

Class Assignment / Homework VIII

- Create a static index.html with your info in it
 - name, surname, index
- Dockerize it with nginx
- Deploy it to dockerhub with tag 1.0
- Write a deployment manifest
 - 5 replicas, 2 max surge, 1 max unavailable
- Deploy it to your cluster
- Refactor index.html with current year in it - tag 2.0
- Make a rollout with 2.0 image tag
- Revert to 1.0 version

- Create a static index.html with your info in it
 - name, surname, index

bojan@bojan-VirtualBox:~\$ mkdir Homework8

bojan@bojan-VirtualBox:~\$ cd Homework8

bojan@bojan-VirtualBox:~/Homework8\$ nano index.html

```
bojan@bojan-VirtualBox:~$ mkdir Homework8
bojan@bojan-VirtualBox:~$ cd Homework8
bojan@bojan-VirtualBox:~/Homework8$ nano index.html
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$
```

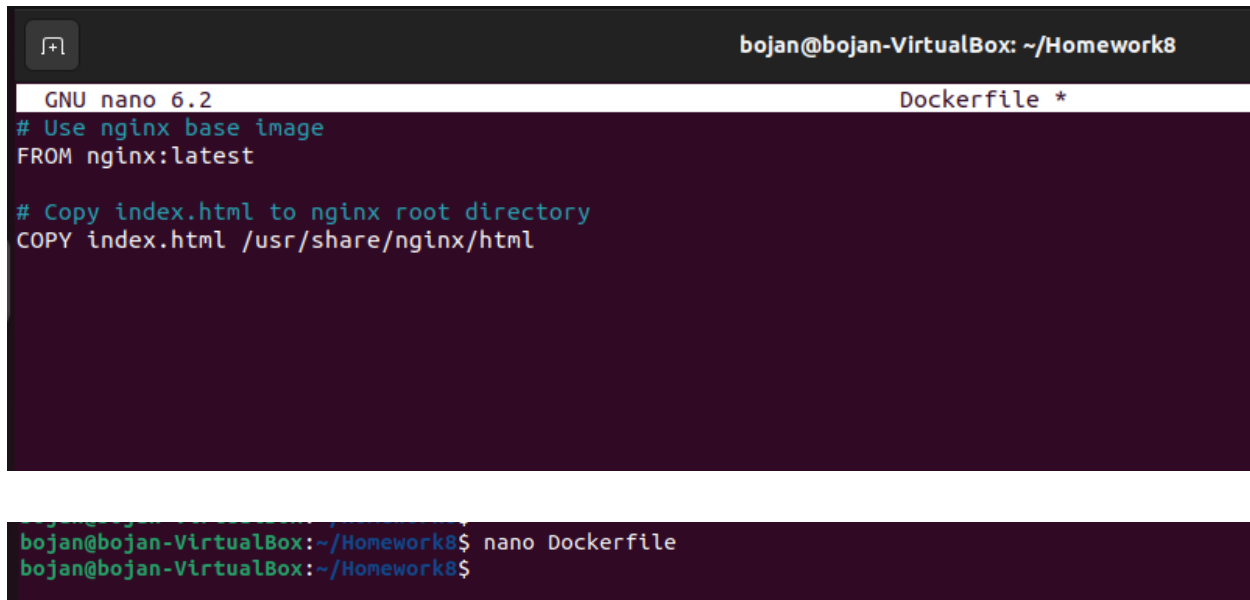
```
GNU nano 6.2 index.html *
<!DOCTYPE html>
<head>

</head>
<body>
    <h1>Name: Bojan</h1>
    <h1>Surname: Ristov</h1>
    <h1>Index: 211151</h1>

    <h1>Version: 01</h1>
</body>
</html>
```

- Dockerize it with nginx

bojan@bojan-VirtualBox:~/Homework8\$ nano Dockerfile



```
bojan@bojan-VirtualBox: ~/Homework8
GNU nano 6.2 Dockerfile *
# Use nginx base image
FROM nginx:latest

# Copy index.html to nginx root directory
COPY index.html /usr/share/nginx/html

bojan@bojan-VirtualBox:~/Homework8$ nano Dockerfile
bojan@bojan-VirtualBox:~/Homework8$
```

- **Deploy it to dockerhub with tag 1.0**

bojan@bojan-VirtualBox:~/Homework8\$ nano Dockerfile

bojan@bojan-VirtualBox:~/Homework8\$ sudo docker build -t ristov211151/nginx-static:1.0 .

[sudo] password for bojan:

DEPRECATED: The legacy builder is deprecated and will be removed in a future release.

