

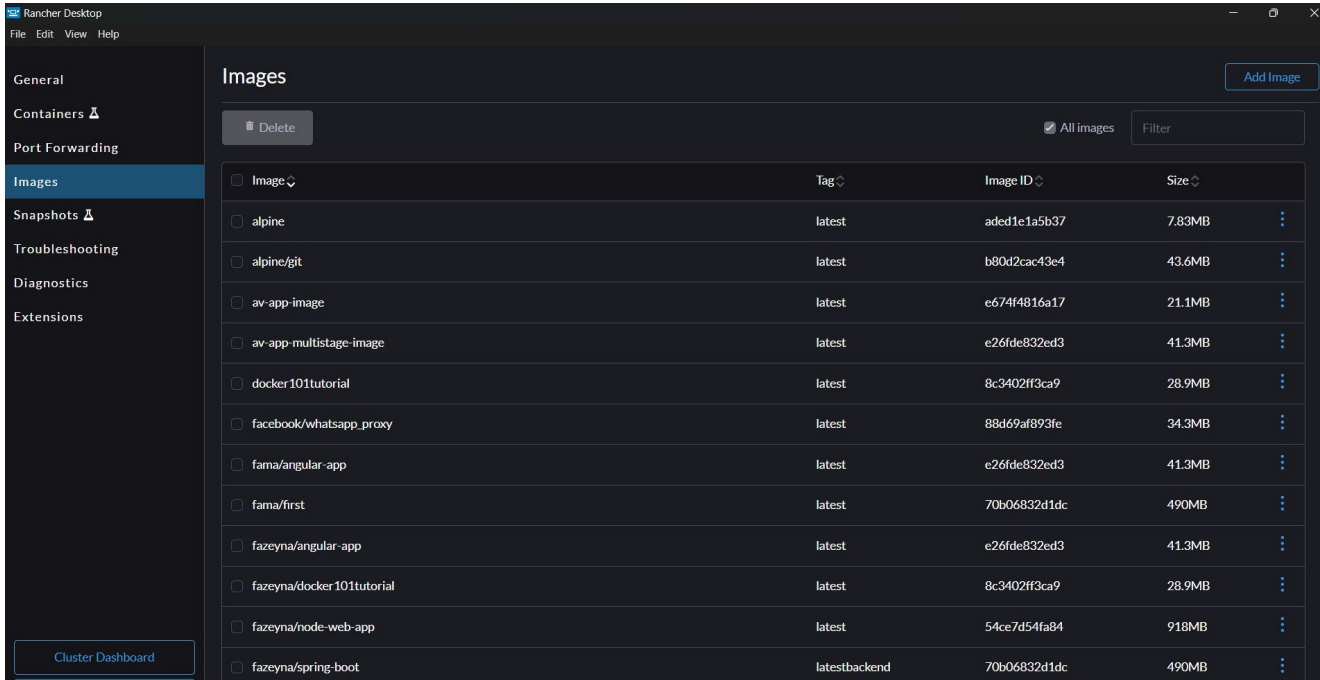
TP4 Projet K8S - helm - GitLab - stock-ms

Vous allez utiliser le document partagé dans classroom pour mettre en place une pipeline CI/CD de déploiement avec helm

Ressources : <https://gitlab.com/cicd-devops3/k8s-data>

1- Installation de RANCHER DESKTOP

<https://docs.rancherdesktop.io/getting-started/installation/>



1- Vérifions les nodes

```
Windows PowerShell
Copyright (C) Microsoft Corporation. Tous droits réservés.

Installez la dernière version de PowerShell pour de nouvelles fonctionnalités et améliorations

PS C:\Users\fazeyna> kubectl get nodes
NAME                STATUS    ROLES    AGE   VERSION
desktop-c885p0b     Ready    control-plane,master   133m   v1.31.5+k3s1
PS C:\Users\fazeyna>
PS C:\Users\fazeyna>
```

1- Installation d'un agent gitlab dans un cluster kubernetes

Name	Last commit	Last update
📁 .gitlab/agents/k8s-connection	Add new file	11 minutes ago

🔗 Operate

Environments

Kubernetes clusters

Terraform states

Terraform modules

Google Cloud

Connect a Kubernetes cluster

Add an agent configuration file to [this repository](#) and select it, or create a new one to register with GitLab:

