Lab Final Task

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EPAM DevOps Lab 2021

Used Technologies and Tools

Git/GitHub

Docker/Docker Hub

Terraform

Kubernetes

GCP/GKE

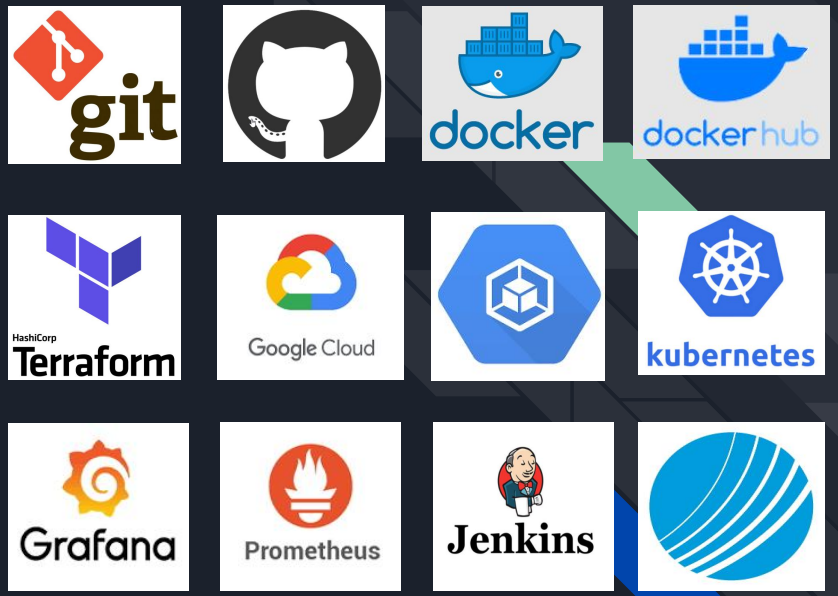
Jenkins

Helm

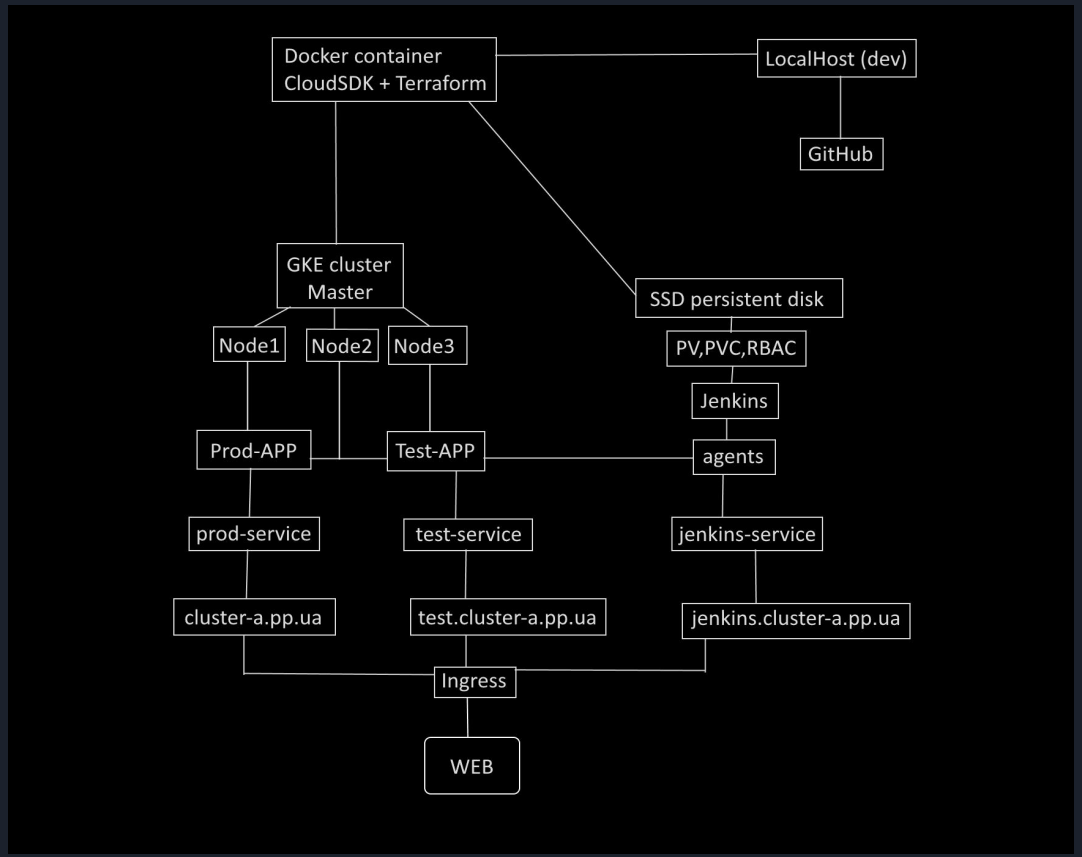
Prometheus

Grafana

Contour ingress controller



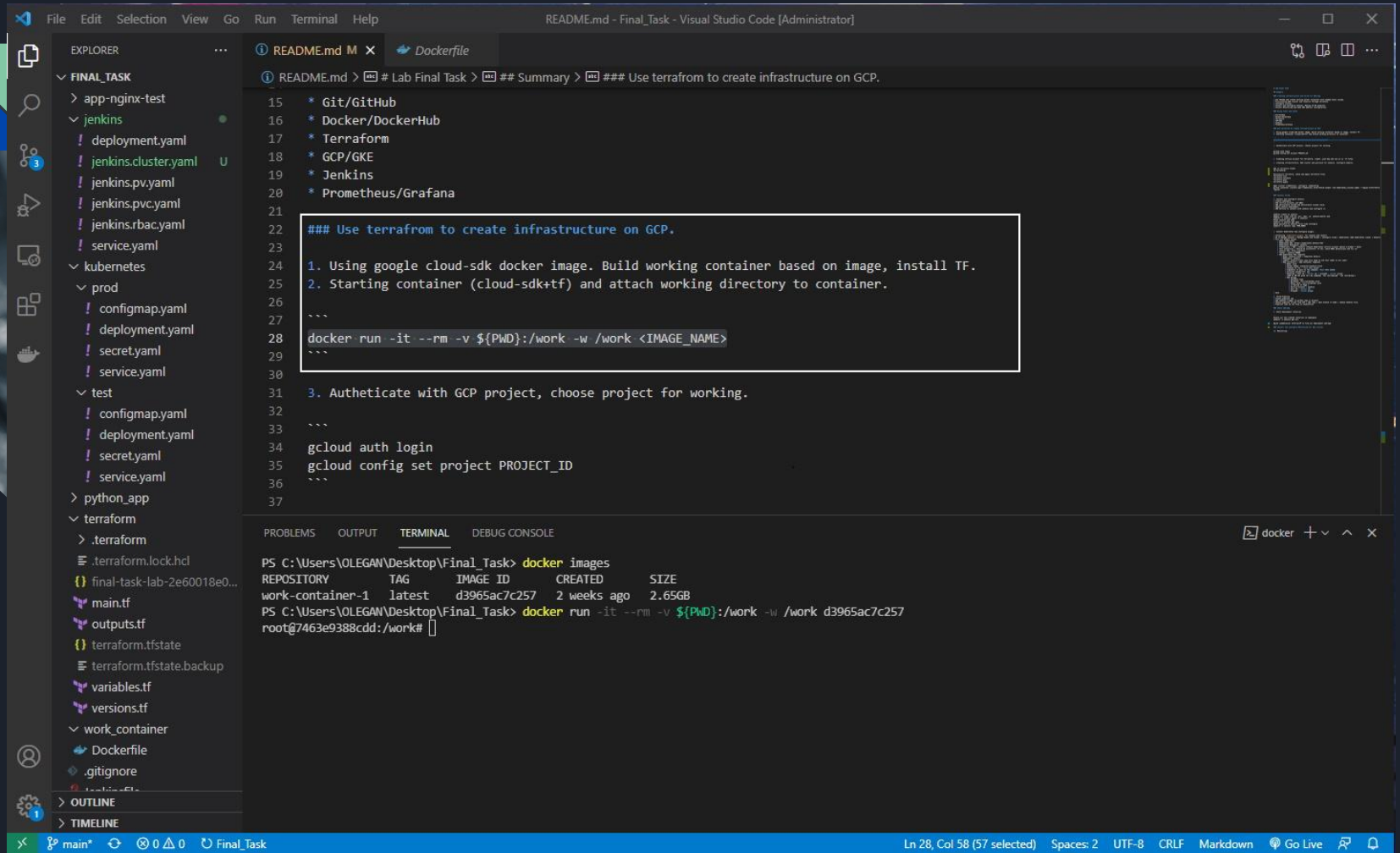
Scheme of task.



