

Traffic lights settings department - LCE “Lvivavtodor”

Senior Engineer

Responsible for:

- checking and configuring logic of adaptive traffic lights (> 8 crossroads);
- traffic lights programming (via GUI);
- approval of drawings in the police department;
- traffic organization.



Final project

Automated process of deploying the website into AWS

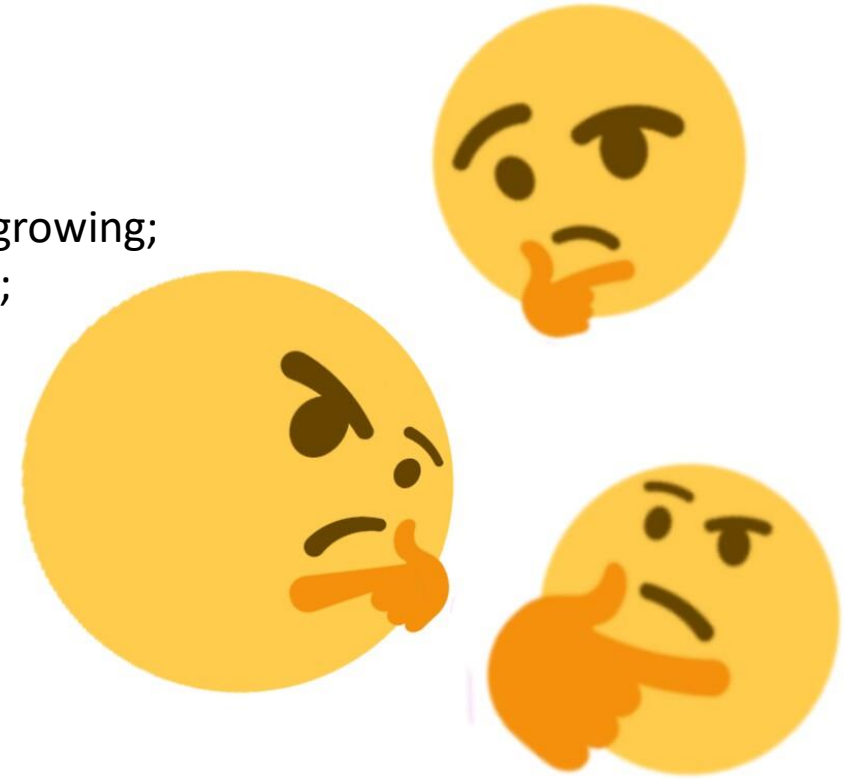
Boring theory😊

Objective

- creating a fast, stable, automated way for delivering changes to a web application;
- getting experience with CI/CD process and tools.

Why is it important?

- it increases the speed of application development;
- using the cloud is much more popular nowadays and its usage in the market is growing;
- infrastructure can be moved to a different cloud provider or bare-metal servers;
- it's interesting personally for me.