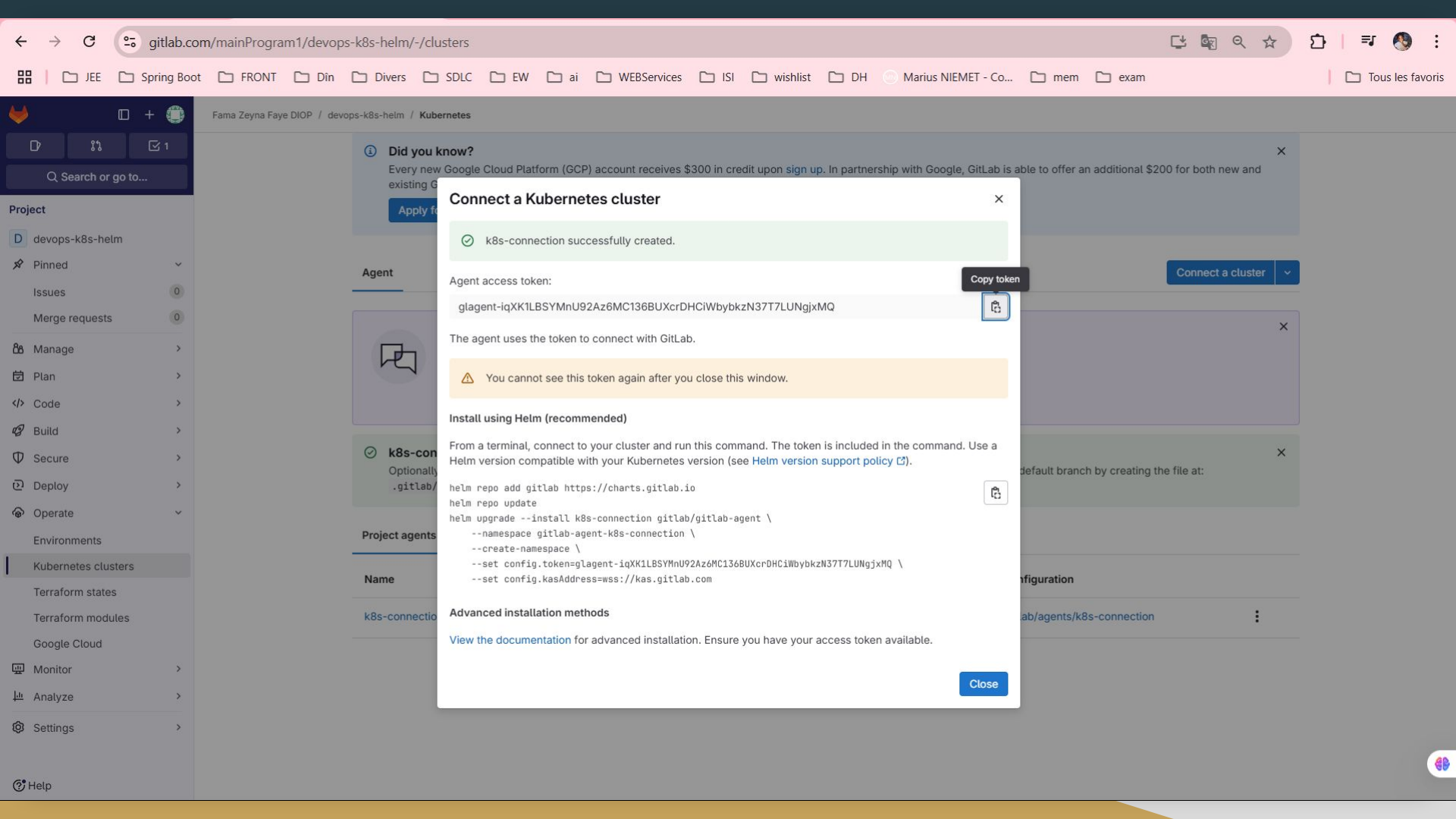
Select an agent or enter a name to create new ▾

🔍 Search

k8s-connection

Cancel

Register



1- Installation d'un agent gitlab dans un cluster kubernetes

Common actions for Helm:

- helm search: search for charts
- helm pull: download a chart to your local directory to view
- helm install: upload the chart to Kubernetes
- helm list: list releases of charts

Environment variables:

```
PS C:\Users\fazeyna> helm repo update
Hang tight while we grab the latest from your chart repositories...
...Successfully got an update from the "gitlab" chart repository
Update Complete. ✨Happy Helming!✨
PS C:\Users\fazeyna>
```

1- Installation d'un agent gitlab dans un cluster kubernetes

```
PS C:\Users\fazeyna> helm upgrade --install k8s-connection gitlab/gitlab-agent --namespace gitlab-agent-k8s-connection --create-namespace --set config.token=glagent-iqXK1LBSYMnU92Az6MC136BUXcrDHCiWbybkzN37T7LUNGjxMQ --set config.kasAddress=wss://kas.gitlab.com
Release "k8s-connection" does not exist. Installing it now.
NAME: k8s-connection
LAST DEPLOYED: Sun Feb 23 14:00:17 2025
NAMESPACE: gitlab-agent-k8s-connection
STATUS: deployed
REVISION: 1
TEST SUITE: None
NOTES:
Thank you for installing gitlab-agent.

Your release is named k8s-connection.

## Changelog

### 1.17.0



- The default replica count has been increased from '1' to '2' to allow a zero-downtime upgrade experience.
  You may use '--set replicas=1' to restore the old default behavior.
PS C:\Users\fazeyna>
```







Project agents

Name	Connection status	Last contact	Version	Agent ID	Configuration	
k8s-connection	 Connected	just now	17.9.0	2126930	.gitlab/agents/k8s-connection	

2- Test de la connexion entre gitlab et k8s

deploy

 Failed Started 1 minute ago by  Fama Zeyna Faye DIOP

Search visible log output      

```
1 Running with gitlab-runner 17.7.0~pre.103.g896916a8 (896916a8)
2   on green-3.saas-linux-small-amd64.runners-manager.gitlab.com/default Jhc_Jxvh, system ID: s_0e6850b2bce1
3   ✓ Preparing the "docker+machine" executor 00:10
4   Using Docker executor with image bitnami/kubectrl:latest ...
5   Pulling docker image bitnami/kubectrl:latest ...
6   Using docker image sha256:0650398a328cf739ce37d9d43264f8f6d66d77e327b23bf98b12b69d96269c8d for bitnami/kubectrl:latest with digest bitnami/kubectrl@sha256:9
  933302d768bbb344fedae9e6e1e452beaf63ae231f3f328272032455ea9aa1e ...
7   ✓ Preparing environment 00:03
8   Running on runner-jhcjxvh-project-67391348-concurrent-0 via runner-jhcjxvh-s-l-s-amd64-1740319931-2dc0a612...
9   ✓ Getting source from Git repository 00:01
10  Fetching changes with git depth set to 20...
11  Initialized empty Git repository in /builds/mainProgram1/devops-k8s-helm/.git/
12  Created fresh repository.
13  Checking out db1a1e97 as detached HEAD (ref is main)...
14  Skipping Git submodules setup
15  $ git remote set-url origin "${CI_REPOSITORY_URL}"
16  ✓ Executing "step_script" stage of the job script 00:00
17  Using docker image sha256:0650398a328cf739ce37d9d43264f8f6d66d77e327b23bf98b12b69d96269c8d for bitnami/kubectrl:latest with digest bitnami/kubectrl@sha256:9
  933302d768bbb344fedae9e6e1e452beaf63ae231f3f328272032455ea9aa1e ...
18  $ kubectrl config get-contexts
19  CURRENT      NAME                                     CLUSTER   AUTHINFO   NAMESPACE
20  mainProgram1/devops-k8s-helm:k8s-connection  gitlab    agent:2126930
```


2- Test de la connexion entre gitlab et k8s

 CI/CD Catalog

 Help

```
1  deploy:
2    image:
3      name: bitnami/kubectl:latest
4      entrypoint: ['']
5    script:
6      - kubectl config get-contexts
7      - kubectl config use-context mainProgram1/devops-k8s-helm:k8s-connection
8      - kubectl get pods
```