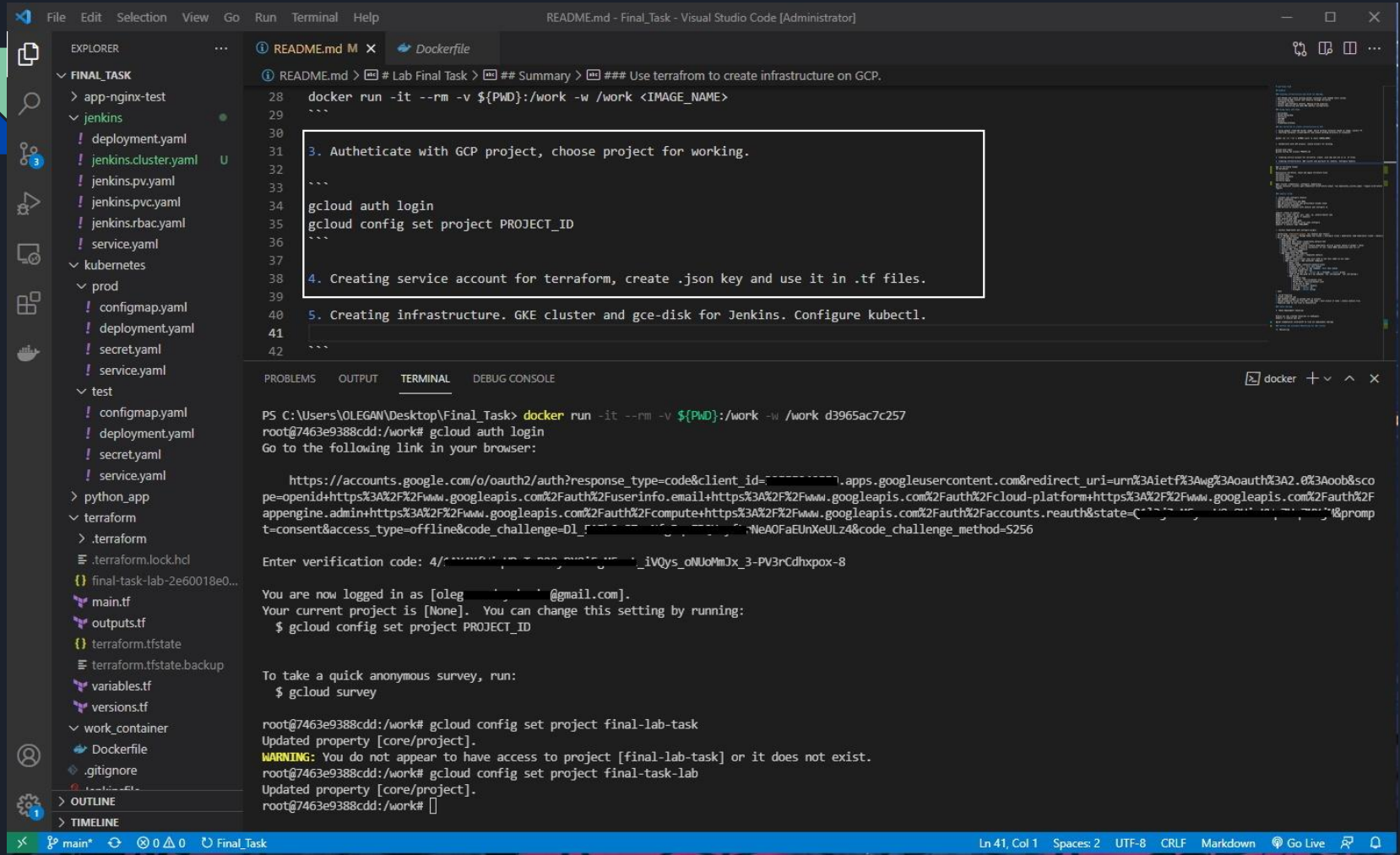
Common Steps of Task

1. Provisioning GKE cluster by Terraform.
2. Deploy Contour Ingress Controller.
3. Setup PV and PVC, RBAC for Jenkins.
4. Deploy Jenkins and configure it.
5. Make a CI/CD pipeline.
6. Install Monitoring for cluster.

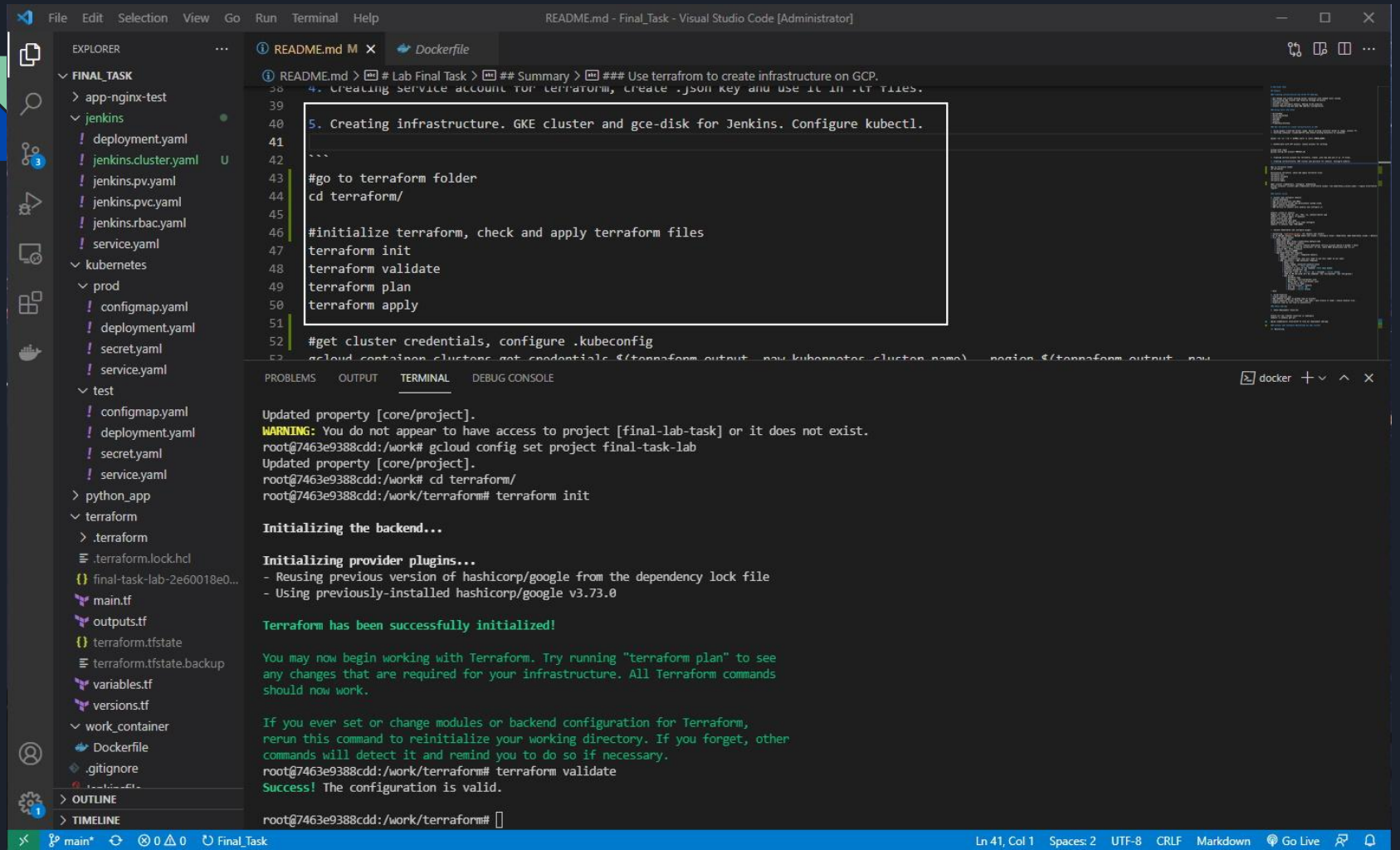
Provisioning steps.



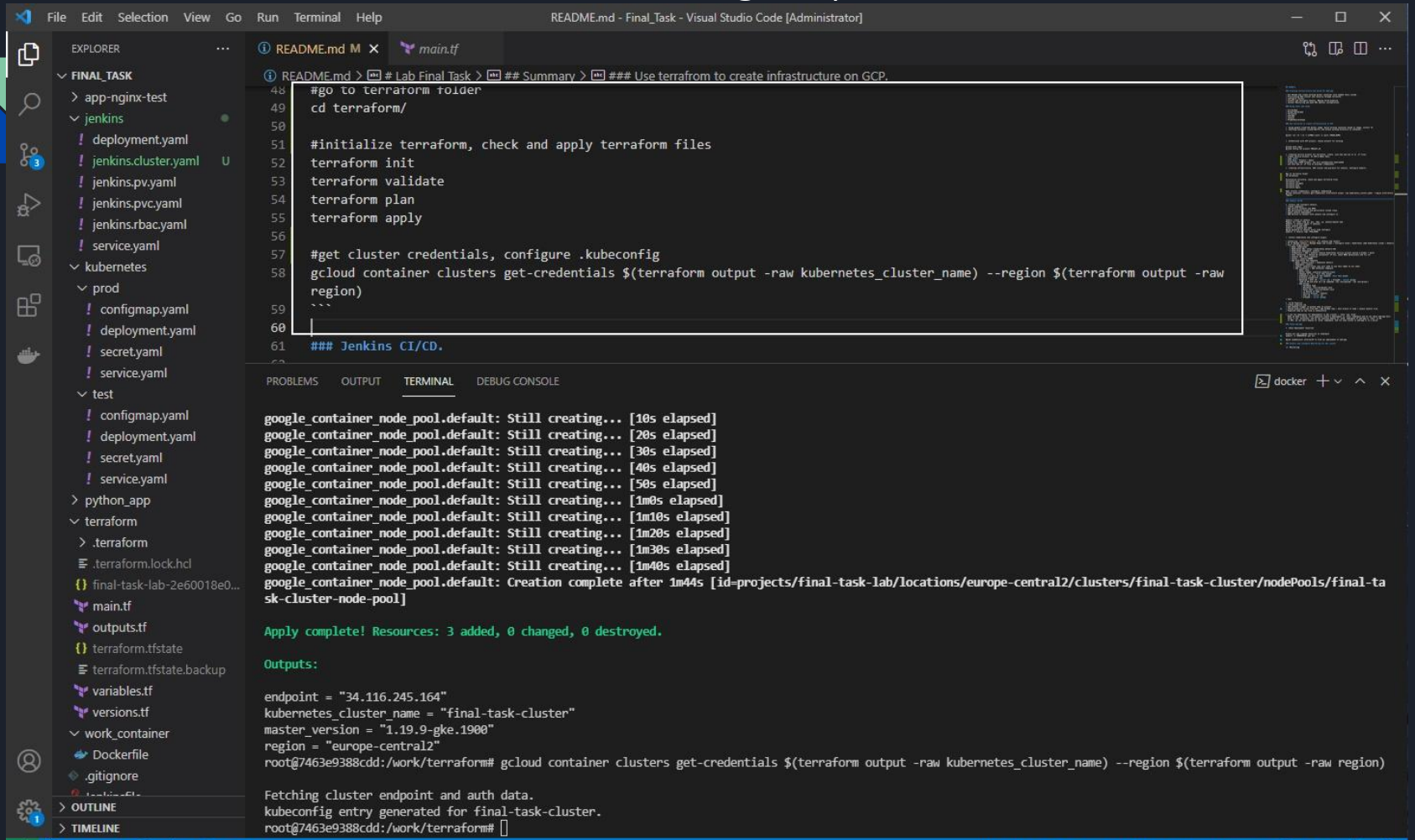
Provisioning steps.



Provisioning steps.



Provisioning steps.