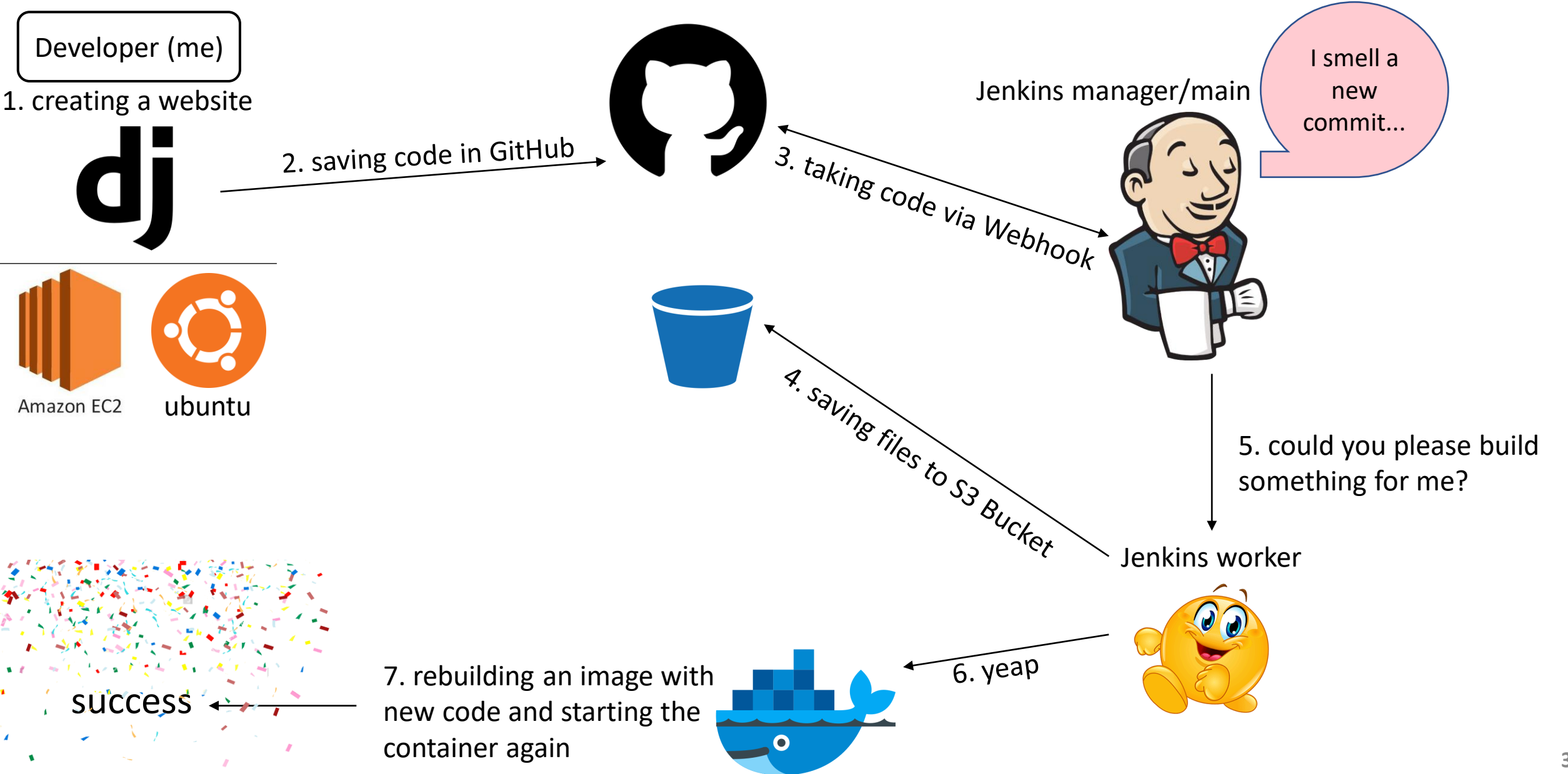


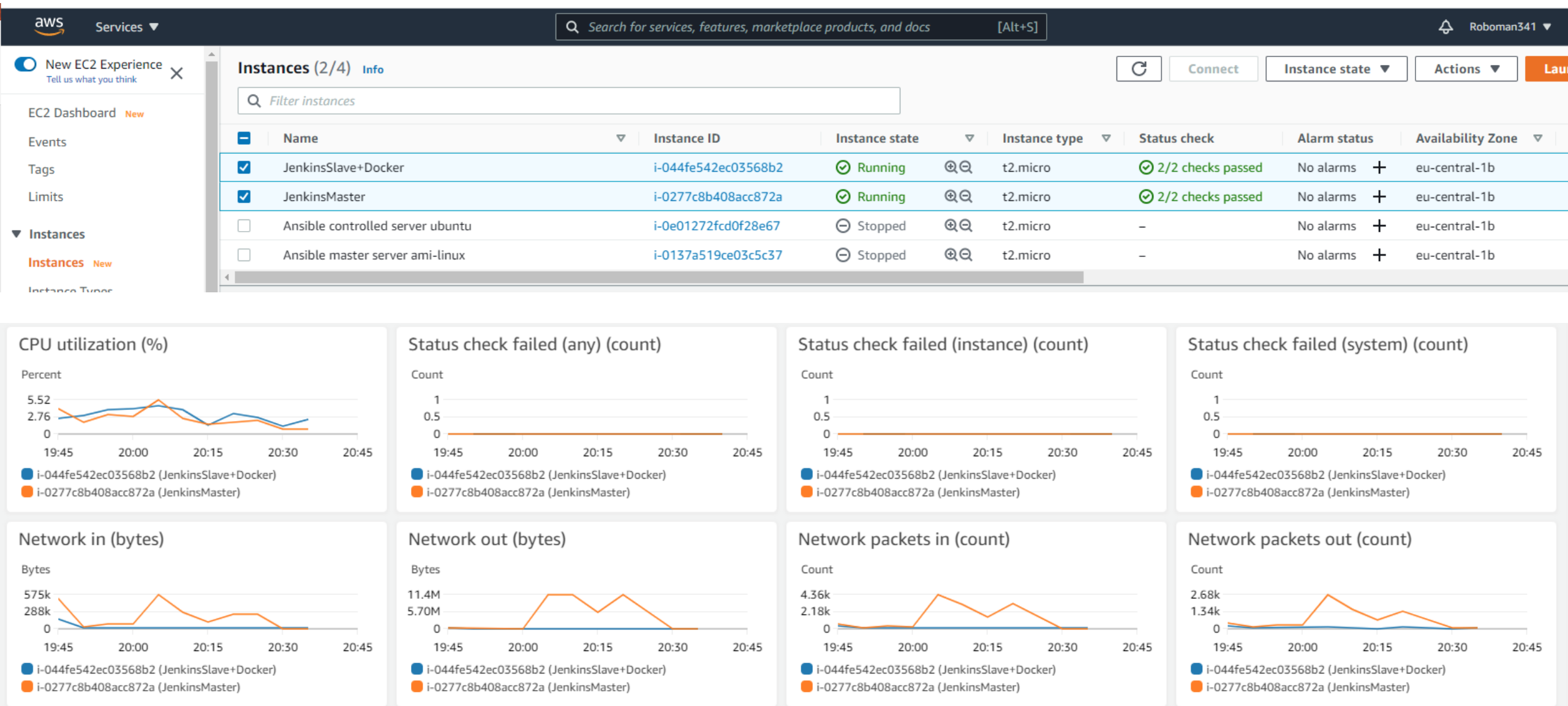
Tools that were used

- **AWS (EC2, S3)** - provides on-demand cloud computing platforms and APIs to individuals, companies, and governments, on a metered pay-as-you-go basis;
- **Jenkins** - free and open source automation server;
- **Docker** - is a tool designed to make it easier to create, deploy, and run applications by using containers;
- **Git** - version control system;
- **Django (Python)** - is an open-source web framework written in the Python programming language.



Project structure





ne_Lviv_2020Q42021Q1-

Unwatch

IssuesActionsProjectsWikiSecurityInsightsSettings

OptionsManage accessSecurity & analysisBranchesWebhooksNotificationsIntegrationsDeploy keysActionsEnvironmentsSecretsModeration settings

Webhooks / Manage webhook

We'll send a POST request to the URL below with details of any subscribed events. You can also specify which data format you'd like to receive (JSON, x-www-form-urlencoded, etc). More information can be found in [our developer documentation](#).

Payload URL *

http://18.196.48.126:8080/github-webhook/

Content type

application/json

Secret

Which events would you like to trigger this webhook?

☒ Just the push event.

☐ Send me everything.

☐ Let me select individual events.

☒ Active

We will deliver event details when this hook is triggered.

Update webhook

Delete webhook

Search or jump to... Pull requestsIssuesMarketplaceExplore

RobertVenhryn / DevOps_online_Lviv_2020Q42021Q1-

Unwatch

<> Code

Issues

Pull requests

Actions

Projects

Wiki

Security

Insights

Settings

master DevOps_online_Lviv_2020Q42021Q1- / MyFinalProject /

Go to file

Add file

Robert Venhryn and Robert Venhryn test for s3 bucket 22:26

bbb8368 8 minutes ago

History

..