2- Test de la connexion entre gitlab et k8s

The screenshot displays the GitLab CI/CD interface for a project named 'devops-k8s-helm'. The left sidebar contains navigation options: Project, Pinned, Issues, Merge requests, Manage, Plan, Code, Build, Pipelines, Jobs (selected), Pipeline editor, Pipeline schedules, Artifacts, Secure, Deploy, Operate, Monitor, and Analyze. The main area shows the 'deploy' job, which is 'Passed' and 'Started just now by Fama Zeyna Faye DIOP'. The job log is visible, showing the following steps:

- 1 Running with gitlab-runner 17.7.0-pre.103.g896916a8 (896916a8)
- 2 on green-3.saas-linux-small-amd64.runners-manager.gitlab.com/default Jhc_Jxvh, system ID: s_0e6850b2bce1
- 3 Preparing the "docker+machine" executor
- 4 Using Docker executor with image bitnami/kubectl:latest ...
- 5 Pulling docker image bitnami/kubectl:latest ...
- 6 Using docker image sha256:0650398a328cf739ce37d9d43264f8f6d66d77e327b23bf98b12b69d96269c8d for bitnami/kubectl:latest with digest bitnami/kubectl@sha256:9933302d768bbb344fedae9e6e1e452beaf63ae231f3f328272032455ea9aa1e ...
- 7 Preparing environment
- 8 Running on runner-jhcjxvh-project-67391348-concurrent-0 via runner-jhcjxvh-s-l-s-amd64-1748320117-84d92b5b...
- 9 Getting source from Git repository
- 10 Fetching changes with git depth set to 20...
- 11 Initialized empty Git repository in /builds/mainProgram1/devops-k8s-helm/.git/
- 12 Created fresh repository.
- 13 Checking out 76f3c500 as detached HEAD (ref is main)...
- 14 Skipping Git submodules setup
- 15 \$ git remote set-url origin "\${CI_REPOSITORY_URL}"
- 16 Executing "step_script" stage of the job script
- 17 Using docker image sha256:0650398a328cf739ce37d9d43264f8f6d66d77e327b23bf98b12b69d96269c8d for bitnami/kubectl:latest with digest bitnami/kubectl@sha256:9933302d768bbb344fedae9e6e1e452beaf63ae231f3f328272032455ea9aa1e ...
- 18 \$ kubectl config get-contexts
- 19 CURRENT NAME CLUSTER AUTHINFO NAMESPACE
- 20 mainProgram1/devops-k8s-helm:k8s-connection gitlab agent:2126930
- 21 \$ kubectl config use-context mainProgram1/devops-k8s-helm:k8s-connection
- 22 Switched to context "mainProgram1/devops-k8s-helm:k8s-connection".
- 23 \$ kubectl get pods
- 24 No resources found in default namespace.
- 25 Cleaning up project directory and file based variables
- 26 Job succeeded

On the right, job statistics are shown: Duration: 18 seconds, Finished: just now, Queued: 0 seconds, Timeout: 1h (from project), Runner: #12270852 (Jhc_Jxvh) 3-green.saas-linux-small-amd64.runners-manager.gitlab.com/default. Below this, the commit is shown: /76f3c500, Update: gitlab-ci.yml file. The pipeline is #1684597261, which is 'Passed' for main. A dropdown menu shows 'test' as the selected pipeline. Related jobs are listed, including 'deploy'.

2- Préparation de k8s et création de charts dans helm

The screenshot shows the GitLab Container Registry interface for a project named 'microservice_ms'. The left sidebar contains a navigation menu with options like 'Project', 'Manage', 'Plan', 'Code', 'Build', 'Secure', 'Deploy', 'Releases', 'Feature flags', 'Package Registry', 'Container Registry' (selected), 'Model registry', 'Pages', 'Operate', 'Monitor', 'Analyze', 'Settings', and 'Help'. The main content area is titled 'Container Registry' and includes a notification banner about certificate-based cluster connections. Below the title, there's a search bar and a filter dropdown. The central part of the page features a large question mark icon and the text 'There are no container images stored for this project'. Below this, there's a section for 'CLI Commands' with three commands: 'docker login registry.gitlab.com', 'docker build -t registry.gitlab.com/mainprogram1/microserv', and 'docker push registry.gitlab.com/mainprogram1/microservice_'. Each command is accompanied by a copy icon.

