

# INGENIERIE INFORMATIQUE ET Réseaux (5IIR4)

## Devoir

Module JEE

---

## Développement Microservices avec Spring Cloud

---








Réalisé par:

*Firdaws LEGHRAFI*

*Manal CHAKOUR EL MEZALI*




























Année Universitaire : **2023-2024**

## ➤ Architecture de l'application spring :

- >  config.server [boot]
- >  config-server-repo [config-server-repo master]
- >  eurka-server (in eurkaserver) [boot]
- >  microservice-commandes [boot]
- >  microservice-commandes2 [boot]
- >  microservice-produits [boot]
- >  zuul-server [boot]

## ➤ Etude de cas 1 :

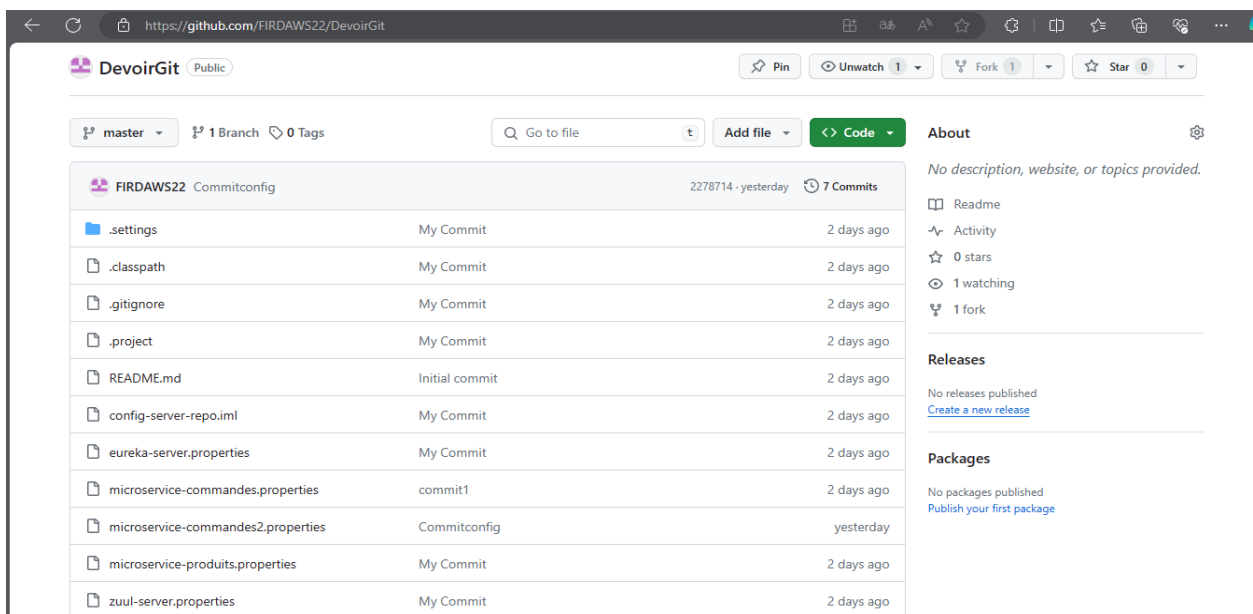
1. Création du projet Maven: Développement du microservice « Commandes » version1.

- ▼  microservice-commandes [boot]
  - ▼  src/main/java
    - ▼  com.commandes
      - >  McommandeApplication.java
    - ▼  com.commandes.configurations
      - >  ApplicationPropertiesConfiguration.java
    - ▼  com.commandes.dao
      - >  CommandesDao.java
    - ▼  com.commandes.model
      - >  Commande.java
    - ▼  com.commandes.service
      - >  CommandeService.java
    - ▼  com.commandes.web.controller
      - >  CommandeController.java
    - ▼  com.commandes.web.exceptions
      - >  CommandeNotFoundException.java
      - >  ImpossibleAjouterCommandeException.java
  - >  src/main/resources
  - >  src/test/java
  - >  src/test/resources
  - >  JRE System Library [JavaSE-1.8]
  - >  Maven Dependencies
  - >  target/generated-sources/annotations
  - >  target/generated-test-sources/test-annotations
  - >  src
  - >  target
  - >  pom.xml

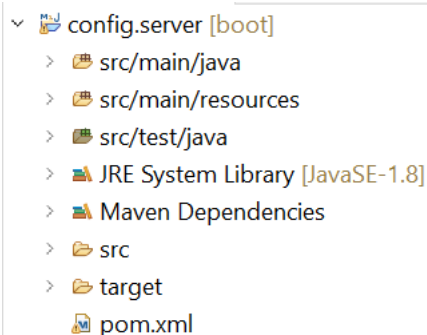
## 2. Configuration du Repository local : [config-server-repo](#)