.idea

test for s3 bucket 21:51

43 minutes ago

mysite

test for s3 bucket 22:26

8 minutes ago

Dockerfile

Final task test commit 22:45

yesterday

main.py

FinalProject folder added

2 days ago

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Status

Docs

Contact GitHub

Pricing

API

Training

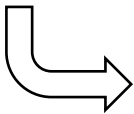
Blog

About

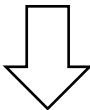
5

Jenkins

```
ssh: cd [/home/ubuntu]
SSH: OK
SSH: Opening exec channel ...
SSH: EXEC: channel open
SSH: EXEC: STDOUT/STDERR from command [echo "start for the slave"
echo 42
sudo docker stop website
cd /home/ubuntu/DevOps_online_Lviv_2020Q42021Q1-
sudo git pull
cd MyFinalProject
sleep 10
sudo docker build -t mysite:v1 .
sudo docker run -d --rm --name website -p 5000:5000 mysite:v1] ...
SSH: EXEC: connected
start for the slave
42
website
From https://github.com/RobertVenhryn/DevOps_online_Lviv_2020Q42021Q1-
11b3cf8..bbb8368 master -> origin/master
Updating 11b3cf8..bbb8368
Fast-forward
 MyFinalProject/mysite/main/templates/main/index.html | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
Sending build context to Docker daemon 521.2kB
```



```
Step 1/12 : FROM ubuntu:20.04
----> f63181f19b2f
Step 2/12 : ENV PYTHONUNBUFFERED 1
----> Using cache
----> 69b3909d6dd3
Step 3/12 : ENV PYTHONDONTWRITEBYTECODE 1
----> Using cache
----> f90caf9a9e9b
Step 4/12 : ARG DEBIAN_FRONTEND=noninteractive
----> Using cache
----> ecb2b0c980c4
Step 5/12 : RUN apt-get -y update && apt install python3 python3-pip -y
----> Using cache
----> 8e63ae19ffc6
Step 6/12 : RUN pip3 install --upgrade pip
----> Using cache
----> e2d40efc0185
Step 7/12 : RUN pip3 install Django
----> Using cache
----> c146f41606e5
Step 8/12 : WORKDIR /usr/src/app
----> Using cache
----> 95c621d90055
Step 9/12 : COPY . /usr/src/app
----> 2d32392d13d0
Step 10/12 : WORKDIR mysite
----> Running in 952c79cba9d7
Removing intermediate container 952c79cba9d7
----> bbe17c97a88d
Step 11/12 : EXPOSE 5000
----> Running in 1c088550116d
Removing intermediate container 1c088550116d
----> 6e0c5267341a
Step 12/12 : CMD [ "python3", "./manage.py", "runserver", "0.0.0.0:5000" ]
----> Running in 6955c6a12326
```



Send build artifacts over SSH

SSH Publishers

SSH Server

Name

slave

Transfers

Transfer Set

Source files

/home/ubuntu/DevOps_online_Lviv_2020Q42021Q1-

Remove prefix

Remote directory

Exec command

echo "start for the slave"
echo \$BUILD_ID
sudo docker stop website
cd /home/ubuntu/DevOps_online_Lviv_2020Q42021Q1-
sudo git pull
cd MyFinalProject
sleep 10
sudo docker build -t mysite:v1 .
sudo docker run -d --rm --name website -p 5000:5000 mysite:v1

S	Name	Architecture	Clock Difference	Free Disk Space	Free Swap Space	Free Temp Space	Response Time
	master	Linux (amd64)	In sync	4.20 GB	0 B	4.20 GB	0ms
	slave-1	Linux (amd64)	In sync	3.61 GB	0 B	3.61 GB	7ms
Data obtained		56 ms	54 ms	50 ms	47 ms	43 ms	48 ms

S3 bucket

Learn how to effectively use the S3 Storage Classes.

Learn more

Amazon S3 > finaltaskbuk

finaltaskbuk

Objects

Properties

Permissions

Metrics

Management

Access Points

Objects (12)

Objects are the fundamental entities stored in Amazon S3. For others to access your objects, you'll need to explicitly grant them permissions. [Learn more](#)

Find objects by prefix

Refresh













Delete

Actions

Create folder

Upload

< 1 > ⚙

<input type="checkbox"/>	Name	Type	Last modified	Size	Storage class
<input type="checkbox"/>	 index.html	html	March 4, 2021, 22:26:55 (UTC+02:00)	358.0 B	Standard
<input type="checkbox"/>	 m1/	Folder	-	-	-
<input type="checkbox"/>	 m10/	Folder	-	-	-
<input type="checkbox"/>	 m2/	Folder	-	-	-
<input type="checkbox"/>	 m3/	Folder	-	-	-
<input type="checkbox"/>	 m4/	Folder	-	-	-
<input type="checkbox"/>	 m5/	Folder	-	-	-
<input type="checkbox"/>	 m6/	Folder	-	-	-
<input type="checkbox"/>	 m7/	Folder	-	-	-
<input type="checkbox"/>	 m8/	Folder	-	-	-
<input type="checkbox"/>	 m9/	Folder	-	-	-
<input type="checkbox"/>	 MyFinalProject/	Folder	-	-	-