Install Ingress and configure Cloud DNS

```
* Install Contour Ingress Controller

```
#deploy ingress
kubectl apply -f https://projectcontour.io/quickstart/contour.yaml
```
```

NS-серверы

Собственные серверы имен

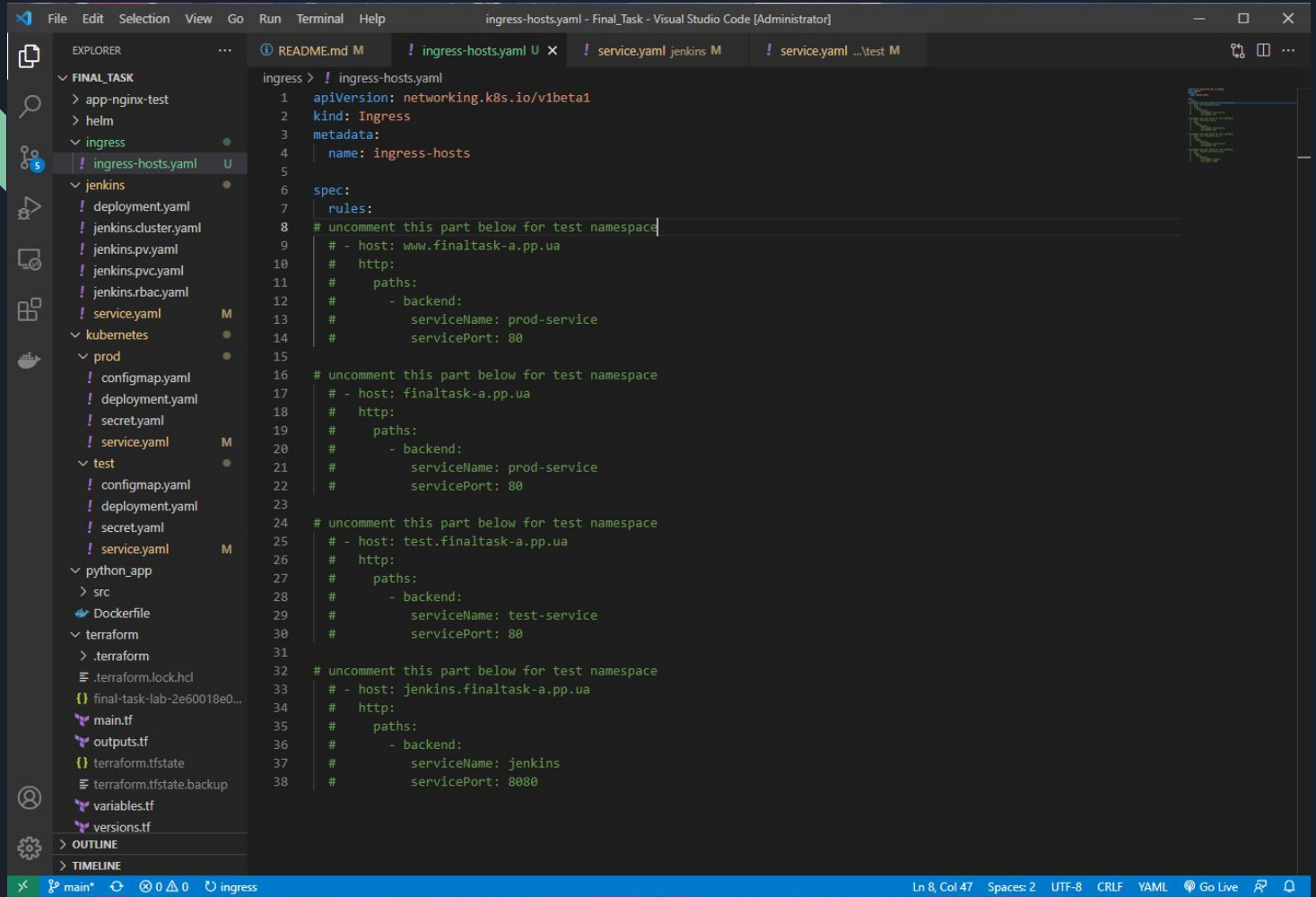
Список своих серверов имен Изменить

1. ns-cloud-b1.googledomains.com
2. ns-cloud-b3.googledomains.com
3. ns-cloud-b4.googledomains.com
4. ns-cloud-b2.googledomains.com

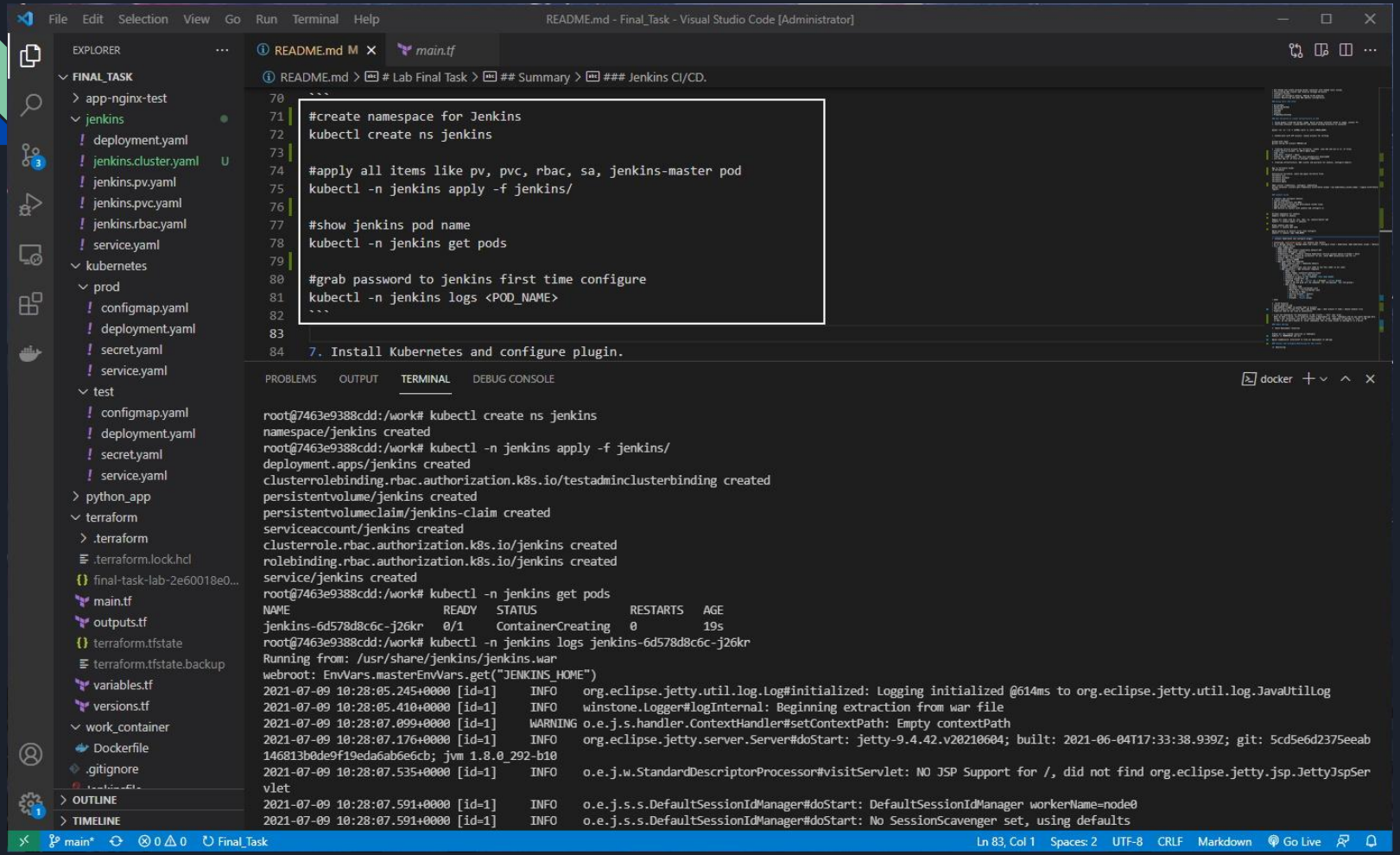
Filter Filter record sets

DNS name	Type	TTL (seconds)	Data
finaltask-a.pp.ua.	A	300	• 34.118.5.226
finaltask-a.pp.ua.	SOA	21600	• ns-cloud-b1.googledomains.com. cloud-dns-hostmaster.google.com. 1 21600 3600 259200 300
finaltask-a.pp.ua.	NS	21600	• ns-cloud-b1.googledomains.com. • ns-cloud-b2.googledomains.com. • ns-cloud-b3.googledomains.com. • ns-cloud-b4.googledomains.com.
jenkins.finaltask-a.pp.ua.	A	300	• 34.118.5.226
test.finaltask-a.pp.ua.	A	300	• 34.118.5.226
www.finaltask-a.pp.ua.	A	300	• 34.118.5.226

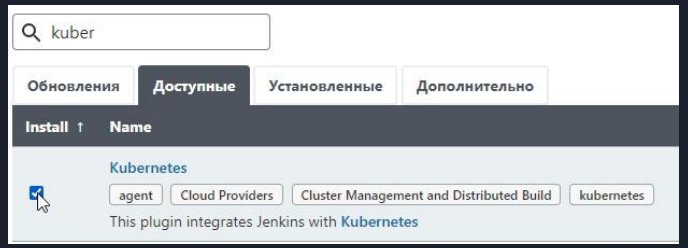
Install Ingress and configure Cloud DNS

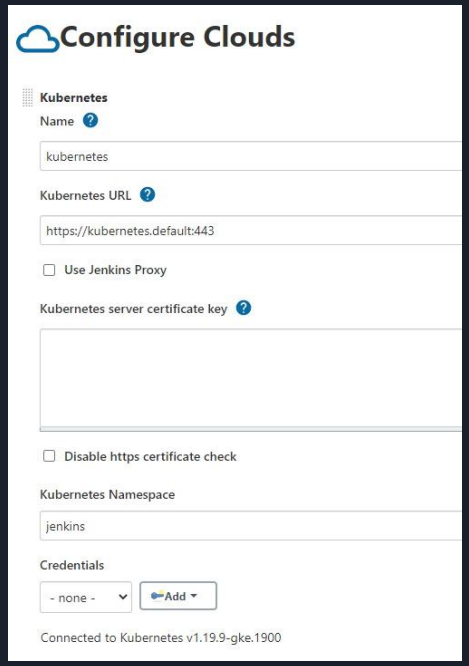


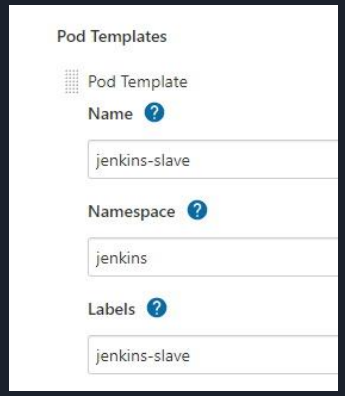
Setup cloud storage, install Jenkins.