## 3. Le push du repo sur GitHub :



## 4. Création de Spring Server Config :



- Console du config server : (Il se lance sur le port 9101)

```
Markers Properties Servers Data Source Explorer Snippets Terminal Console x
config.server - Application [Spring Boot App] [pid: 20164]

main] com.mcommerce.config.server.Application : Starting Application using Java 19.0.2 on DESKTOP-TSU9HOE with PID
main] com.mcommerce.config.server.Application : No active profile set, falling back to 1 default profile: "default"
main] o.s.cloud.context.scope.GenericScope : BeanFactory id=be55b387-c857-37b0-ad85-2ed28df449e0
main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat initialized with port(s): 9101 (http)
main] o.apache.catalina.core.StandardService : Starting service [Tomcat]
main] org.apache.catalina.core.StandardEngine : Starting Servlet engine: [Apache Tomcat/9.0.80]
main] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring embedded WebApplicationContext
main] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext: initialization completed in 1759 ms
main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 9101 (http) with context path '/'
main] com.mcommerce.config.server.Application : Started Application in 4.547 seconds (JVM running for 5.638)
```

- Console du microservice-commande : (Il se lance sur le port 9002)

```
Markers Properties Servers Data Source Explorer Snippets Terminal Console x
microservice-commandes - McommandesApplication [Spring Boot App] C:\Program Files\Java\jdk-19\bin\javaw.exe (22 déc. 2023, 23:18:13) [pid: 13468]

: Fetching config from server at : http://localhost:9101
: Located environment: name=microservice-commandes, profiles=[default], label=null, version=5b9d750fe506270f75d666f3245a149a39b3758c,
: Located property source: [BootstrapPropertySource {name='bootstrapProperties-configClient'}, BootstrapPropertySource {name='applicationConfig'}]
: No active profile set, falling back to 1 default profile: "default"
: Bootstrapping Spring Data JPA repositories in DEFAULT mode.
: Finished Spring Data repository scanning in 76 ms. Found 1 JPA repository interfaces.
: BeanFactory id=014cd9b0-8a5a-32fa-8a67-8eac3574ee4
: Tomcat initialized with port(s): 9002 (http)
: Starting service [Tomcat]
: Starting Servlet engine: [Apache Tomcat/9.0.82]
: Initializing Spring embedded WebApplicationContext
: Root WebApplicationContext: initialization completed in 2494 ms
: HikariPool-1 - Starting...
: HikariPool-1 - Start completed.
: H2 console available at '/h2-console'. Database available at 'jdbc:h2:mem:65c0cce2-a3c9-492e-9e91-041eeeca4c39'
: HHH000204: Processing PersistenceUnitInfo [name: default]
: HHH000412: Hibernate ORM core version 5.6.15.Final
: HCANN000001: Hibernate Commons Annotations {5.1.2.Final}
: HHH000400: Using dialect: org.hibernate.dialect.H2Dialect
```

- <http://localhost:9101/microservice-commandes/default>

```
localhost:9101/microservice-commandes/default
{
  "name": "microservice-commandes",
  "profiles": [
    "default"
  ],
  "label": null,
  "version": "5b9d750fe506270f75d666f3245a149a39b3758c",
  "state": null,
  "propertySources": [
    {
      "name": "https://github.com/FIRDAWS22/DevoirGit.git/microservice-commandes.properties",
      "source": {
        "server.port": "9002",
        "spring.jpa.show-sql": "true",
        "spring.h2.console.enabled": "true",
        "spring.datasource.sql-script-encoding": "UTF-8",
        "mes-config-ms.commandes.last": "10",
        "eureka.client.serviceUrl.defaultZone": "http://localhost:9102/eureka/",
        "management.endpoints.web.exposure.include": "*",
        "management.endpoints.web.expose": "info, health, refresh"
      }
    }
  ]
}
```

- <http://localhost:9101/microservice-commandes/default/master>

```
1 {
2   "name": "microservice-commandes",
3   "profiles": [
4     "master"
5   ],
6   "label": null,
7   "version": "5b9d750fe506270f75d666f3245a149a39b3758c",
8   "state": null,
9   "propertySources": [
10    {
11      "name": "https://github.com/FIRDAWS22/DevoirGit.git/microservice-commandes.properties",
12      "source": {
13        "server.port": "9002",
14        "spring.jpa.show-sql": "true",
15        "spring.h2.console.enabled": "true",
16        "spring.datasource.sql-script-encoding": "UTF-8",
17        "mes-config-ms.commandes-last": "10",
18        "eureka.client.serviceUrl.defaultZone": "http://localhost:9102/eureka/",
19        "management.endpoints.web.exposure.include": "*",
20        "management.endpoints.web.expose": "info, health, refresh"
21      }
22    }
23  ]
24 }
```

5. La version (1) de la table « COMMANDE » est composée des colonnes suivantes [id, description, quantité, date, montant]

localhost:9002/h2-console/login.jsp?sessionId=69a1350af071b7b2957d1bbcb5fc008

English Preferences Tools Help

### Login

Saved Settings: Generic H2 (Embedded)

Setting Name: Generic H2 (Embedded)

---

Driver Class: org.h2.Driver

JDBC URL: jdbc:h2:mem:65c0cce2-a3c9-492e-9e91-041eeeca4c39

User Name: sa

Password:

localhost:9002/h2-console/login.do?jsessionId=eabbab019d37ced4defea8709e598f24

The Portfolio that G...