Install the buildx component to build images with BuildKit:

<https://docs.docker.com/go/buildx/>

Sending build context to Docker daemon 3.072kB

Step 1/2 : FROM nginx:latest

---> 1d668e06f1e5

Step 2/2 : COPY index.html /usr/share/nginx/html

---> 63da4c1bcbc4

Successfully built 63da4c1bcbc4

Successfully tagged ristov211151/nginx-static:1.0

bojan@bojan-VirtualBox:~/Homework8\$ sudo docker push ristov211151/nginx-static:1.0

The push refers to repository [docker.io/ristov211151/nginx-static]

1a99be96c399: Pushed

b80974699bdb: Layer already exists

3f69a32a2b31: Layer already exists

d75fd41110a4: Layer already exists

2e0d92876e9f: Layer already exists

a8a738834a4d: Layer already exists

bf6cd01dee5e: Layer already exists

52ec5a4316fa: Layer already exists

1.0: digest:

sha256:e1e81be68ea78940f43bc11343ad4364ca9f2a20ed58d19cfee5d34a9421361d size: 1985

bojan@bojan-VirtualBox:~/Homework8\$ sudo docker images

REPOSITORY	TAG	IMAGE ID	CREATED	SIZE
ristov211151/nginx-static	1.0	63da4c1bcbc4	13 minutes ago	188MB
ristov211151/nginx-static	01	b2ef7267d6f9	2 weeks ago	188MB
nginx	latest	1d668e06f1e5	2 weeks ago	188MB
ghcr.io/k3d-io/k3d-tools	5.6.3	3e61fe13415d	6 weeks ago	20.2MB
ghcr.io/k3d-io/k3d-proxy	5.6.3	2f9ac4724f73	6 weeks ago	61.2MB

```

bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ nano Dockerfile
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo docker build -t ristov211151/nginx-static:1.0 .
[sudo] password for bojan:
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
            Install the buildx component to build images with BuildKit:
            https://docs.docker.com/go/buildx/


Sending build context to Docker daemon  3.072kB
Step 1/2 : FROM nginx:latest
--> 1d668e06f1e5
Step 2/2 : COPY index.html /usr/share/nginx/html
--> 63da4c1bcbc4
Successfully built 63da4c1bcbc4
Successfully tagged ristov211151/nginx-static:1.0
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo docker push ristov211151/nginx-static:1.0
The push refers to repository [docker.io/ristov211151/nginx-static]
1a99be96c399: Pushed
b80974699bdb: Layer already exists
3f69a32a2b31: Layer already exists
d75fd41110a4: Layer already exists
2e0d92876e9f: Layer already exists
a8a738834a4d: Layer already exists
bf6cd01dee5e: Layer already exists
52ec5a4316fa: Layer already exists
1.0: digest: sha256:e1e81be68ea78940f43bc11343ad4364ca9f2a20ed58d19cfee5d34a9421361d size: 1985
bojan@bojan-VirtualBox:~/Homework8$

```

```

bojan@bojan-VirtualBox:~/Homework8$ sudo docker images
REPOSITORY          TAG                 IMAGE ID            CREATED             SIZE
ristov211151/nginx-static  1.0                63da4c1bcbc4       13 minutes ago     188MB
ristov211151/nginx-static  01                 b2ef7267d6f9       2 weeks ago        188MB
nginx                latest             1d668e06f1e5       2 weeks ago        188MB
ghcr.io/k3d-io/k3d-tools  5.6.3              3e61fe13415d       6 weeks ago        20.2MB
ghcr.io/k3d-io/k3d-proxy  5.6.3              2f9ac4724f73       6 weeks ago        61.2MB
jenkins_jenkins-blueocean latest             f30effc73eef       8 weeks ago        752MB
rancher/k3s           v1.28.8-k3s1       4356e3133013       8 weeks ago        206MB
docker                dind               432fb9e24d70       2 months ago       356MB
jenkins/jenkins        2.440.2-jdk17      2371da23064a       2 months ago       462MB
bojan@bojan-VirtualBox:~/Homework8$

```


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ristov211151

▼

All Content

▼

ristov211151 / nginx-static

 Security unknown
  0
  6
  Public

Contains: Image

• Last pushed: 3 minutes ago

- Write a deployment manifest
 - 5 replicas, 2 max surge, 1 max unavailable

bojan@bojan-VirtualBox:~/Homework8\$ nano deployment.yaml

```
bojan@bojan-VirtualBox:~/Homework8$ nano deployment.yaml
bojan@bojan-VirtualBox:~/Homework8$
```

```
bojan@bojan-VirtualBox: ~/Homework8
GNU nano 6.2 deployment.yaml *
apiVersion: apps/v1
kind: Deployment
metadata:
  name: nginx-static
spec:
  replicas: 5
  selector:
    matchLabels:
      app: nginx-static
  template:
    metadata:
      labels:
        app: nginx-static
    spec:
      containers:
      - name: nginx-static
        image: yourusername/nginx-static:1.0
        ports:
        - containerPort: 80
```