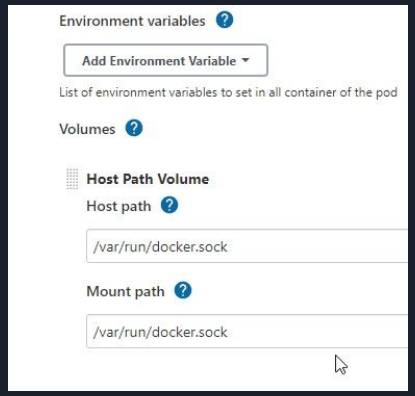


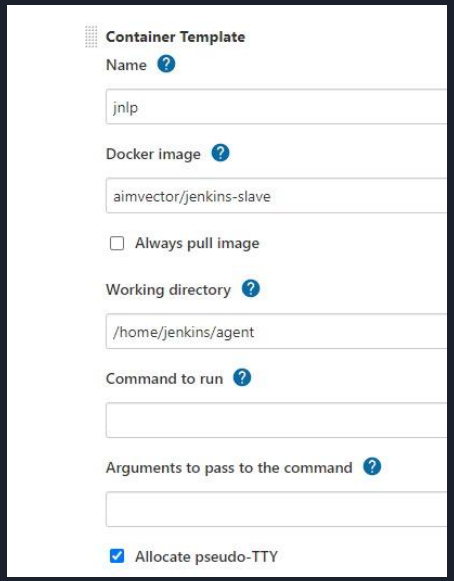
Setup Jenkins and Kubernetes plugin.



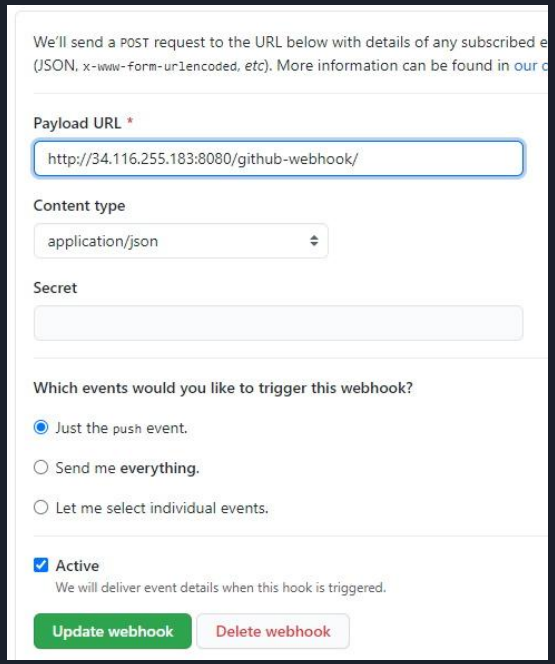


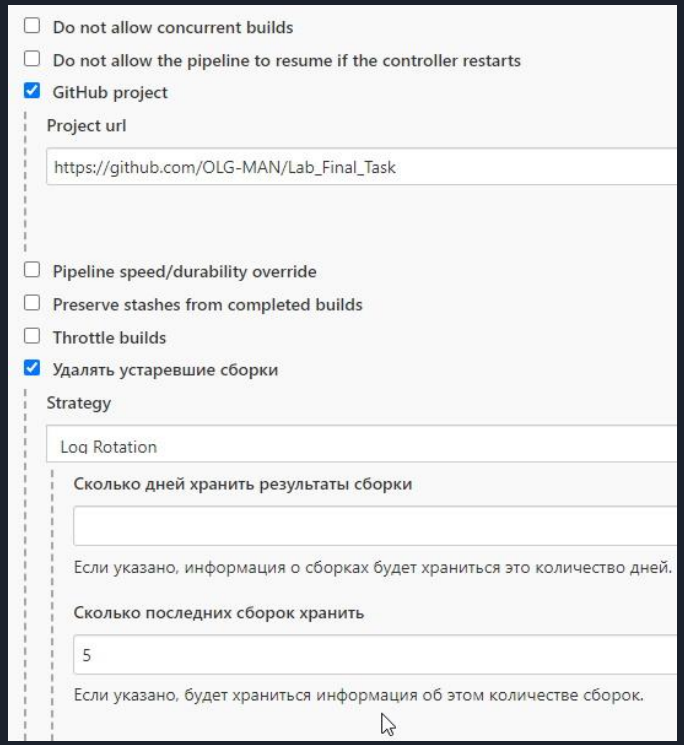


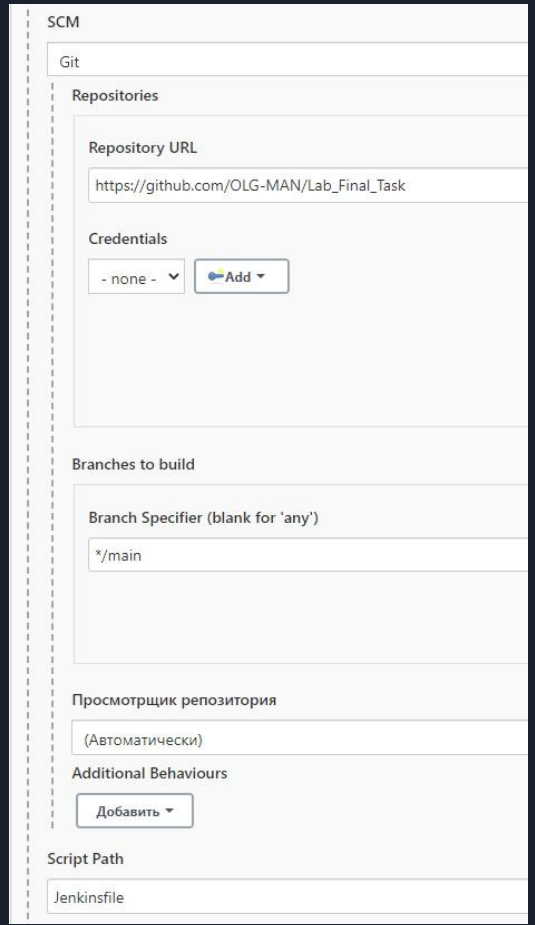




Configure a pipeline.







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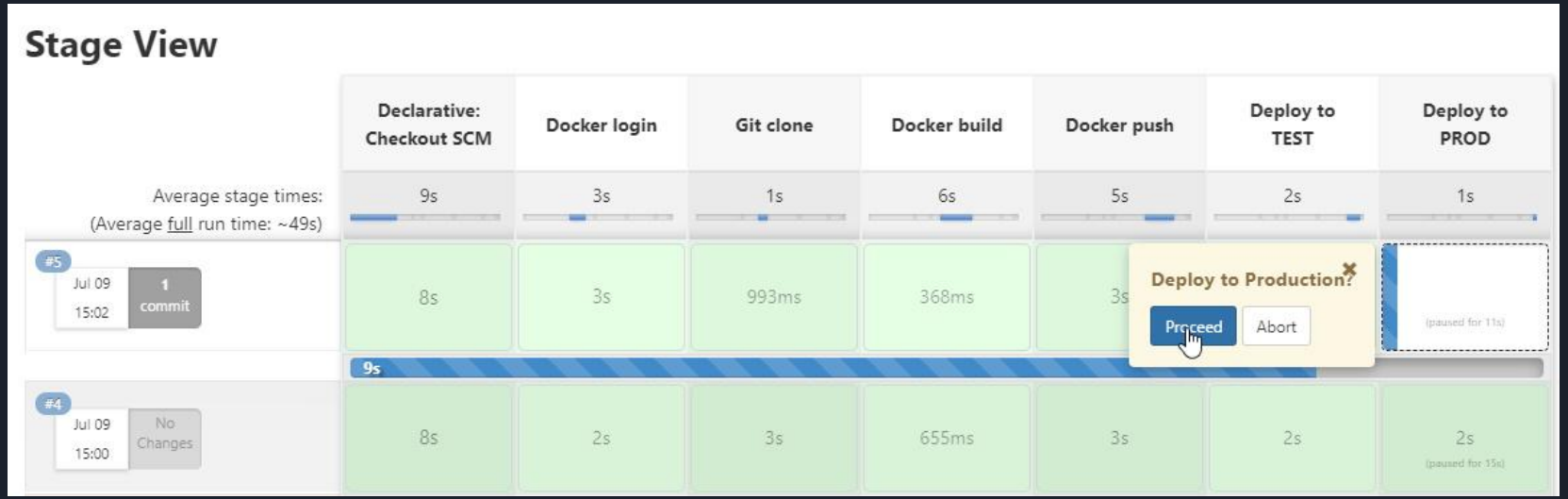
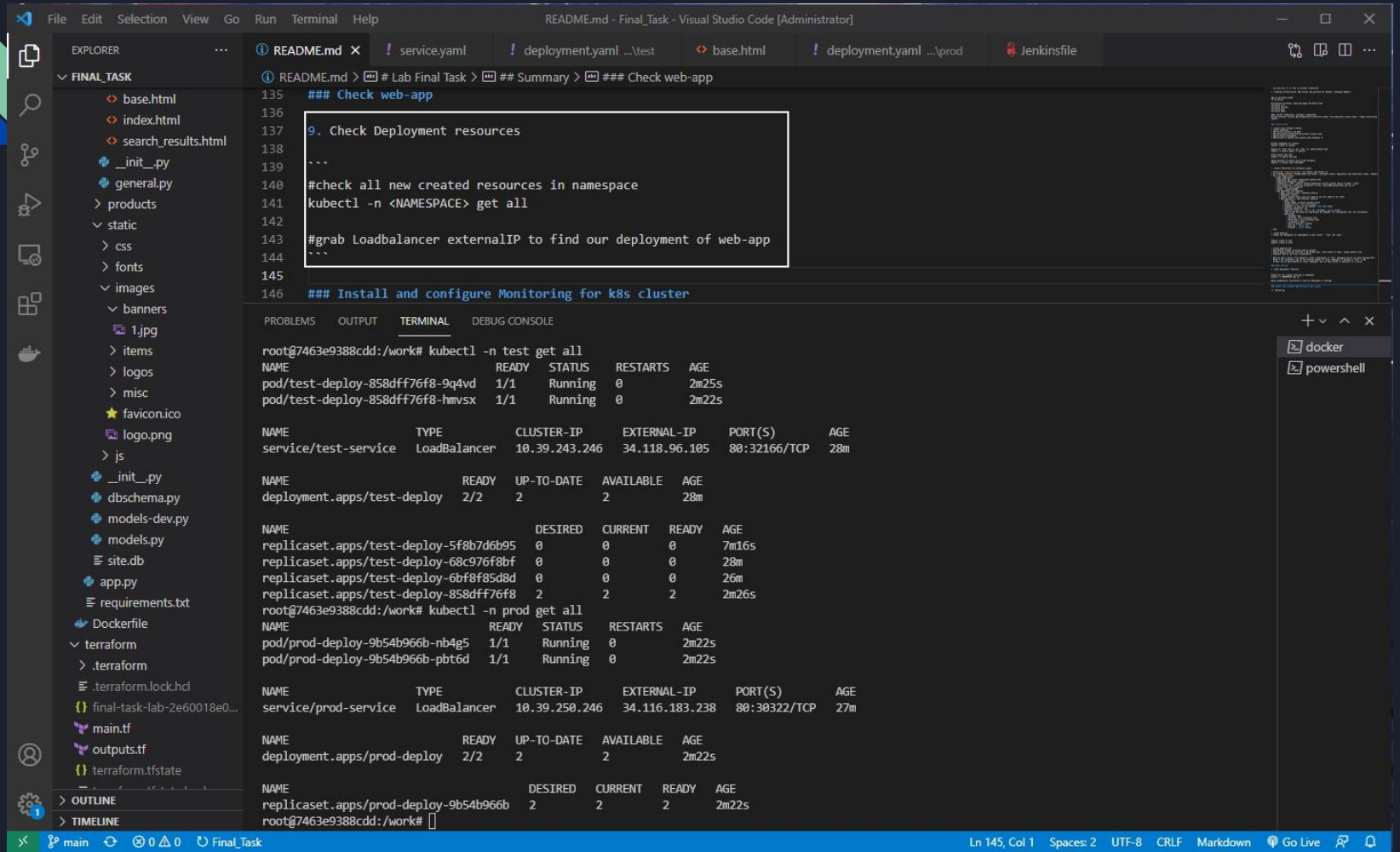
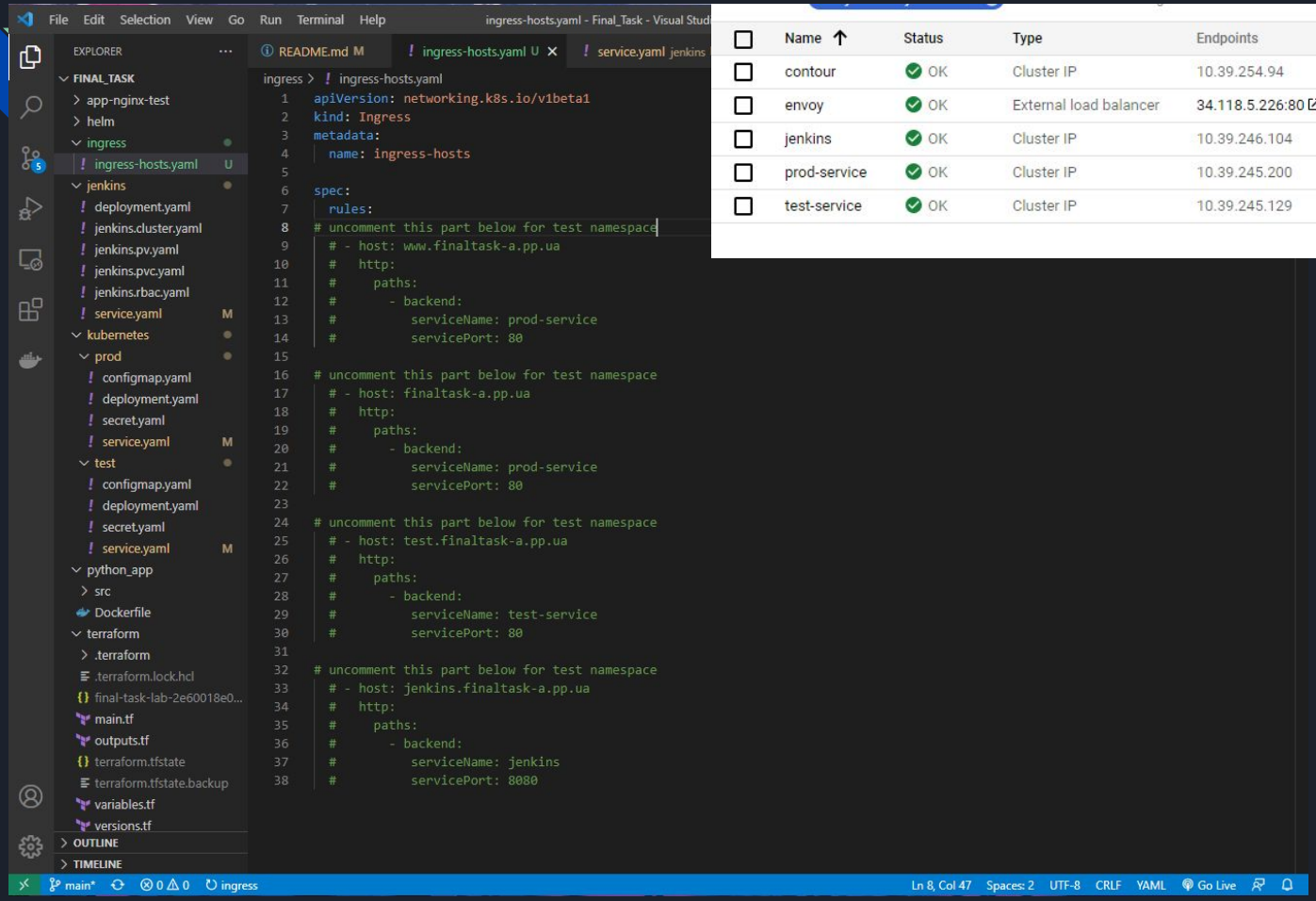


