
esprit
Ecole Supérieure Privée
D'Ingénierie et de Technologies
Back-end
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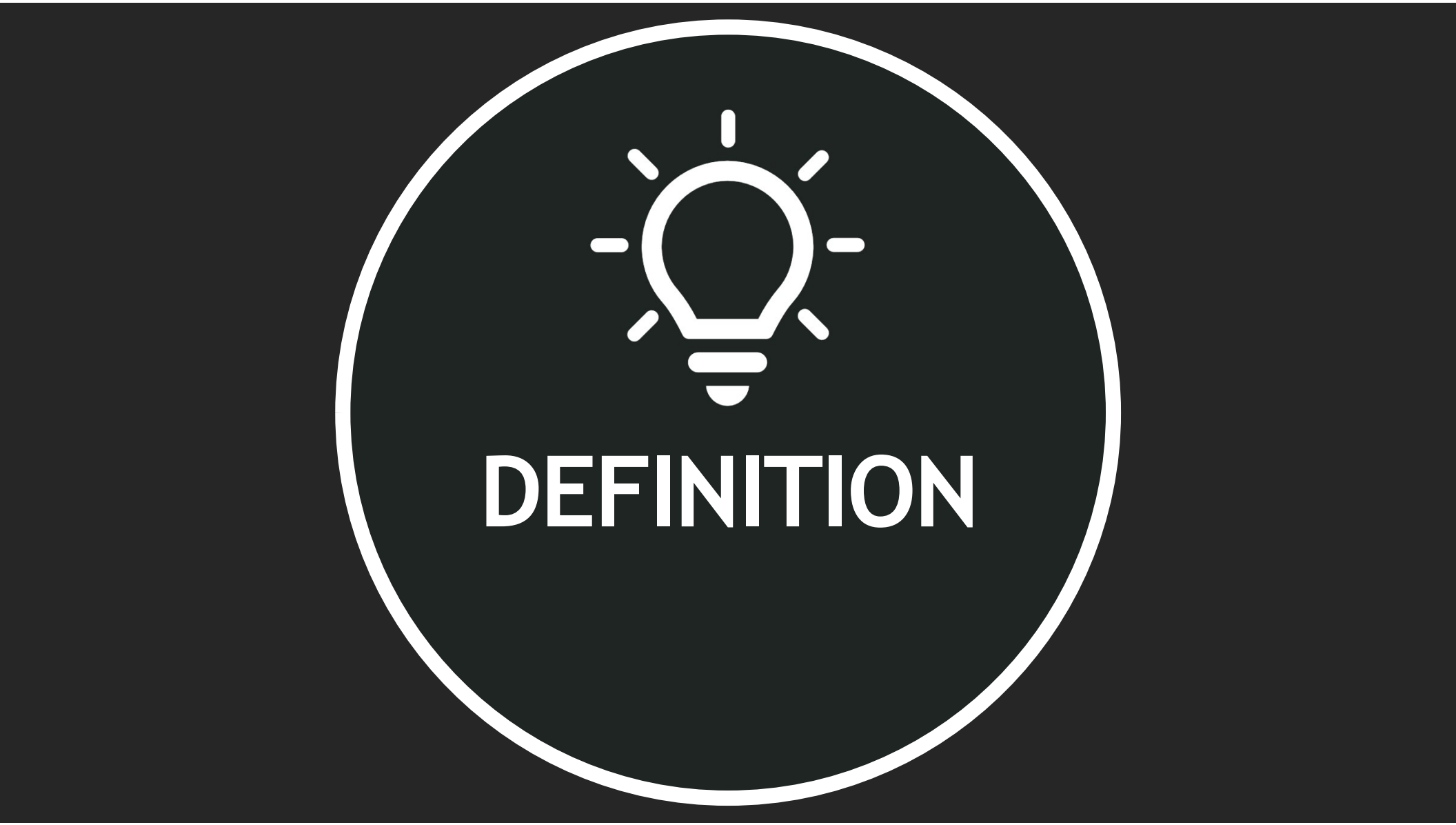
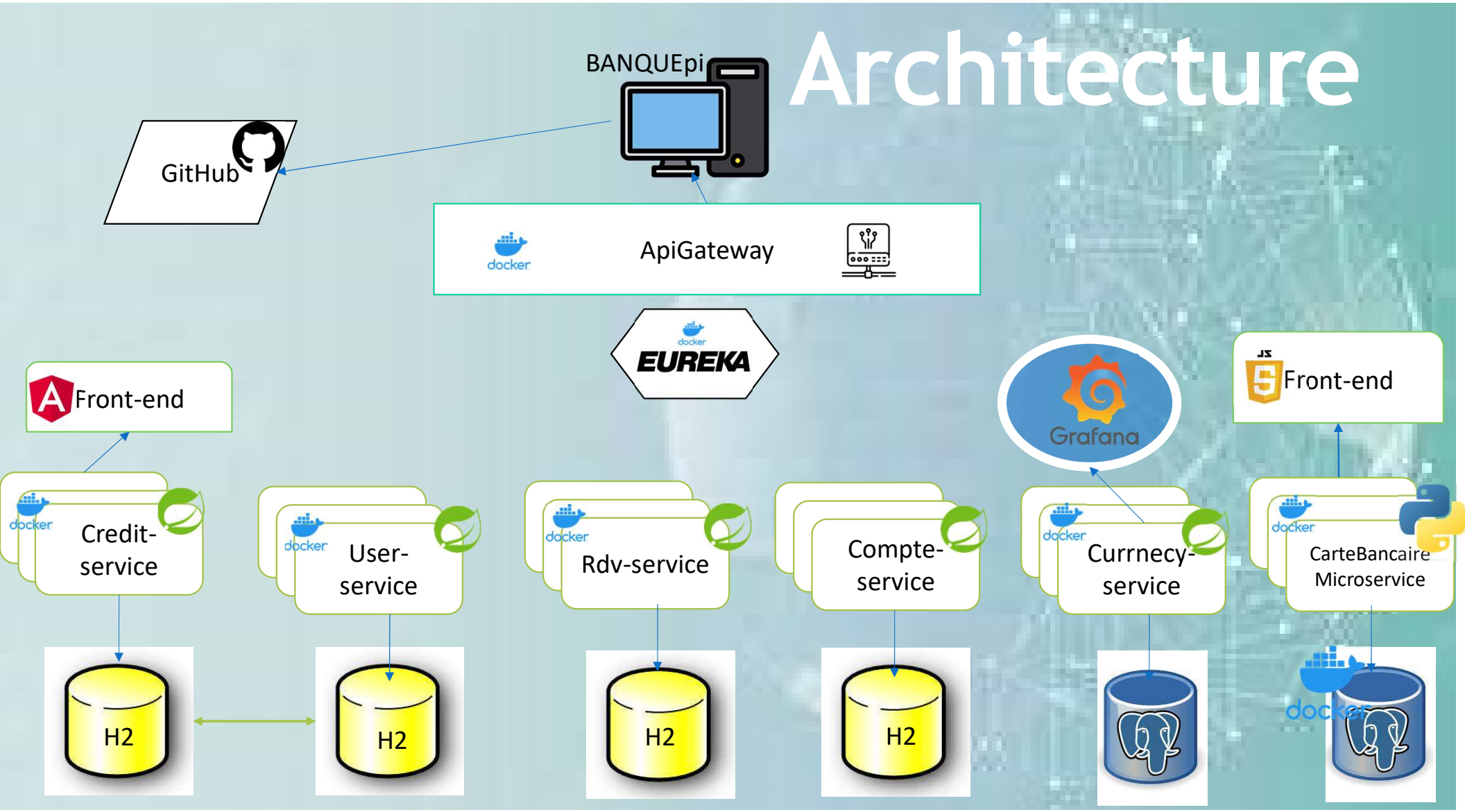
DEFINITION
Front-end