- **Deploy it to your cluster**

```
bojan@bojan-VirtualBox:~/Homework8$ sudo k3d cluster create Homework8Cluster
```

```
INFO[0000] Prep: Network
INFO[0000] Created network 'k3d-Homework8Cluster'
INFO[0000] Created image volume k3d-Homework8Cluster-images
INFO[0000] Starting new tools node...
INFO[0000] Starting node 'k3d-Homework8Cluster-tools'
INFO[0001] Creating node 'k3d-Homework8Cluster-server-0'
INFO[0001] Creating LoadBalancer 'k3d-Homework8Cluster-serverlb'
INFO[0001] Using the k3d-tools node to gather environment information
INFO[0001] HostIP: using network gateway 172.20.0.1 address
INFO[0001] Starting cluster 'Homework8Cluster'
INFO[0001] Starting servers...
INFO[0001] Starting node 'k3d-Homework8Cluster-server-0'
INFO[0007] All agents already running.
INFO[0007] Starting helpers...
INFO[0008] Starting node 'k3d-Homework8Cluster-serverlb'
INFO[0015] Injecting records for hostAliases (incl. host.k3d.internal) and for 2 network members
into CoreDNS configmap...
INFO[0017] Cluster 'Homework8Cluster' created successfully!
INFO[0017] You can now use it like this:
kubectl cluster-info
```

```
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl cluster-info
```

Kubernetes control plane is running at https://0.0.0.0:37549

CoreDNS is running at https://0.0.0.0:37549/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy

Metrics-server is running at https://0.0.0.0:37549/api/v1/namespaces/kube-system/services/https:metrics-server:https/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.

```
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl apply -f deployment.yaml
```

deployment.apps/nginx-static created

bojan@bojan-VirtualBox:~/Homework8\$ sudo kubectl get pods

NAME	READY	STATUS	RESTARTS	AGE
nginx-static-5dd888f4f8-nzj64	0/1	ImagePullBackOff	0	77s
nginx-static-5dd888f4f8-5t8tn	0/1	ImagePullBackOff	0	77s
nginx-static-5dd888f4f8-lhgx5	0/1	ImagePullBackOff	0	77s
nginx-static-5dd888f4f8-pvf6b	0/1	ImagePullBackOff	0	77s
nginx-static-5dd888f4f8-dltkm	0/1	ImagePullBackOff	0	77s