Auto commit ☒ Max rows: 1000 Auto complete Off Auto select On

jdbc:h2:mem:6a6554e1-2c4a-47; Run Run Selected Auto complete Clear SQL statement:

COMMANDE  
INFORMATION\_SCHEMA  
Sequences  
Users  
H2 2.1.214 (2022-06-13)

SELECT \* FROM COMMANDE

SELECT \* FROM COMMANDE;

ID	DATE_COMMANDE	DESCRIPTION	MONTANT	QUANTITE
1	2023-01-10 00:00:00	Produit A	100.0	5
2	2023-01-12 00:00:00	Produit B	75.5	3
3	2023-01-15 00:00:00	Produit C	200.0	8
4	2023-01-18 00:00:00	Produit D	50.25	2
5	2023-01-20 00:00:00	Produit E	300.0	10
6	2023-01-22 00:00:00	Produit F	180.75	7
7	2023-01-25 00:00:00	Produit G	90.6	4
8	2023-01-28 00:00:00	Produit H	150.0	6
9	2023-02-01 00:00:00	Produit I	220.25	9
10	2023-02-03 00:00:00	Produit J	400.0	12
11	2023-02-06 00:00:00	Produit K	75.5	3
12	2023-02-09 00:00:00	Produit L	500.0	15
13	2023-02-12 00:00:00	Produit M	150.0	6

○ <http://localhost:9002/actuator>

localhost:9101/microservice-com x localhost:9101/microservice-com x localhost:9002/actuator

localhost:9002/actuator

```

1 {
2   "_links": {
3     "self": {
4       "href": "http://localhost:9002/actuator",
5       "templated": false
6     },
7     "beans": {
8       "href": "http://localhost:9002/actuator/beans",
9       "templated": false
10    },
11    "caches-cache": {
12      "href": "http://localhost:9002/actuator/caches/{cache}",
13      "templated": true
14    },
15    "caches": {
16      "href": "http://localhost:9002/actuator/caches",
17      "templated": false
18    },
19    "health": {
20      "href": "http://localhost:9002/actuator/health",
21      "templated": false
22    },
23    "health-path": {
24      "href": "http://localhost:9002/actuator/health/{*path}",
25      "templated": true
26    },
27    "info": {
28      "href": "http://localhost:9002/actuator/info",
29      "templated": false
30    },
31    "conditions": {
32      "href": "http://localhost:9002/actuator/conditions",
33      "templated": false
34    },
35    "configprops": {
36      "href": "http://localhost:9002/actuator/configprops",
37      "templated": false
38    },
39    "configprops-prefix": {
40      "href": "http://localhost:9002/actuator/configprops/{prefix}",
41      "templated": true
42    },
43    "beans": {

```

## 6. Affichage des 10 commandes : (mes-config-ms.commandeslast = 10)

```
1 [
2   {
3     "id": 1,
4     "description": "Produit A",
5     "dateCommande": "2023-01-09T23:00:00.000+00:00",
6     "quantite": 5,
7     "montant": 100
8   },
9   {
10    "id": 2,
11    "description": "Produit B",
12    "dateCommande": "2023-01-11T23:00:00.000+00:00",
13    "quantite": 3,
14    "montant": 75.5
15  },
16  {
17    "id": 3,
18    "description": "Produit C",
19    "dateCommande": "2023-01-14T23:00:00.000+00:00",
20    "quantite": 8,
21    "montant": 200
22  },
23  {
24    "id": 4,
25    "description": "Produit D",
26    "dateCommande": "2023-01-17T23:00:00.000+00:00",
27    "quantite": 2,
28    "montant": 50.25
29  },
30  {
31    "id": 5,
32    "description": "Produit E",
33    "dateCommande": "2023-01-19T23:00:00.000+00:00",
34    "quantite": 10,
35    "montant": 300
36  },
37  {
38    "id": 6,
39    "description": "Produit F",
40    "dateCommande": "2023-01-21T23:00:00.000+00:00",
41    "quantite": 7,
42    "montant": 180.75
43  },
44  {
45    "id": 7,
46    "description": "Produit G",
47    "dateCommande": "2023-01-24T23:00:00.000+00:00",
48    "quantite": 4,
49    "montant": 90.6
50  },
51  {
52    "id": 8,
53    "description": "Produit H",
54    "dateCommande": "2023-01-27T23:00:00.000+00:00",
55    "quantite": 6,
56    "montant": 150
57  },
58  {
59    "id": 9,
60    "description": "Produit I",
61    "dateCommande": "2023-01-31T23:00:00.000+00:00",
62    "quantite": 9,
63    "montant": 220.25
64  },
65  {
66    "id": 10,
67    "description": "Produit J",
68    "dateCommande": "2023-02-02T23:00:00.000+00:00",
69    "quantite": 12,
70    "montant": 400
71  }
72 ]
```