Check Resources

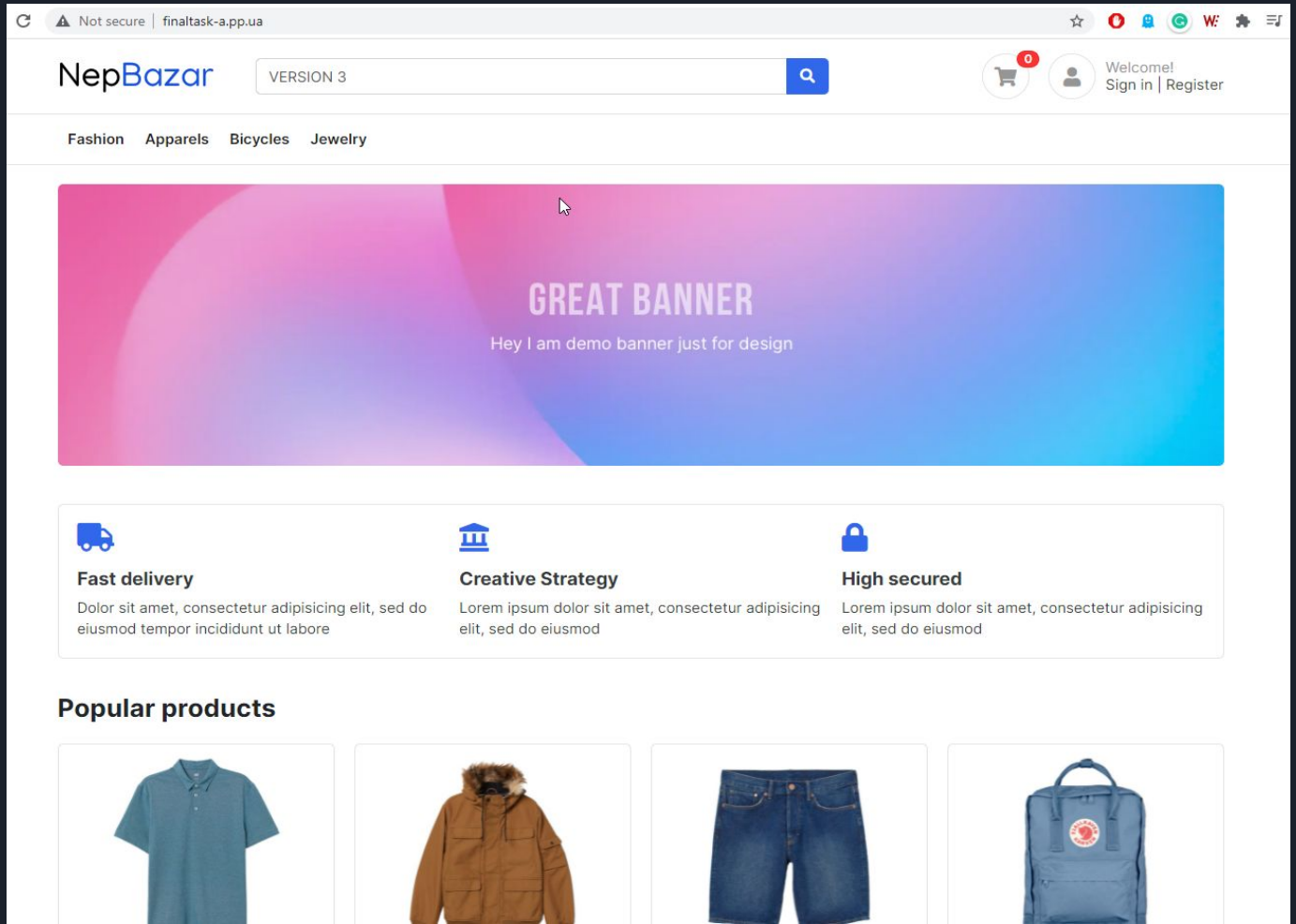


Configure Ingress



Name	Status	Type	Endpoints	Pods	Namespace	Clusters
contour	OK	Cluster IP	10.39.254.94	2/2	projectcontour	final-task-cluster
envoy	OK	External load balancer	34.118.5.226:80	3/3	projectcontour	final-task-cluster
jenkins	OK	Cluster IP	10.39.246.104	1/1	jenkins	final-task-cluster
prod-service	OK	Cluster IP	10.39.245.200	2/2	prod	final-task-cluster
test-service	OK	Cluster IP	10.39.245.129	2/2	test	final-task-cluster