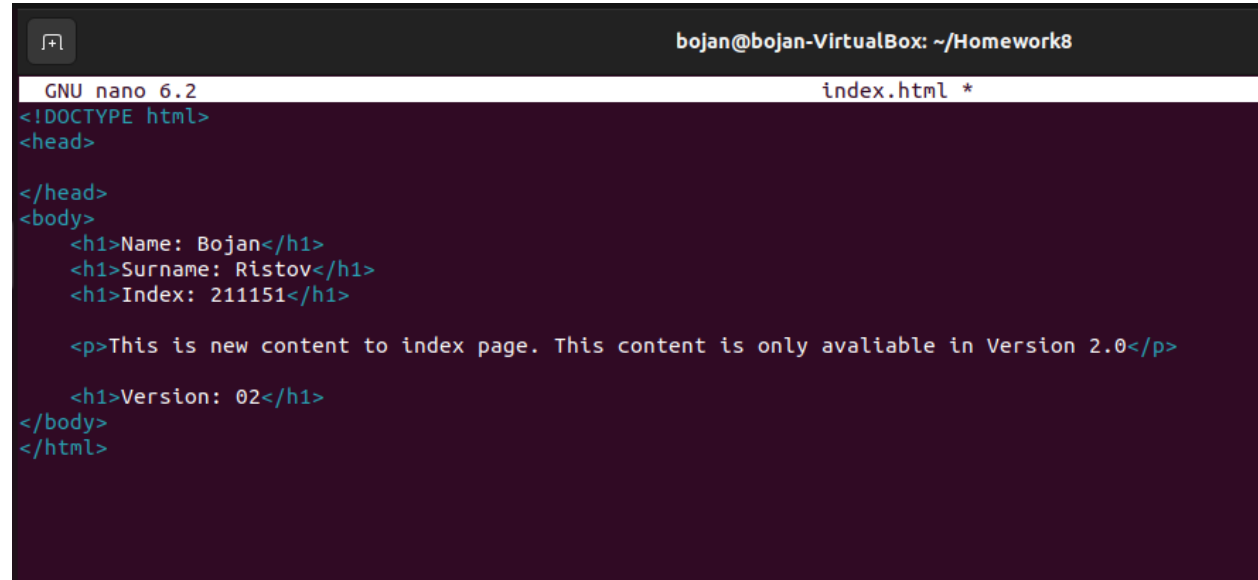
```
bojan@bojan-VirtualBox: ~/Homework8
bojan@bojan-VirtualBox:~/Homework8$ sudo k3d cluster create Homework8Cluster
INFO[0000] Prep: Network
INFO[0000] Created network 'k3d-Homework8Cluster'
INFO[0000] Created image volume k3d-Homework8Cluster-images
INFO[0000] Starting new tools node...
INFO[0000] Starting node 'k3d-Homework8Cluster-tools'
INFO[0001] Creating node 'k3d-Homework8Cluster-server-0'
INFO[0001] Creating LoadBalancer 'k3d-Homework8Cluster-serverlb'
INFO[0001] Using the k3d-tools node to gather environment information
INFO[0001] HostIP: using network gateway 172.20.0.1 address
INFO[0001] Starting cluster 'Homework8Cluster'
INFO[0001] Starting servers...
INFO[0001] Starting node 'k3d-Homework8Cluster-server-0'
INFO[0007] All agents already running.
INFO[0007] Starting helpers...
INFO[0008] Starting node 'k3d-Homework8Cluster-serverlb'
INFO[0015] Injecting records for hostAliases (incl. host.k3d.internal) and for 2 network members into CoreDNS configmap...
INFO[0017] Cluster 'Homework8Cluster' created successfully!
INFO[0017] You can now use it like this:
kubectl cluster-info
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl cluster-info
Kubernetes control plane is running at https://0.0.0.0:37549
CoreDNS is running at https://0.0.0.0:37549/api/v1/namespaces/kube-system/services/kube-dns:dns/proxy
Metrics-server is running at https://0.0.0.0:37549/api/v1/namespaces/kube-system/services/https:metrics-server:https/proxy

To further debug and diagnose cluster problems, use 'kubectl cluster-info dump'.
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl apply -f deployment.yaml
deployment.apps/nginx-static created
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl get pods
NAME                                READY    STATUS              RESTARTS   AGE
nginx-static-5dd888f4f8-nzj64       0/1     ImagePullBackOff    0           77s
nginx-static-5dd888f4f8-5t8tn       0/1     ImagePullBackOff    0           77s
nginx-static-5dd888f4f8-lhgx5       0/1     ImagePullBackOff    0           77s
nginx-static-5dd888f4f8-pvf6b       0/1     ImagePullBackOff    0           77s
nginx-static-5dd888f4f8-dltkm       0/1     ImagePullBackOff    0           77s
bojan@bojan-VirtualBox:~/Homework8$
```


- Refactor index.html with current year in it - tag 2.0

bojan@bojan-VirtualBox:~/Homework8\$ nano index.html

```
bojan@bojan-VirtualBox:~/Homework8$ nano index.html
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$
```



```
bojan@bojan-VirtualBox: ~/Homework8
GNU nano 6.2                                index.html *
<!DOCTYPE html>
<head>

</head>
<body>
  <h1>Name: Bojan</h1>
  <h1>Surname: Ristov</h1>
  <h1>Index: 211151</h1>

  <p>This is new content to index page. This content is only available in Version 2.0</p>

  <h1>Version: 02</h1>
</body>
</html>
```

- **Make a rollout with 2.0 image tag**

bojan@bojan-VirtualBox:~/Homework8\$ sudo docker build -t ristov211151/nginx-static:2.0 .

DEPRECATED: The legacy builder is deprecated and will be removed in a future release.

Install the buildx component to build images with BuildKit:

<https://docs.docker.com/go/buildx/>

Sending build context to Docker daemon 4.096kB

Step 1/2 : FROM nginx:latest

---> 1d668e06f1e5

Step 2/2 : COPY index.html /usr/share/nginx/html

---> 15535256494f

Successfully built 15535256494f

Successfully tagged ristov211151/nginx-static:2.0

bojan@bojan-VirtualBox:~/Homework8\$ sudo docker push ristov211151/nginx-static:2.0

The push refers to repository [docker.io/ristov211151/nginx-static]