Fama Zeyna Faye DIOP / microservice_ms / Container Registry

Your project or group might rely on certificate-based cluster connections to deploy to Kubernetes. These connections will be switched off on GitLab.com between **May 6, 2025 09:00 UTC and May 8, 2025 22:00 UTC**. To avoid disruptions, [migrate your setup](#) to the agent-based cluster connection as soon as possible. See [Operate > Kubernetes clusters](#) if you're affected.

Container Registry

Cleanup is not scheduled. Container Scanning for Registry: Off

Filter results

Updated

There are no container images stored for this project

With the Container Registry, every project can have its own space to store its Docker images. [More Information](#)

CLI Commands

If you are not already logged in, you need to authenticate to the Container Registry by using your GitLab username and password. If you have [Two-Factor Authentication](#) enabled, use a [personal access token](#) instead of a password.

```
docker login registry.gitlab.com
```

You can add an image to this registry with the following commands:

```
docker build -t registry.gitlab.com/mainprogram1/microserv
```

```
docker push registry.gitlab.com/mainprogram1/microservice_
```

2- Préparation de k8s et création de charts dans helm

```
PS C:\Users\fazeyna> docker login registry.gitlab.com
Username: mainProgram1
Password:

Login Succeeded


PS C:\Users\fazeyna> docker build -t registry.gitlab.com/mainprogram1/microservice_ms .
[+] Building 0.6s (1/1) FINISHED                                docker:desktop-linux
=> [internal] load build definition from Dockerfile              0.3s
=> => transferring dockerfile: 2B                               0.0s
ERROR: failed to solve: failed to read dockerfile: open Dockerfile: no such file or directory




View build details: docker-desktop://dashboard/build/desktop-linux/desktop-linux/e6rrdp8qufrqkamdaiaidfyc08




PS C:\Users\fazeyna>
PS C:\Users\fazeyna>
PS C:\Users\fazeyna> docker push registry.gitlab.com/mainprogram1/microservice_ms
Using default tag: latest
The push refers to repository [registry.gitlab.com/mainprogram1/microservice_ms]
An image does not exist locally with the tag: registry.gitlab.com/mainprogram1/microservice_ms
PS C:\Users\fazeyna> docker push registry.gitlab.com/mainprogram1/microservice_ms:lastest
The push refers to repository [registry.gitlab.com/mainprogram1/microservice_ms]
An image does not exist locally with the tag: registry.gitlab.com/mainprogram1/microservice_ms
PS C:\Users\fazeyna>
PS C:\Users\fazeyna>
PS C:\Users\fazeyna> $dockerConfig = @{}
>>     auths = @{}
>>         "registry.gitlab.com" = @{}
>>             username = "mainProgram1"
>>             password = "MonCompteGithubSA2122"
>>             email = "fazeyfadiop@gmail.com"
>>             auth = [System.Convert]::ToBase64String([System.Text.Encoding]::UTF8.GetBytes("${mainProgram1}:${MonCompteGithubSA2122}"))
>>         }
>>     }
>> | ConvertTo-Json -Compress
PS C:\Users\fazeyna> $base64Config = [System.Convert]::ToBase64String([System.Text.Encoding]::UTF8.GetBytes($dockerConfig))
PS C:\Users\fazeyna> Write-Output $base64Config
eyJhdXRocyT6eyJyZWdpc3RyeS5naXR5YWluY29tIjpw7InVzZXZlWmllIjoibWFPblByb2dyYW0xIiwizWIhaWwiOiJmYXNleWZhZGZlcEBnbWFpbCj5jb2oiLCJwYXNzd29yZCI6Ik1vbKvNbXBkZUdpdGh1"
```



2- Préparation de k8s et création de charts dans helm


Container Registry

CLI Commands 


 1 Image repository  Cleanup is not scheduled. [Set up cleanup](#)  Container Scanning for Registry: Off

 Updated  

 microservice_ms/microservice_ms 


1 tag Published 1 minute ago 

7



```
- kubectl config use-context mainProgram1/devops-k8s-helm:k8s-connection
```