## 7. Rechargement de la configuration à chaud : (mes-config-ms.commandeslast = 15)

```
1 server.port=9002
2 #Configurations H2
3 spring.jpa.show-sql=true
4 spring.h2.console.enabled=true
5 spring.datasource.sql-script-encoding=UTF-8
6 mes-config-ms.commandeslast=15
7 #Eureka : indique l'URL d'Eureka à laquelle il faut s'enregistrer:
8 eureka.client.serviceUrl.defaultZone = http://localhost:9102/eureka/
9 #Actuator
10 #management.endpoints.web.exposure.include=refresh
11 management.endpoints.web.exposure.include=*
12 ##
13 management.endpoints.web.expose=info, health, refresh
```

- Événement Refresh : <http://localhost:9002/actuator/refresh> via Postman qui indique les propriétés qui ont été modifiées depuis le dernier commit.

HTTP <http://localhost:9002/actuator/refresh> Save Send

**POST** <http://localhost:9002/actuator/refresh>

Params Authorization Headers (8) Body Pre-request Script Tests Settings Cookies

Query Params

	Key	Value	Description	...	Bulk Edit
	Key	Value	Description		

Body Cookies Headers (5) Test Results 200 OK 7.39 s 278 B Save as example

Pretty Raw Preview Visualize JSON Copy Search

```

1 [
2   "config.client.version",
3   "mes-config-ms.commandeslast",
4   "mes-config-ms.commandes-last"
5 ]

```

- Affichage des 15 commandes : (`mes-config-ms.commandeslast = 15`)

localhost:9101/microservice-cor... localhost:9101/microservice-cor... localhost:9002/actuator localhost:9002/commandes

localhost:9002/commandes

```

66 {
67   "id": 10,
68   "description": "Produit J",
69   "dateCommande": "2023-02-02T23:00:00.000+00:00",
70   "quantite": 12,
71   "montant": 480
72 },
73 {
74   "id": 11,
75   "description": "Produit K",
76   "dateCommande": "2023-02-05T23:00:00.000+00:00",
77   "quantite": 3,
78   "montant": 75.5
79 },
80 {
81   "id": 12,
82   "description": "Produit L",
83   "dateCommande": "2023-02-08T23:00:00.000+00:00",
84   "quantite": 15,
85   "montant": 500
86 },
87 {
88   "id": 13,
89   "description": "Produit M",
90   "dateCommande": "2023-02-11T23:00:00.000+00:00",
91   "quantite": 6,
92   "montant": 150
93 },
94 {
95   "id": 14,
96   "description": "Produit N",
97   "dateCommande": "2023-02-14T23:00:00.000+00:00",
98   "quantite": 11,
99   "montant": 350.75
100 },
101 {
102   "id": 15,
103   "description": "Produit O",
104   "dateCommande": "2023-02-17T23:00:00.000+00:00",
105   "quantite": 4,
106   "montant": 100.25
107 }

```

- La supervision de la bonne santé du « microservice-commandes » : le statut à afficher « UP »



- Base de données des commandes vide : statut « DOWN »

```

1 {
2   "status": "DOWN"
3 }

```

- Base de données des commandes pleine : statut « UP »

```

1 {
2   "status": "UP"
3 }

```

## 9. Postman CRUD :

- Requête Get All :

HTTP <http://localhost:9002/commandes> Save Send

GET <http://localhost:9002/commandes>

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies

Query Params

Key	Value	Description	Bulk Edit

Body Cookies Headers (5) Test Results 200 OK 185 ms 1.25 KB Save as example

Pretty Raw Preview Visualize JSON Copy Search

```

1 [
2   {
3     "id": 1,
4     "description": "Produit A",
5     "dateCommande": "2023-01-09T23:00:00.000+00:00",
6     "quantite": 5,
7     "montant": 100.0
8   },
9   {
10    "id": 2,
11    "description": "Produit B",
12    "dateCommande": "2023-01-11T23:00:00.000+00:00",
13    "quantite": 3,
14    "montant": 75.5
15  }
16 ]