1a1130d0980b: Pushed

b80974699bdb: Layer already exists

3f69a32a2b31: Layer already exists

d75fd41110a4: Layer already exists

2e0d92876e9f: Layer already exists

a8a738834a4d: Layer already exists

bf6cd01dee5e: Layer already exists

52ec5a4316fa: Layer already exists

2.0: digest:


sha256:37ad3e2ec27f675ca7b88a0d17b002a3af2be47224577dc967a723b957cadfeb size: 1985

bojan@bojan-VirtualBox:~/Homework8\$ sudo kubectl set image deployment/nginx-static nginx-static=ristov211151/nginx-static:2.0

deployment.apps/nginx-static image updated

```
bojan@bojan-VirtualBox: ~/Homework8
bojan@bojan-VirtualBox:~/Homework8$ sudo docker build -t ristov211151/nginx-static:2.0 .
DEPRECATED: The legacy builder is deprecated and will be removed in a future release.
Install the buildx component to build images with BuildKit:
https://docs.docker.com/go/buildx/

Sending build context to Docker daemon  4.096kB
Step 1/2 : FROM nginx:latest
--> 1d668e06f1e5
Step 2/2 : COPY index.html /usr/share/nginx/html
--> 15535256494f
Successfully built 15535256494f
Successfully tagged ristov211151/nginx-static:2.0
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo docker push ristov211151/nginx-static:2.0
The push refers to repository [docker.io/ristov211151/nginx-static]
1a1130d0980b: Pushed
b80974699bdb: Layer already exists
3f69a32a2b31: Layer already exists
d75fd41110a4: Layer already exists
2e0d92876e9f: Layer already exists
a8a738834a4d: Layer already exists
bf6cd01dee5e: Layer already exists
52ec5a4316fa: Layer already exists
2.0: digest: sha256:37ad3e2ec27f675ca7b88a0d17b002a3af2be47224577dc967a723b957cadfeb size: 1985
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl set image deployment/nginx-static nginx-static=ristov211151/nginx-static:2.0
deployment.apps/nginx-static image updated
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-static-85988599f6-57fzg       1/1     Running   0           3m26s
nginx-static-85988599f6-hh79x       1/1     Running   0           3m26s
nginx-static-85988599f6-n8bgt       1/1     Running   0           3m26s
nginx-static-85988599f6-dqn99       1/1     Running   0           3m6s
nginx-static-85988599f6-gtprv       1/1     Running   0           3m6s
```

 **dockerhub**

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ristov211151/nginx-static

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Docker commands

To push a new tag to this repository:

```
docker push ristov211151/nginx-static:tagname
```

Tags

This repository contains 3 tag(s).

Tag	OS	Type	Pulled	Pushed
2.0		Image	3 minutes ago	3 minutes ago
1.0		Image	---	34 minutes ago

Automated Builds

Manually pushing images to Hub? Connect your account to GitHub or Bitbucket to automatically build and tag new images whenever your code is updated, so you can focus your time on creating.

Available with Pro, Team and Business subscriptions. [Read more about automated builds](#)

- Revert to 1.0 version

```
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl rollout undo deployment/nginx-static
deployment.apps/nginx-static rolled back
```

```
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
nginx-static-85988599f6-57fzg	1/1	Running	0	4m52s
nginx-static-85988599f6-n8bgt	1/1	Running	0	4m52s
nginx-static-85988599f6-dqn99	1/1	Running	0	4m32s
nginx-static-85988599f6-gtprv	1/1	Running	0	4m32s

```
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl rollout history deployment/nginx-static
deployment.apps/nginx-static
```

```
REVISION  CHANGE-CAUSE
```

```
2         <none>
```

```
3         <none>
```

```
bojan@bojan-VirtualBox: ~/Homework8
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl rollout undo deployment/nginx-static
deployment.apps/nginx-static rolled back
bojan@bojan-VirtualBox:~/Homework8$
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
nginx-static-85988599f6-57fzg       1/1     Running   0           4m52s
nginx-static-85988599f6-n8bgt       1/1     Running   0           4m52s
nginx-static-85988599f6-dqn99       1/1     Running   0           4m32s
nginx-static-85988599f6-gtprv       1/1     Running   0           4m32s
nginx-static-5dd888f4f8-sz6hq       0/1     ErrImagePull 0           8s
nginx-static-5dd888f4f8-fn2rj       0/1     ErrImagePull 0           8s
nginx-static-5dd888f4f8-cgbx7       0/1     ErrImagePull 0           8s
bojan@bojan-VirtualBox:~/Homework8$ sudo kubectl rollout history deployment/nginx-static
deployment.apps/nginx-static
REVISION  CHANGE-CAUSE
2         <none>
3         <none>
```

Изработил:

Бојан Ристов (211151)