8



```
- kubectl get pods
```

3- CI-CD pour stock-ms

▼ .gitlab-ci.yml

+14 -1

View file @ dbdabecd

```
1 1  stages:
2 2    - build
3 3    - containerize
4 4  +
5 5  + build_jar:
6 6    + image: maven:3.8-openjdk-17
7 7    + stage: build
8 8    + script:
9 9      + - mvn clean package
10 10   + artifacts:
11 11     + paths:
12 12       + - target/stock-ms.jar
13 13   +
14 14   build_image:
15 15     image: docker
16 16   - stage: build
17 17   + stage: containerize
18 18   services:
19 19     - docker:dind
20 20   + needs:
21 21     + - build_jar
22 22   script:
23 23     - echo "$CI_REGISTRY_PASSWORD" | docker login $CI_REGISTRY -u $CI_REGISTRY_USER --password-stdin
...  ...     - docker build -t $CI_REGISTRY/mainprogram1/microservice_ms/microservice_ms:latest .
```

4- Création du chart et mise en place du template

```
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS> cd .\helm\  
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> helm create test-stock-ms  
Creating test-stock-ms  
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> |
```

Répertoire : C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm\test-stock-ms

Mode	LastWriteTime		Length	Name
----	-----	-----	-----	----
d-----	23/02/2025	15:26		charts
d-----	23/02/2025	15:26		templates
-a----	23/02/2025	15:26	349	.helmignore
-a----	23/02/2025	15:26	1149	Chart.yaml
-a----	23/02/2025	15:26	4299	values.yaml

4- Création du chart et mise en place du template

```
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS> cd .\helm\  
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> helm create test-stock-ms  
Creating test-stock-ms  
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> 
```

```
4 |   entrypoint: ['']  
5 |   script:
```

Répertoire : C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm\test-stock-ms

Mode		LastWriteTime	Length	Name
d----	23/02/2025	15:26		charts
d----	23/02/2025	15:26		templates
-a----	23/02/2025	15:26	349	.helmignore
-a----	23/02/2025	15:26	1149	Chart.yaml
-a----	23/02/2025	15:26	4299	values.yaml

4- Création du chart et mise en place du template

```
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> helm install stock-ms-app .\test-stock-ms
NAME: stock-ms-app
LAST DEPLOYED: Sun Feb 23 15:51:18 2025
NAMESPACE: default
STATUS: deployed
REVISION: 1
TEST SUITE: None
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> kubectl get pods
NAME                                READY   STATUS    RESTARTS   AGE
stock-ms-app-logindep-6684d8664-m6nqn 1/1     Running   0           14s
stock-ms-app-logindep-6684d8664-qkl5v 1/1     Running   0           14s
stock-ms-app-logindep-6684d8664-sxqjk 1/1     Running   0           14s
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm>
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> kubectl get services
NAME                                TYPE        CLUSTER-IP    EXTERNAL-IP  PORT(S)    AGE
kubernetes                          ClusterIP    10.43.0.1      <none>        443/TCP    4h8m
stock-ms-app-webapp-svc             ClusterIP    10.43.162.245 <none>        80/TCP     73s
```

points Database Notifications

5- Test du déploiement

```
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> kubectl get svc stock-ms-app-webapp-svc
```

NAME	TYPE	CLUSTER-IP	EXTERNAL-IP	PORT(S)	AGE
stock-ms-app-webapp-svc	NodePort	10.43.119.187	<none>	8080:32574/TCP	78s

```
PS C:\Users\fazeyna\Desktop\COURS_ISI_M2\DEVOPS\helm> kubectl port-forward service/stock-ms-app-webapp-svc 8080:32574
```

2 image:

STOCK-MS / PRODUCT / Get Product

GET http://127.0.0.1:32574/products/1 Send

Params Authorization Headers (6) Body Scripts Settings Cookies

Query Params

Key	Value	Description	Bulk Edit
Key	Value	Description	

Body Cookies Headers (5) Test Results 404 Not Found 1.25 s 274 B Save Response

{ JSON Preview Visualize

```
1 {
2   "message": "Requested product with ref = 1 does not exist",
3   "timestamp": "2025-02-23T16:54:18.568481231"
4 }
```