Check Resources



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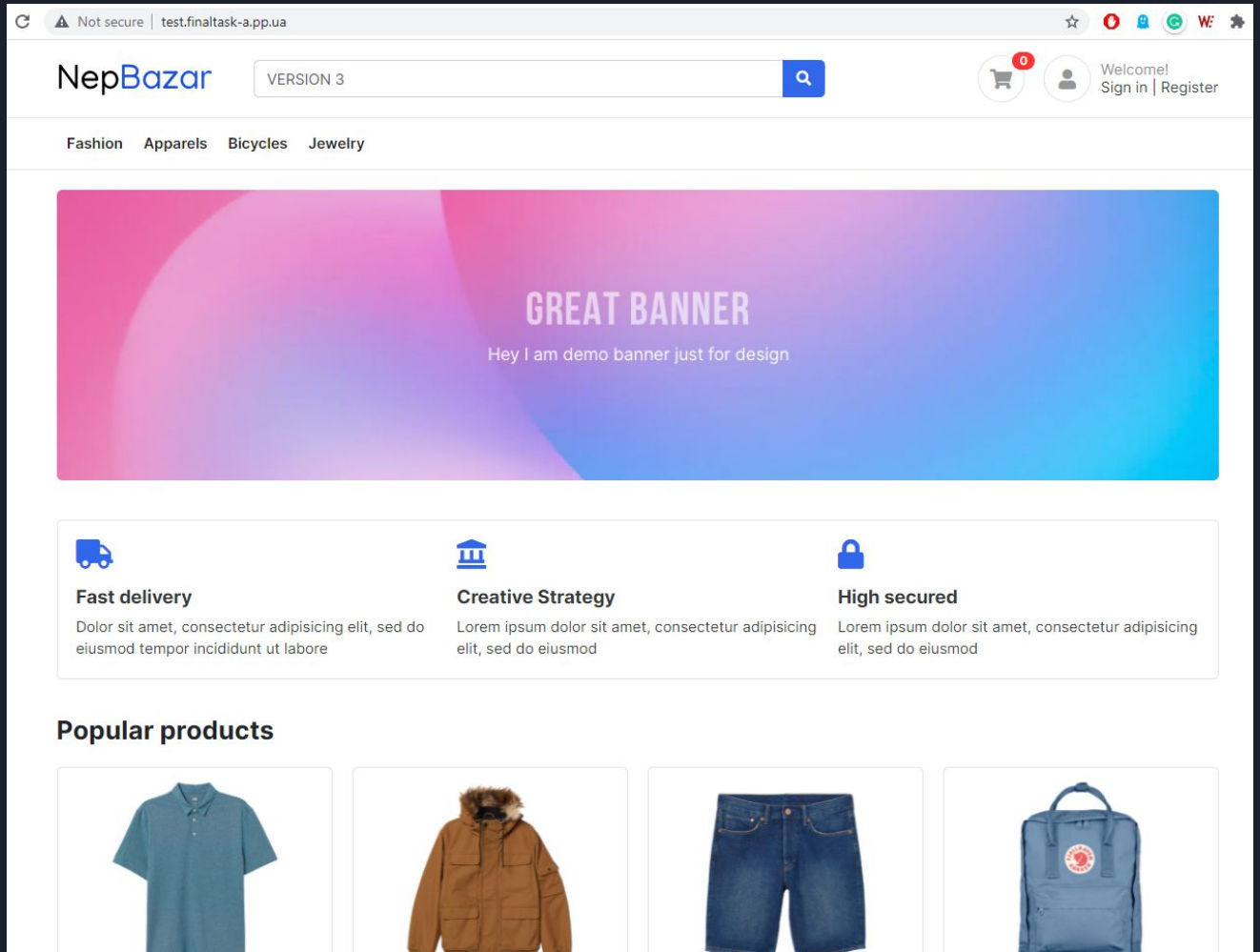

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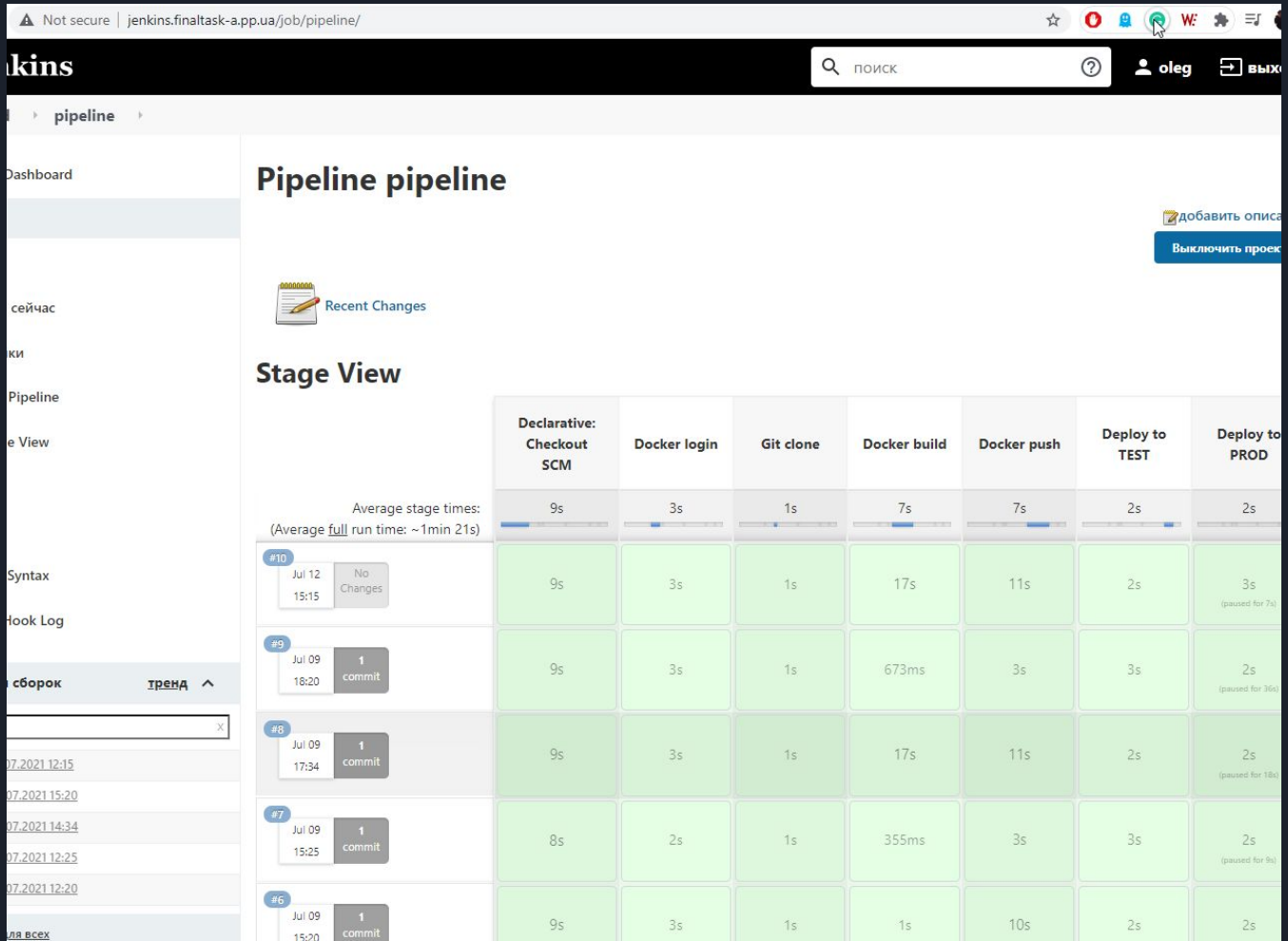
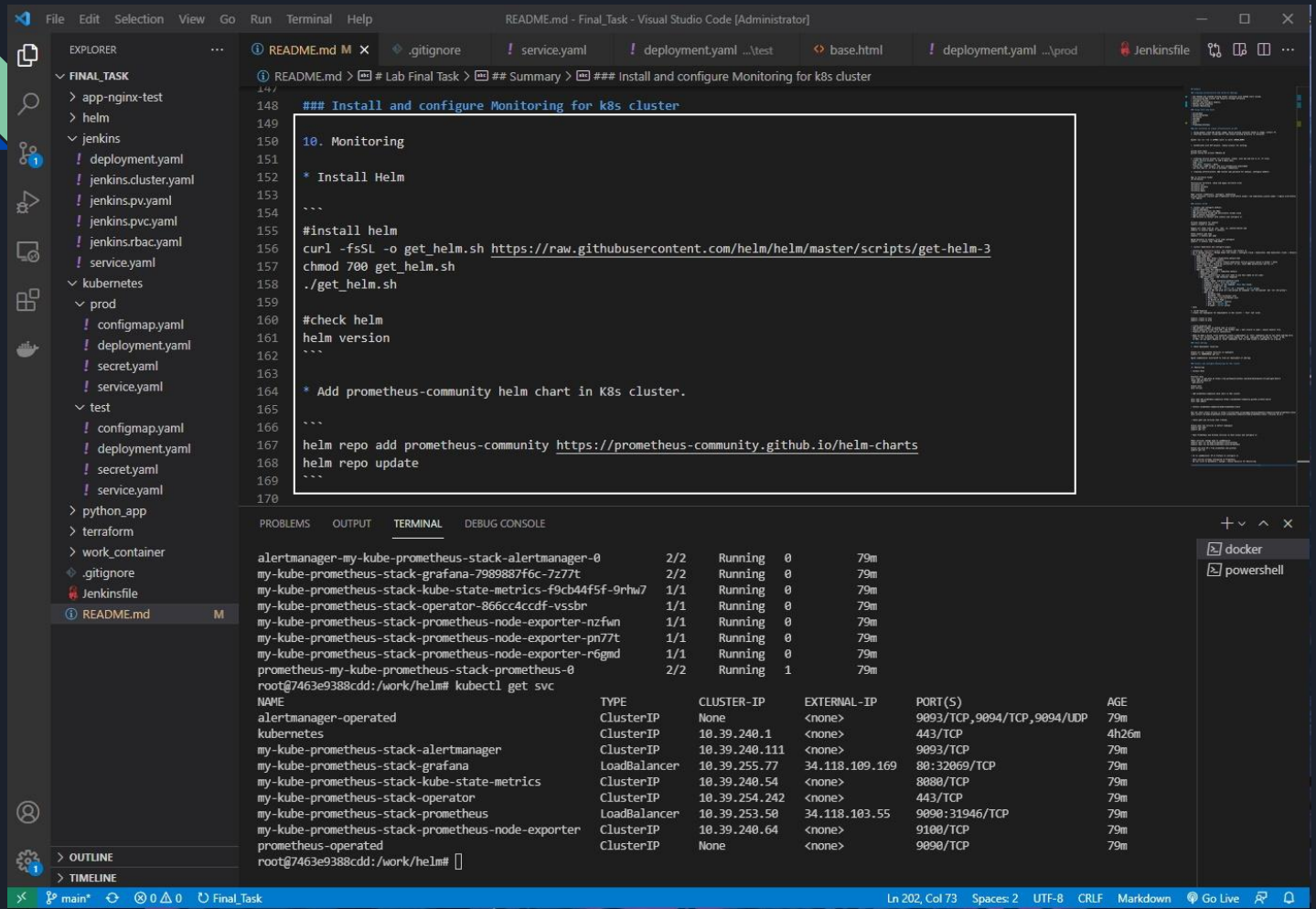
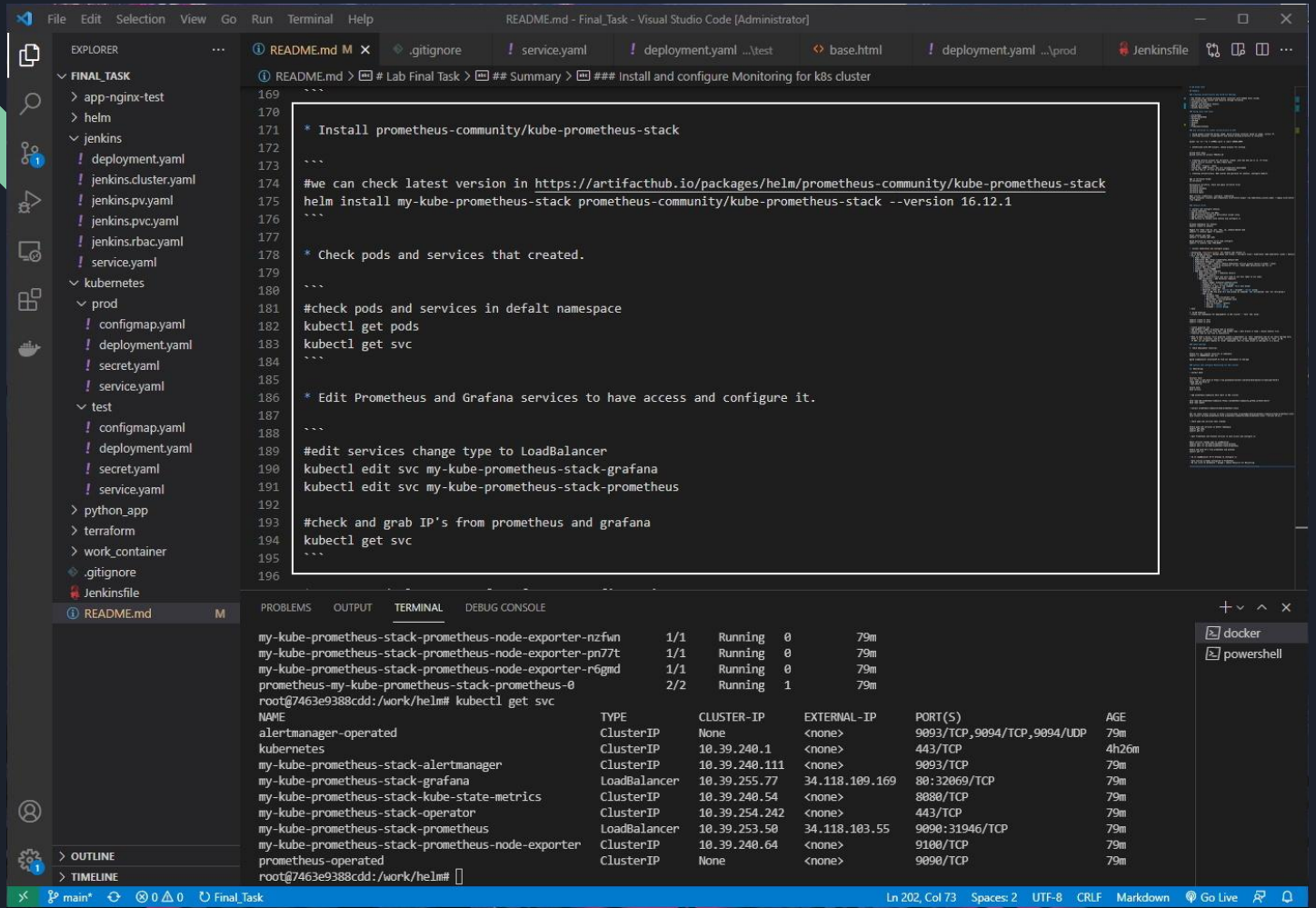