```

- Requête Get ById :

HTTP http://localhost:9002/commandes/9

GET http://localhost:9002/commandes/9

Send

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies

Query Params

Key	Value	Description	...	Bulk Edit
-----	-------	-------------	-----	-----------

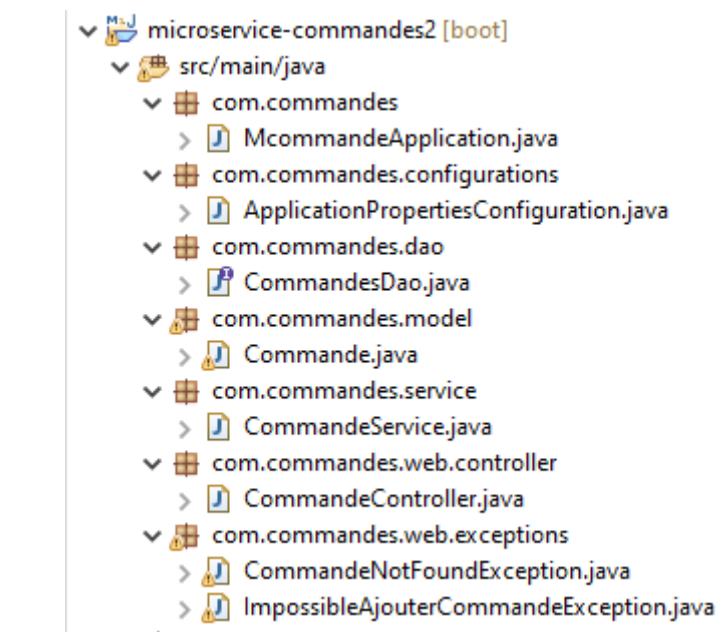
Body Cookies Headers (5) Test Results 200 OK 845 ms 275 B Save as example

Pretty Raw Preview Visualize JSON

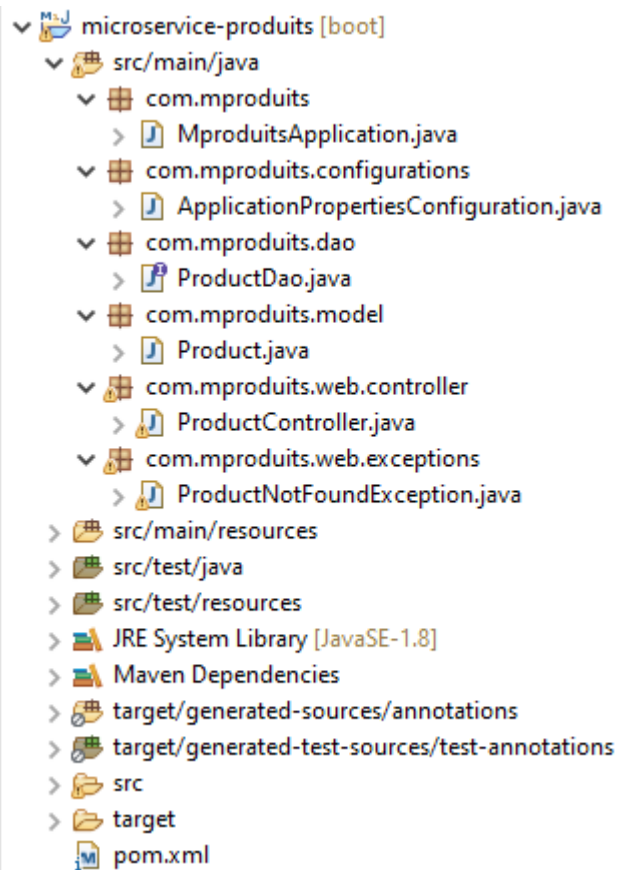
```
1 {
2   "id": 9,
3   "description": "Produit I",
4   "dateCommande": "2023-01-31T23:00:00.000+00:00",
5   "quantite": 9,
6   "montant": 220.25
7 }
```

## ➤ Etude de cas 2 :

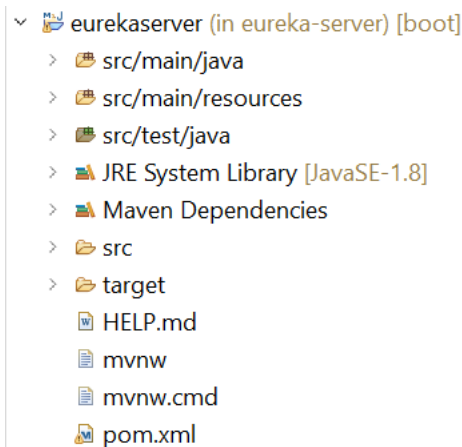
### 1. Création du projet Maven: microservice-commandes2 Version2 :