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Docker

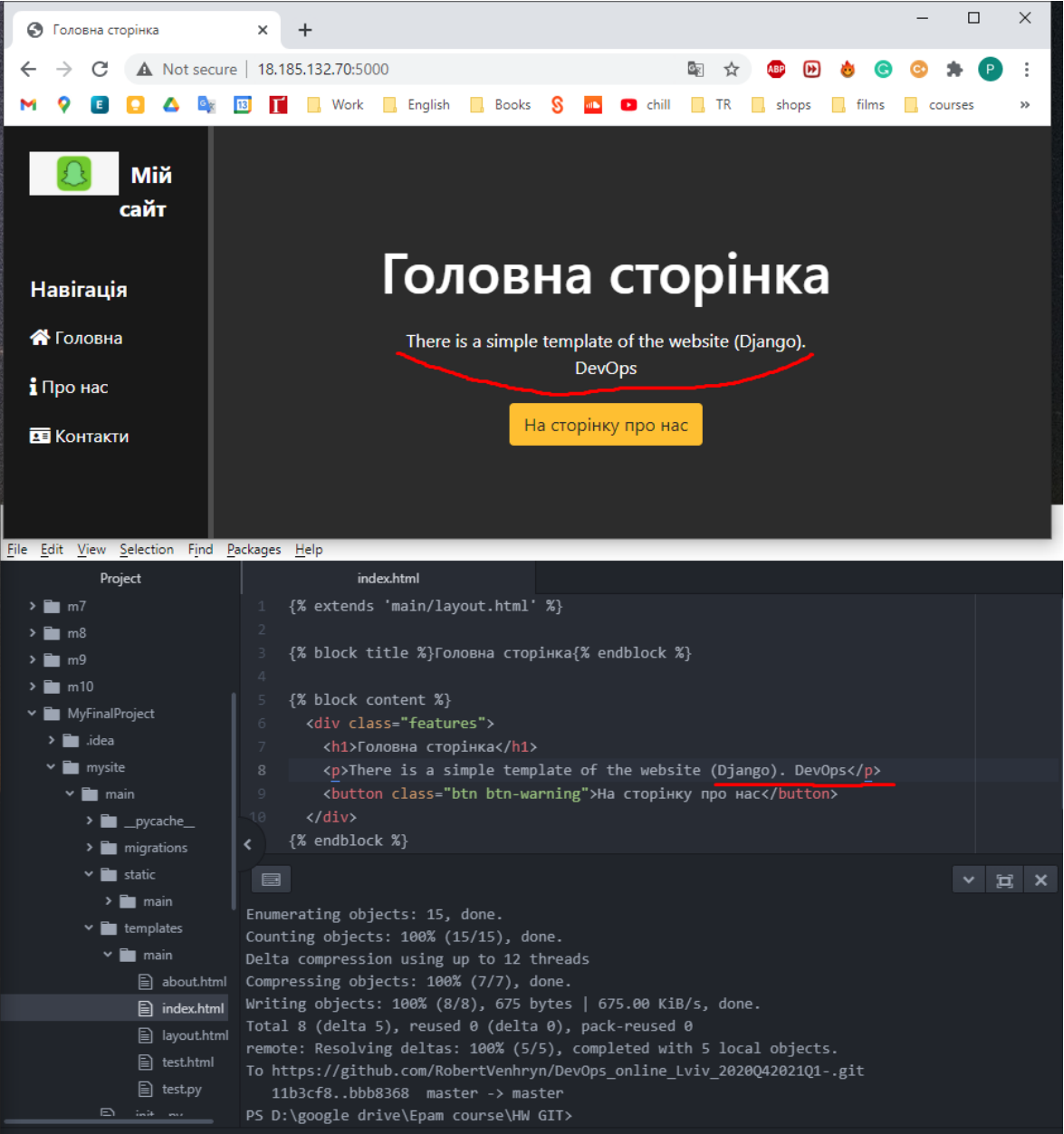
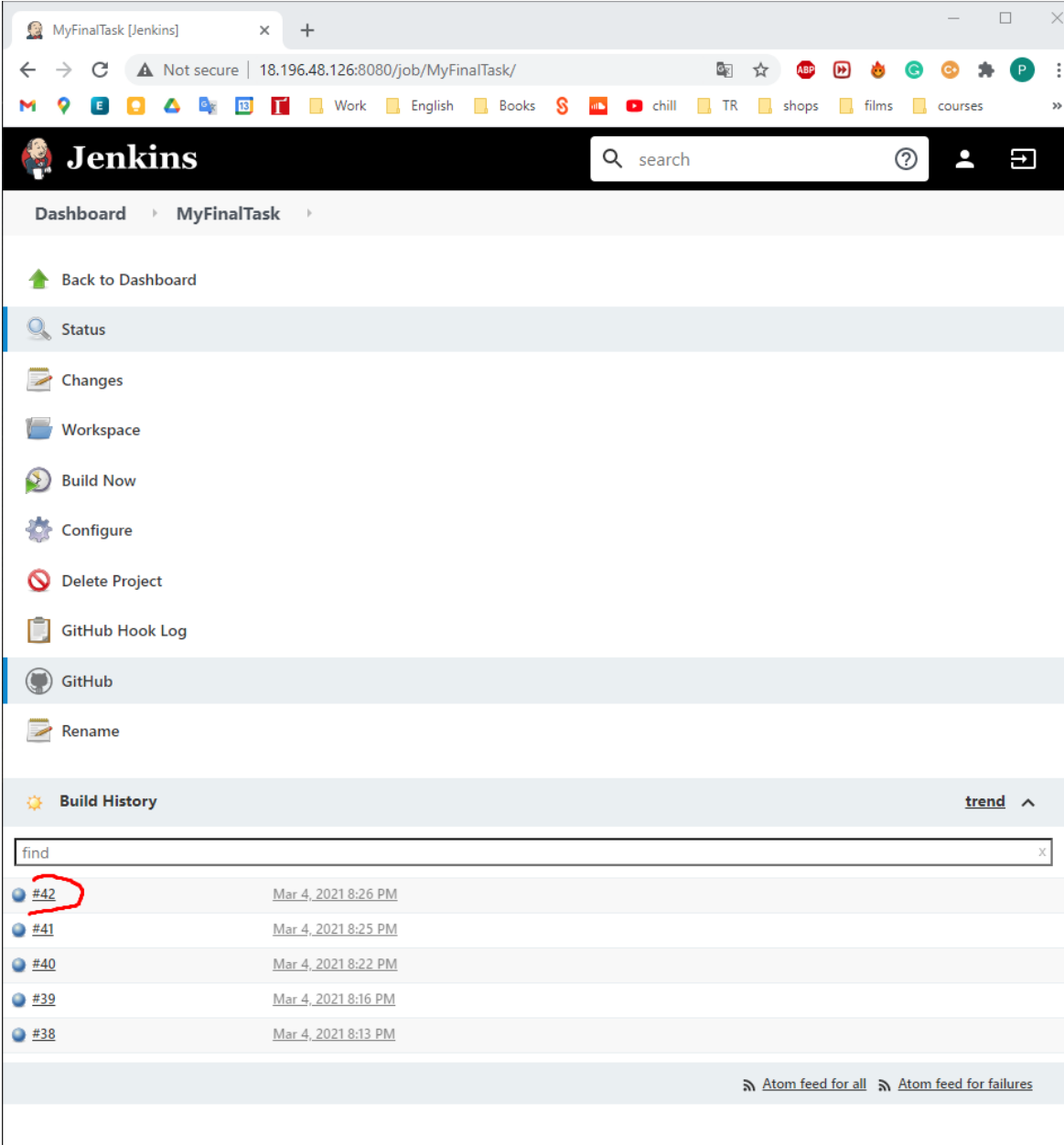
```
Dockerfile x
1 FROM ubuntu:20.04
2 ENV PYTHONUNBUFFERED 1
3 ENV PYTHONDONTWRITEBYTECODE 1
4 ARG DEBIAN_FRONTEND=noninteractive
5 RUN apt-get -y update && apt install python3 python3-pip -y
6 RUN pip3 install --upgrade pip
7 RUN pip3 install Django
8 WORKDIR /usr/src/app
9 COPY . /usr/src/app
10 WORKDIR mysite
11 EXPOSE 5000
12 CMD [ "python3", "./manage.py", "runserver", "0.0.0.0:5000" ]
```

```
ubuntu@ForJenkinsProjectVM2:~$ sudo docker images
REPOSITORY    TAG       IMAGE ID       CREATED        SIZE
mysite        v1        99c6b75c2322   3 hours ago    453MB
<none>        <none>    28574d7b5033   3 hours ago    453MB
<none>        <none>    ad0121d59036   13 hours ago   453MB
<none>        <none>    89ff7587fe7d   14 hours ago   453MB
<none>        <none>    67966bdc0e10   14 hours ago   453MB
<none>        <none>    6102f1a5b45b   14 hours ago   453MB
<none>        <none>    4ba0a62bef99   14 hours ago   453MB
<none>        <none>    18d5ed4dcbfc   14 hours ago   453MB
<none>        <none>    038d8e2bd6cd   14 hours ago   453MB
<none>        <none>    d1ba0472fbd4   37 hours ago   453MB
<none>        <none>    7e706caa92d1   38 hours ago   453MB
<none>        <none>    db87eed618a2   44 hours ago   495MB
<none>        <none>    f48003ebbc16   44 hours ago   495MB
ubuntu        20.04     f63181f19b2f   6 weeks ago    72.9MB
```

