remote: Counting objects: 100% (181/181), done.
remote: Compressing objects: 100% (93/93), done.
remote: Total 542 (delta 111), reused 111 (delta 83), pack-reused 361 (from 1)
Receiving objects: 100% (542/542), 6.92 MiB | 17.97 MiB/s, done.
Resolving deltas: 100% (242/242), done.
```

5. Создаем директорию .github/workflows/deploy.yml. Прописываем сам deploy.yml

```
name: Deploy

on:
  push:
    branches:
      - hw6

jobs:
```

```

deploy:
  runs-on: ubuntu-latest

  steps:
    - name: Checkout code
      uses: actions/checkout@v4

    - name: Set up SSH
      uses: webfactory/ssh-agent@v0.9.0
      with:
        ssh-private-key: ${ secrets.SSH_PRIVATE_KEY }

    - name: Deploy on remote server
      env:
        DEPLOY_ENV: ${ secrets.DEPLOY_ENV }
      run: |
        ssh -o StrictHostKeyChecking=no ubuntu@89.169.182.4 << EOF
        cd ~
        rm -rf ITMO-ACS-Backend-2025
        git clone -b hw6
        https://github.com/mariabakhareva/ITMO-ACS-Backend-2025.git
        cd "ITMO-ACS-Backend-2025/BP2/Maria Bakhareva/homeworks/hw6/deploy"
        echo "$DEPLOY_ENV" > .env

        docker compose down || true
        docker compose up -d --build
        EOF

```

6. Пушим 6 домашнюю работу в hw6. Смотрим вкладку Actions

The screenshot shows the GitHub Actions interface for a workflow named 'fix: updated github actions file again #7'. The workflow is in a 'Completed' state, having succeeded 7 minutes ago. The left sidebar shows the 'Summary' tab selected, with a 'Jobs' section listing the 'deploy' job. The main area displays the 'deploy' job details, including a search bar for logs and a list of steps: 'Set up job', 'Checkout code', 'Set up SSH', and 'Deploy on remote server'. The 'Deploy on remote server' step is expanded, showing the terminal output of the deployment process, which includes SSH connection details, system information, and the execution of 'docker compose up'.

← Deploy
 🟢 fix: updated github actions file again #7 Re-run all jobs ...

Summary
 Jobs
 🟢 deploy
 Run details
 Usage
 Workflow file

deploy
 succeeded 7 minutes ago in 3m 24s Search logs ⚙️

- > Set up job 0s
- > Checkout code 1s
- > Set up SSH 0s
- > Deploy on remote server 3m 21s

```

1 ▶ Run ssh -o StrictHostKeyChecking=no ubuntu@89.169.182.4 << EOF
17 Pseudo-terminal will not be allocated because stdin is not a terminal.
18 Warning: Permanently added '89.169.182.4' (ED25519) to the list of known hosts.
19 Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-68-generic x86_64)
20 * Documentation:  https://help.ubuntu.com
21 * Management:     https://landscape.canonical.com
22 * Support:        https://ubuntu.com/support
23 System information as of Mon Jun 16 20:49:21 UTC 2025
24 System load:  0.0      Processes:      142
25 Usage of /:   24.5% of 9.84GB   Users logged in: 1
26 Memory usage: 13%          IPv4 address for eth0: 10.129.0.16
27 Swap usage:   0%
28 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
29   just raised the bar for easy, resilient and secure K8s cluster deployment.
30   https://ubuntu.com/enpage/secure-kubernetes-at-the-edge
31 Expanded Security Maintenance for Applications is not enabled.
32 6 updates can be applied immediately.
33 6 of these updates are standard security updates.
34 To see these additional updates run: apt list --upgradable
35 Enable ESM Apps to receive additional future security updates.
36 See https://ubuntu.com/esm or run: sudo pro status
37 Cloning into 'ITMO-ACS-Backend-2025'...
38 rabbitmq Pulling
39 db Pulling
40 d9d362c11b8d Pulling fs layer

```

```
✓ Post Set up SSH 0s
1 Post job cleanup.
2 Stopping SSH agent
3 The "file" argument must be of type string. Received undefined
4 Error stopping the SSH agent, proceeding anyway

✓ Post Checkout code 0s
1 Post job cleanup.
2 /usr/bin/git version
3 git version 2.49.0
4 Temporarily overriding HOME='/home/runner/work/_temp/caaa83ca-58ad-48de-bb25-f9dfb428eb9b' before making global git config changes
5 Adding repository directory to the temporary git global config as a safe directory
6 /usr/bin/git config --global --add safe.directory /home/runner/work/ITMO-ACS-Backend-2025/ITMO-ACS-Backend-2025
7 /usr/bin/git config --local --name-only --get-regexp core.sshCommand
8 /usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'core.sshCommand' && git config --local --unset-all 'core.sshCommand' || :"
```

```
9 /usr/bin/git config --local --name-only --get-regexp http.https://github.com/.extraheader
10 http.https://github.com/.extraheader
11 /usr/bin/git config --local --unset-all http.https://github.com/.extraheader
12 /usr/bin/git submodule foreach --recursive sh -c "git config --local --name-only --get-regexp 'http.https://github.com/.extraheader' && git config --local --unset-all 'http.https://github.com/.extraheader' || :"
```

```
✓ Complete job 0s
1 Cleaning up orphan processes
```

Скрипт сработал успешно.

3. Вывод

В ходе работы настроен автоматический деплой приложения на удалённый сервер с использованием GitHub Actions. Настроена безопасная аутентификация через SSH-ключи, реализован автоматический запуск и обновление контейнеров Docker Compose при пуше в ветку hw6. Работа обеспечивает непрерывную интеграцию и доставку (CI/CD).