### 2. Création du projet Maven: microservice-produits



### 3. Mise en place d'Eureka Server



- Eureka Server a été bien enregistré dans notre Spring Cloud Config Server : <http://localhost:9101/eureka-server/master>

```
localhost:9101/eureka-server/master

JSON  Données brutes  En-têtes

Enregistrer Copier Tout réduire Tout développer Filtre le JSON

name: "eureka-server"
▼ profiles:
  0: "master"
  label: null
  version: "2278714152e29632b9bb151516f604710587cbdf"
  state: null
▼ propertySources:
  ▼ 0:
    ▼ name: "https://github.com/FIRDAWS22/DevoirGit.git/eureka-server.properties"
    ▼ source:
      server.port: "9102"
      spring.application.name: "eureka-server"
      eureka.client.registerWithEureka: "false"
      eureka.client.fetchRegistry: "false"
      spring.cloud.config.import-check.enabled: "false"
      eureka.server.maxThreadsForPeerReplication: "0"
```

- Les microservice-commandes et microservice-produit sont enregistrés auprès d'Eureka sur 9102 :

localhost:9102

Data center: default

Uptime: 00:17

Lease expiration enabled: false

Renews threshold: 6

Renews (last min): 4

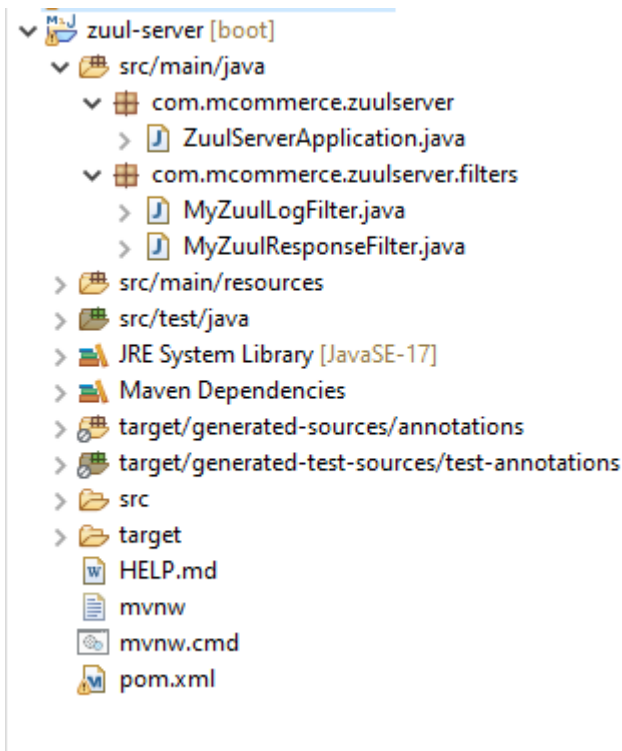
EMERGENCY! EUREKA MAY BE INCORRECTLY CLAIMING INSTANCES ARE UP WHEN THEY'RE NOT. RENEWALS ARE LESSER THAN THRESHOLD AND HENCE THE INSTANCES ARE NOT BEING EXPIRED JUST TO BE SAFE.

DS Replicas

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
MICROSERVICE-COMMANDES	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-commandes:9002</a>
MICROSERVICE-COMMANDES2	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-commandes2:9003</a>
MICROSERVICE-PRODUITS	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-produits</a>

9.Implémentation d'une API Gateway comme point d'accès unique à l'application : Mise en place de l'API Gateway Zuul.



#### ○ Démarrage de L'API Gateway Zuul

```

Fetching config from server at : http://localhost:9101
Located environment: name=zuul-server, profiles=[default], label=null, version=2278714152e29632b9bb151516f604710587cbdf, state=null
Located property source: [BootstrapPropertySource {name='bootstrapProperties-configClient'}, BootstrapPropertySource {name='bootstrapProperties-configClient'}]
No active profile set, falling back to 1 default profile: "default"
BeanFactory id=75a3b377-26b5-3096-a011-5fb7b869fb15
Tomcat initialized with port(s): 9004 (http)
Starting service [Tomcat]
Starting Servlet engine: [Apache Tomcat/10.1.16]
Initializing Spring embedded WebApplicationContext
Root WebApplicationContext: initialization completed in 3068 ms
Cannot determine local hostname
Cannot determine local hostname
Eureka HTTP Client uses RestTemplate.
Spring Cloud LoadBalancer is currently working with the default cache. While this cache implementation is useful for development and tests