single container😊

```
ubuntu@ForJenkinsProjectVM2:~$ sudo docker ps -a
CONTAINER ID   IMAGE          COMMAND                  CREATED        STATUS        PORTS                    NAMES
62a3bad96e7c   mysite:v1     "python3 ./manage.py..." 25 seconds ago Up 24 seconds 0.0.0.0:5000->5000/tcp   website
693004d7bafa   db87eed618a2  "/bin/bash"               44 hours ago  Created                                optimistic_goldwasser
```

Result



Result

MyFinalTask [Jenkins]

Not secure | 18.196.48.126:8080/job/MyFinalTask/

Jenkins

search

DashboardMyFinalTask

Back to Dashboard

Status

Changes

Workspace

Build Now

Configure

Delete Project

GitHub Hook Log

GitHub

Rename

Build History

find

#43

Mar 4, 2021 8:41 PM

#42

Mar 4, 2021 8:26 PM

#41

Mar 4, 2021 8:25 PM

#40

Mar 4, 2021 8:22 PM

#39

Mar 4, 2021 8:16 PM

#38

Mar 4, 2021 8:13 PM

Atom feed for allAtom feed for failures

Головна сторінка

Not secure | 18.185.132.70:5000

Мій сайт

Навігація

Головна

Про нас

Контакти

Головна сторінка

There is a simple template of the website (Django).
DevOps. Thanks for attention

На сторінку про нас

File Edit View Selection Find Packages Help

Project

index.html

1 extends 'main/layout.html' %}

2

3 block title %}Головна сторінка{% endblock %}

4

5 block content %}

6 <div class="features">

7 <h1>Головна сторінка</h1>

8 <p>There is a simple template of the website (Django). DevOps. Thanks for attention</p>

9 <button class="btn btn-warning">На сторінку про нас</button>

10 </div>

endblock %}

Enumerating objects: 15, done.

Counting objects: 100% (15/15), done.

Delta compression using up to 12 threads

Compressing objects: 100% (7/7), done.

Writing objects: 100% (8/8), 689 bytes | 689.00 KiB/s, done.

Total 8 (delta 5), reused 0 (delta 0), pack-reused 0

remote: Resolving deltas: 100% (5/5), completed with 5 local objects.

To https://github.com/RobertVenhryn/DevOps_online_lviv_2020Q42021Q1-.git

bbb8368..020d768 master -> master

PS D:\google drive\Epam course\HW GIT>

10

What's next?

The project can be better with this:

- using Terraform for creating infrastructure;
- giving the static IP addresses to AWS instances (to save time for configuring Jenkins, webhooks);
- sending an image to Docker Hub and deleting old images;
- improving the website with some content (database/showing random cats/news etc.).

Thank you for your attention

Project by: Robert Venhryn

Mail: robert.venhryn@gmail.com

GitHub repo:

https://github.com/RobertVenhryn/DevOps_online_Lviv_2020Q42021Q1-