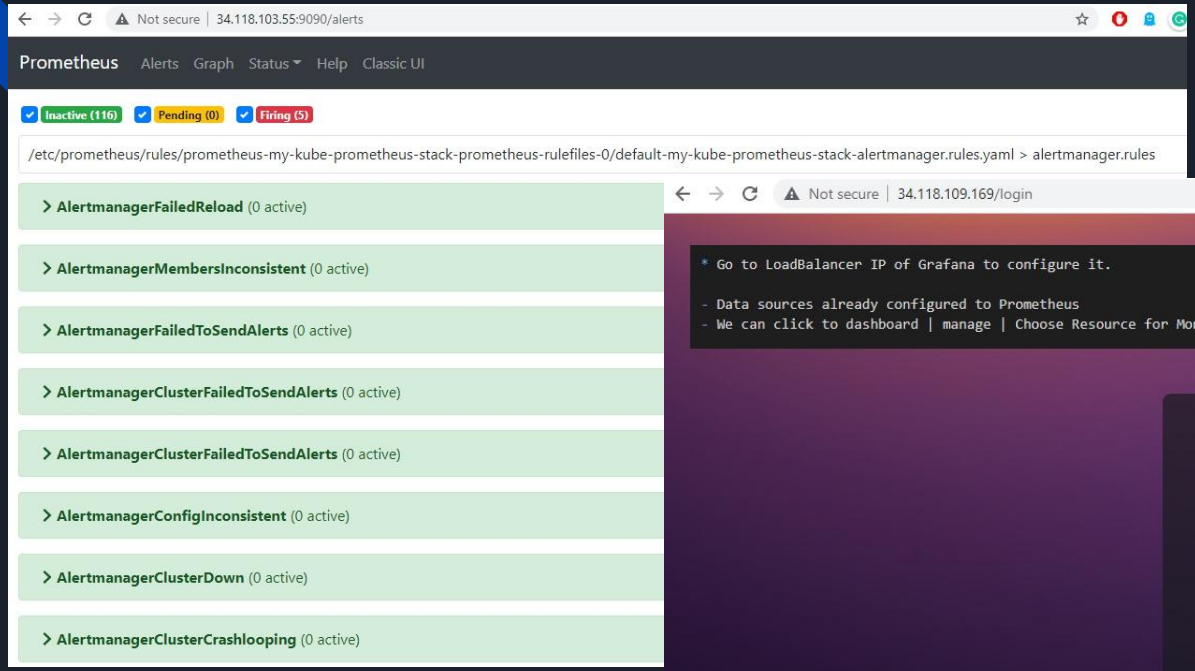
Monitoring. Install Helm

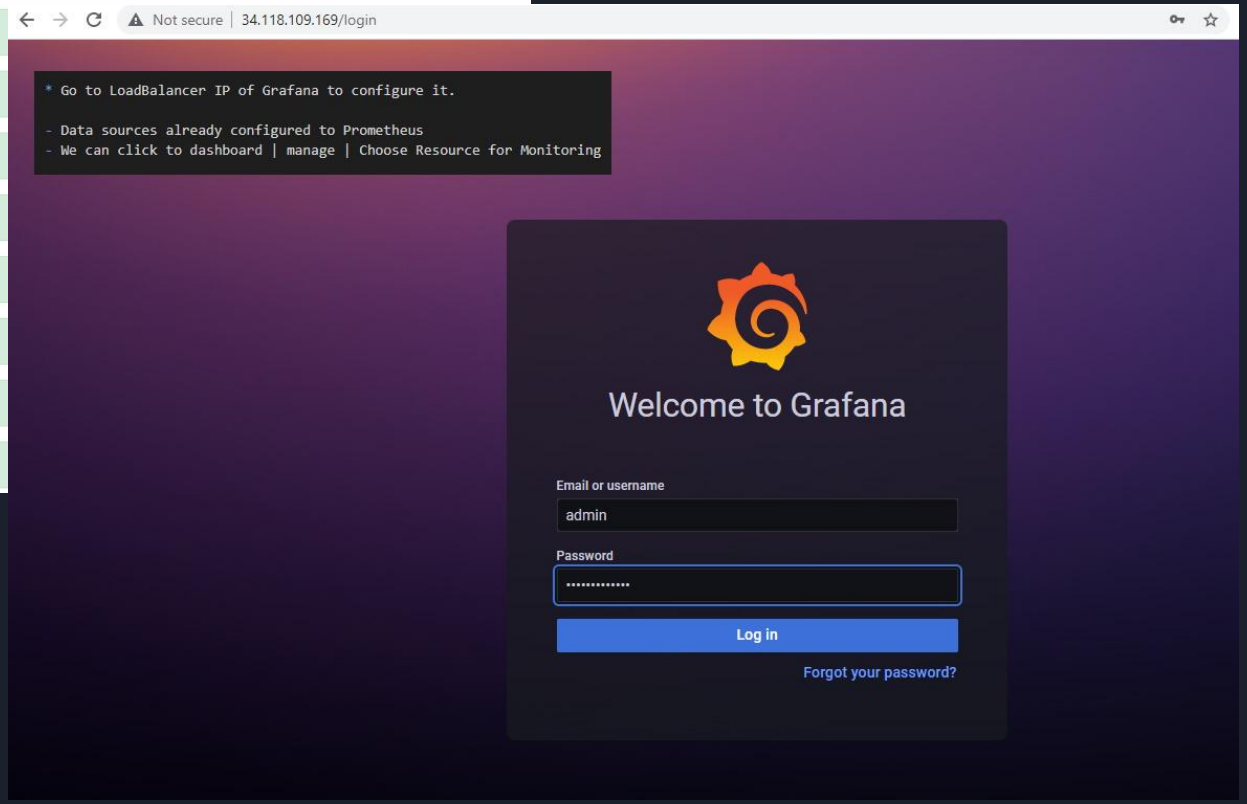


Monitoring. Install Prometheus and Grafana

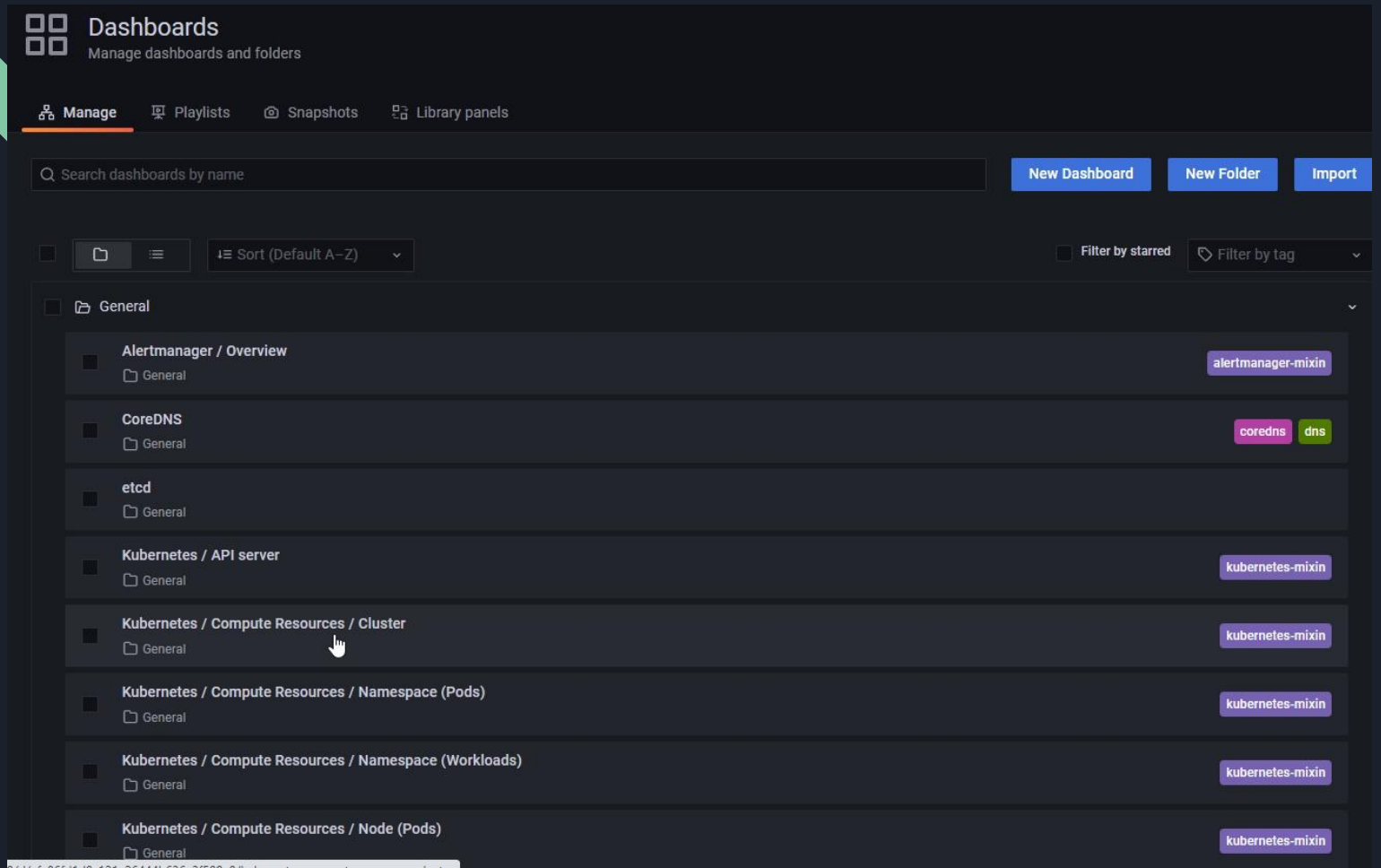


Configure Prometheus and Grafana.





Monitoring with Prometheus and Grafana.



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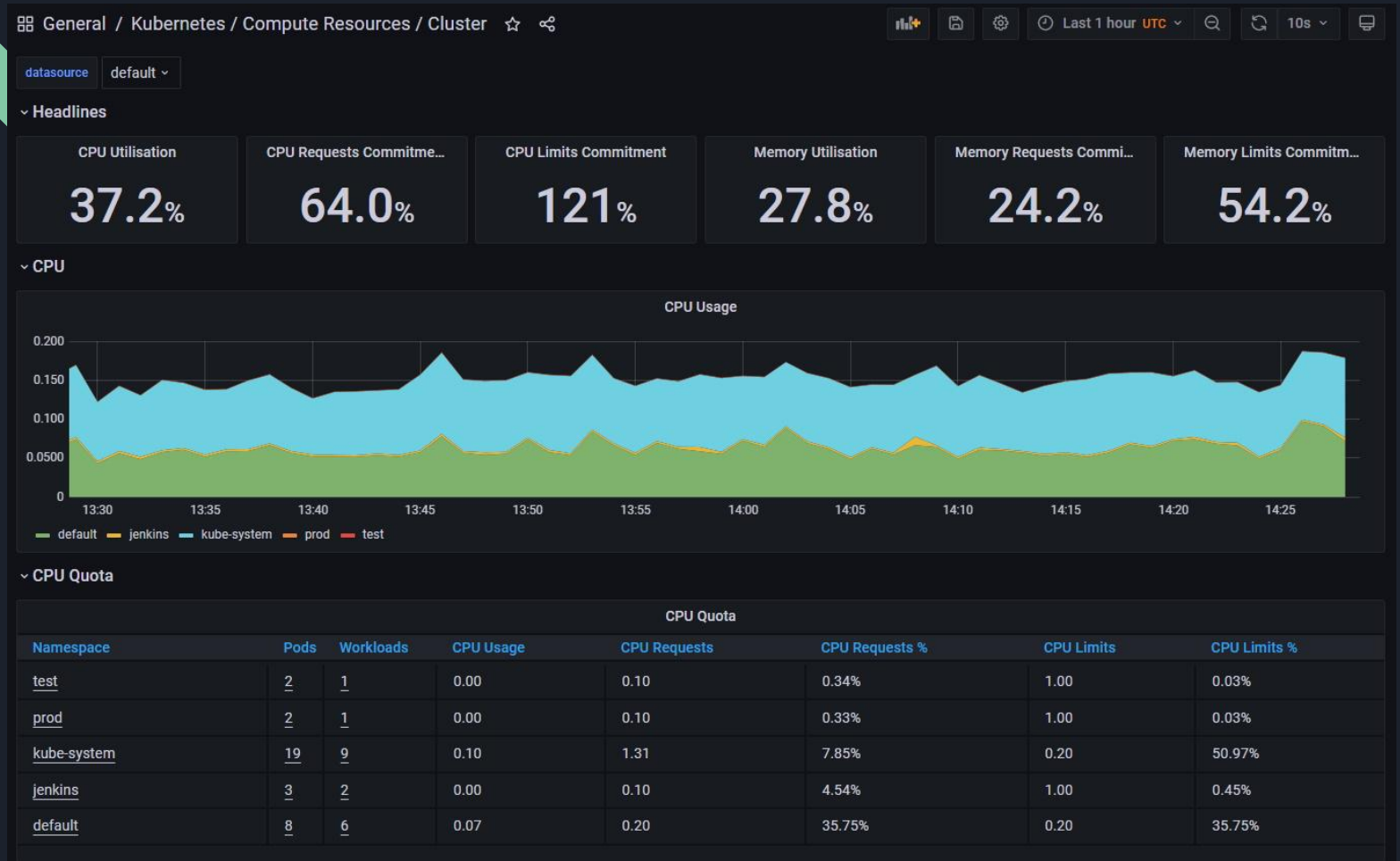


CPU Quota

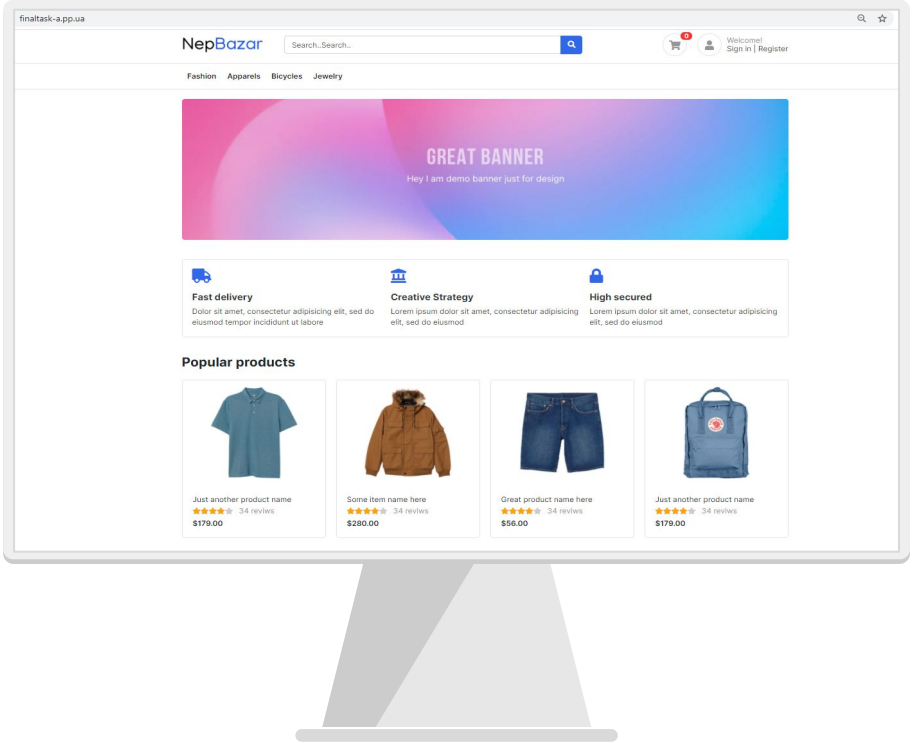
Namespace	Pods	Workloads	CPU Usage	CPU Requests	CPU Requests %	CPU Limits	CPU Limits %
test	2	1	0.00	0.10	0.34%	1.00	0.03%