```

The response est 200 pour Getting ALL INSTANCE INFO FROM EUREKA SERVER .

```

: registering application ZUUL-SERVER with eureka with status UP
: Saw local status change event StatusChangeEvent [timestamp=1703422425908, current=UP, previous=STARTING]
: DiscoveryClient_ZUUL-SERVER/localhost:zuul-server:9004: registering service...
: Tomcat started on port(s): 9004 (http) with context path ''
: Updating port to 9004
: DiscoveryClient_ZUUL-SERVER/localhost:zuul-server:9004 - registration status: 204
: Cannot determine local hostname
: Started ZuulServerApplication in 19.933 seconds (process running for 21.652)
: Initializing Spring DispatcherServlet 'dispatcherServlet'
: Initializing Servlet 'dispatcherServlet'
: Completed initialization in 5 ms
: Disable delta property : false
: Single vip registry refresh property : null
: Force full registry fetch : false
: Application is null : false
: Registered Applications size is zero : true
: Application version is -1: false
: Getting all instance registry info from the eureka server
: The response status is 200

```

Zuul server se lance sur 9004 .

```
zuul-server - ZuulServerApplication [Spring Boot App] [pid: 16956]

5f604710587cbdf, state=null
propertySource {name='bootstrapProperties-https://github.com/FIRDAWS22/DevoirGit.git/zuul-server.properties'}}
```

- Zuul Server a été bien enregistré dans notre Spring Cloud Config Server : <http://localhost:9101/zuul-server/master>

```
localhost:9101/zuul-server/master

JSON  Données brutes  En-têtes

Enregistrer  Copier  Tout réduire  Tout développer  Filtre le JSON

name: "zuul-server"
▼ profiles:
  0: "master"
  label: null
  version: "2278714152e29632b9bb151516f604710587cbdf"
  state: null
▼ propertySources:
  ▼ 0:
    ▼ name: "https://github.com/FIRDAWS22/DevoirGit.git/zuul-server.properties"
    ▼ source:
      server.port: "9004"
      eureka.client.serviceUrl.defaultZone: "http://localhost:9102/eureka/"
```

- zuul-server a été bien enregistrés auprès d'Eureka

Lease expiration enabled	false
Renews threshold	8
Renews (last min)	8

EMERGENCY! EUREKA MAY BE INCORRECTLY CLAIMING INSTANCES ARE UP WHEN THEY'RE NOT. RENEWALS ARE LESSER THAN THRESHOLD AND HENCE THE INSTANCES ARE NOT BEING EXPIRED JUST TO BE SAFE.

### DS Replicas

#### Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
MICROSERVICE-COMMANDES	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-commandes:9002</a>
MICROSERVICE-COMMANDES2	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-commandes2:9003</a>
MICROSERVICE-PRODUITS	n/a (1)	(1)	UP (1) - <a href="#">localhost:microservice-produits</a>
ZUUL-SERVER	n/a (1)	(1)	UP (1) - <a href="#">localhost:zuul-server:9004</a>

#### General Info

4. La version (2) de la table « COMMANDE » est composée » des colonnes suivantes [id, description, quantité, date, montant, id\_produit]

← → ↻ ⓘ localhost:9003/h2-console/login.jsp?sessionId=eb6d279dfc4ba31ab0d6722ee9757482

tds The Portfolio that G...

English ▾ Preferences Tools Help

### Login

Saved Settings: Generic H2 (Embedded) ▾

Setting Name: Generic H2 (Embedded) Save Remove

---

Driver Class: org.h2.Driver

JDBC URL: jdbc:h2:mem:7d2b2cfd-6069-4ac7-9852-29b3ff94b773

User Name: sa

Password:

Connect Test Connection

← → ↻ ⓘ localhost:9003/h2-console/login.do?sessionId=b8062e746f2d3764db3d64b179bbc54a

tds The Portfolio that G...

🔥 🔗 ☒ Auto commit 🔗 🔗 Max rows: 1000 ▾ 🔄 🔴 📄 Auto complete Off ▾ Auto select On ▾ ⓘ

📁 jdbc:h2:mem:7d2b2cfd-6069-4ac7-9852-29b3ff94b773

📁 ☒ Run ☐ Run Selected ☐ Auto complete ☐ Clear SQL statement:

📁 ☒ COMMANDE

📁 ☒ INFORMATION\_SCHEMA

📁 ☒ Sequences

📁 ☒ Users

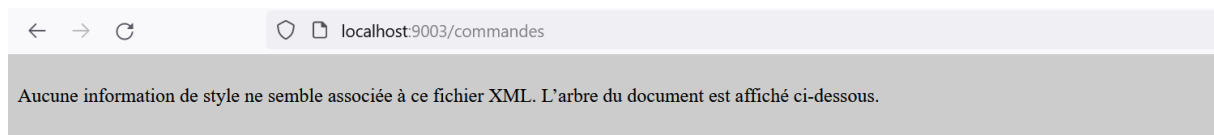
📁 ☒ H2 2.1.214 (2022-06-13)

SELECT \* FROM COMMANDE

SELECT \* FROM COMMANDE;

ID	DATE_COMMANDE	DESCRIPTION	ID_PRODUIT	MONTANT	QUANTITE
1	2023-01-10 00:00:00	Produit A	1	100.0	5
2	2023-01-12 00:00:00	Produit B	2	75.5	3
3	2023-01-15 00:00:00	Produit C	3	200.0	8
4	2023-01-18 00:00:00	Produit D	4	50.25	2
5	2023-01-20 00:00:00	Produit E	5	300.0	10
6	2023-01-22 00:00:00	Produit F	6	180.75	7
7	2023-01-25 00:00:00	Produit G	7	90.6	4
8	2023-01-28 00:00:00	Produit H	8	150.0	6
9	2023-02-01 00:00:00	Produit I	9	220.25	9
10	2023-02-03 00:00:00	Produit J	10	400.0	12
11	2023-02-06 00:00:00	Produit K	11	75.5	3
12	2023-02-09 00:00:00	Produit L	12	500.0	15
13	2023-02-12 00:00:00	Produit M	13	150.0	6

- Accès direct au microservice-commandes2 : <http://localhost:9003/commandes>



```

-<List>
  -<item>
    <id>1</id>
    <description>Produit A</description>
    <dateCommande>2023-01-09T23:00:00.000+00:00</dateCommande>
    <quantite>5</quantite>
    <montant>100.0</montant>
    <id_produit>1</id_produit>
  </item>
  -<item>
    <id>2</id>
    <description>Produit B</description>
    <dateCommande>2023-01-11T23:00:00.000+00:00</dateCommande>
    <quantite>3</quantite>
    <montant>75.5</montant>
    <id_produit>2</id_produit>
  </item>
  -<item>
    <id>3</id>
    <description>Produit C</description>
    <dateCommande>2023-01-14T23:00:00.000+00:00</dateCommande>
    <quantite>8</quantite>
    <montant>200.0</montant>
    <id_produit>3</id_produit>
  </item>
  -<item>
    <id>4</id>

```

Accès direct au microservice « commandes » en passant par la Gateway zuul :

<http://localhost:9004/microservice-commandes2/commandes> s'affiche rien même si on a zuul est bien enregistré avec Eureka et la réponse de zuul est 200 pour Getting all instance d'auprès Eureka .

5. Implémentation des fonctionnalités CRUD du microservice-commandes2
  - Requête Get All :



HTTP <http://localhost:9003/commandes> Save

**GET** <http://localhost:9003/commandes> Send

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies

Query Params

Key	Value	Description	...	Bulk Edit
-----	-------	-------------	-----	-----------

Body Cookies Headers (5) Test Results 200 OK 444 ms 2.02 KB Save as example

Pretty Raw Preview Visualize JSON

```
1 [
2   {
3     "id": 1,
4     "description": "Produit A",
5     "dateCommande": "2023-01-09T23:00:00.000+00:00",
6     "quantite": 5,
7     "montant": 100.0,
8     "id_produit": 1
9   },
10  {
11    "id": 2,
12    "description": "Produit B",
13    "dateCommande": "2023-01-11T23:00:00.000+00:00",
14    "quantite": 3,
15    "montant": 75.5,
```

- Requête Get ById:

HTTP <http://localhost:9003/commandes/5> Save

**GET** <http://localhost:9003/commandes/5> Send

Params Authorization Headers (7) Body Pre-request Script Tests Settings Cookies

Query Params

Key	Value	Description	...	Bulk Edit
-----	-------	-------------	-----	-----------

Body Cookies Headers (5) Test Results 200 OK 814 ms 290 B Save as example

Pretty Raw Preview Visualize JSON

```
1 {
2   "id": 5,
3   "description": "Produit E",
4   "dateCommande": "2023-01-19T23:00:00.000+00:00",
5   "quantite": 10,
6   "montant": 300.0,
7   "id_produit": 5
8 }
```

### ○ Requête Update:

HTTP **PUT** `http://localhost:9003/commandes/8` Save Send

Params Authorization Headers (9) **Body** Pre-request Script Tests Settings Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON** Beautify

```
1 {  
2   "quantite": 100  
3 }
```

**Body** Cookies Headers (4) Test Results 200 OK 207 ms 123 B Save as example

Pretty Raw Preview Visualize Text Copy Search

```
1
```

### ○ Requête Delete :

HTTP **DELETE** `http://localhost:9003/commandes/6` Save Send

Params Authorization Headers (7) **Body** Pre-request Script Tests Settings Cookies

☐ none ☐ form-data ☐ x-www-form-urlencoded ☒ raw ☐ binary ☐ GraphQL **JSON** Beautify

```
1
```

**Body** Cookies Headers (3) Test Results 204 No Content 25 ms 112 B Save as example