prod	2	1	0.00	0.10	0.33%	1.00	0.03%
kube-system	19	9	0.10	1.31	7.85%	0.20	50.97%
jenkins	3	2	0.00	0.10	4.54%	1.00	0.45%
default	8	6	0.07	0.20	35.75%	0.20	35.75%

Final result.

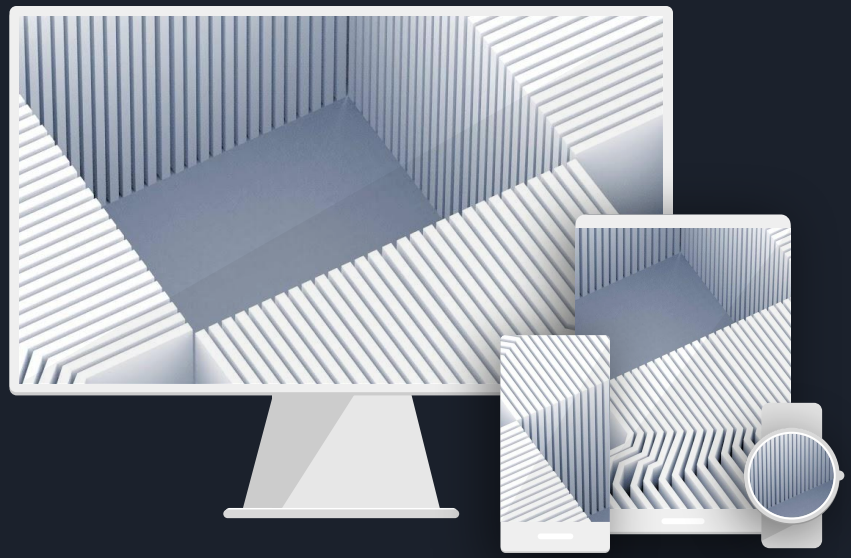
We can see our application by going to the address http://finaltask-a.pp.ua

Also we can go to GitHub repo with source code and detailed readme.

https://github.com/OLG-MAN/Lab_Final_Task



Thanks for watching.



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cv: https://olg-man.github.io/cv2021/