DEFINITION

Microservice

Nous avant développé les microservices suivants : « User", "Crédit", "Compte", "Carte", "Curancy" et "RDV". Ces microservices correspondent à différentes fonctionnalités de nos système, permettant la gestion des utilisateurs, des crédits, des comptes, des cartes bancaires, de la conversion de devises et des rendez-vous. Chacun de ces microservices joue un rôle spécifique dans l'architecture globale de votre application, contribuant ainsi à la mise en place d'un système complet et fonctionnel.

Architecture

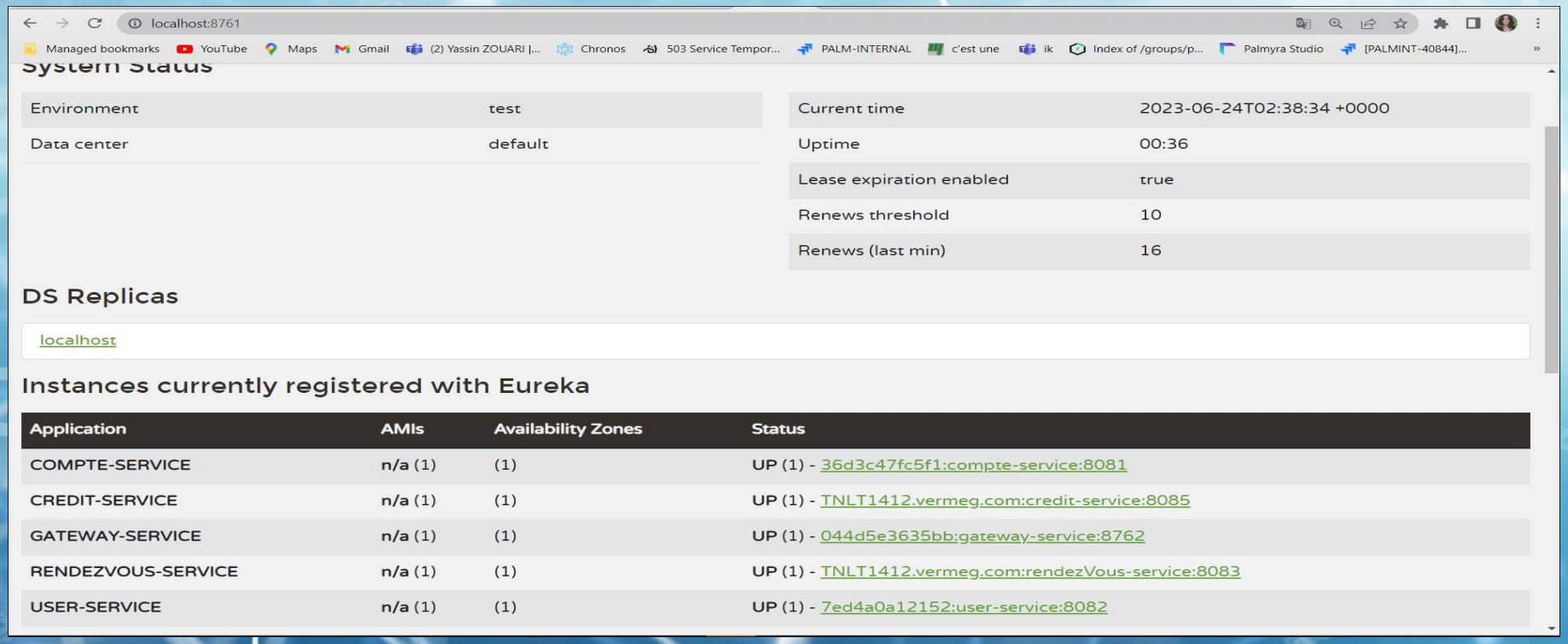



Back-end

http://localhost:8761/eureka

EUREKA

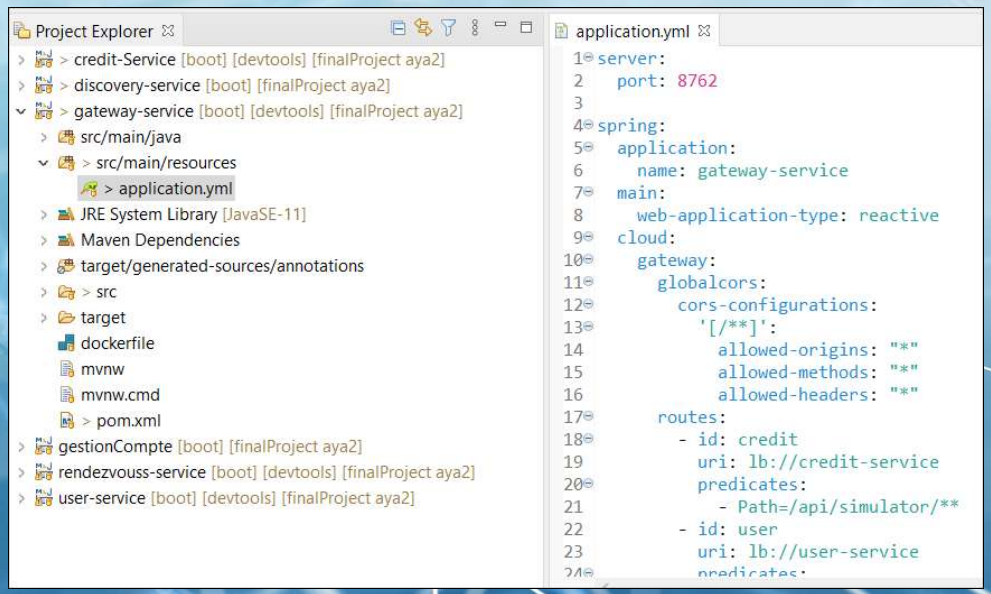
Nous avons intégré le backend de tous nos microservices en utilisant Eureka. Eureka est utilisé comme service de découverte et d'enregistrement des instances de nos microservices, permettant ainsi une communication efficace entre eux

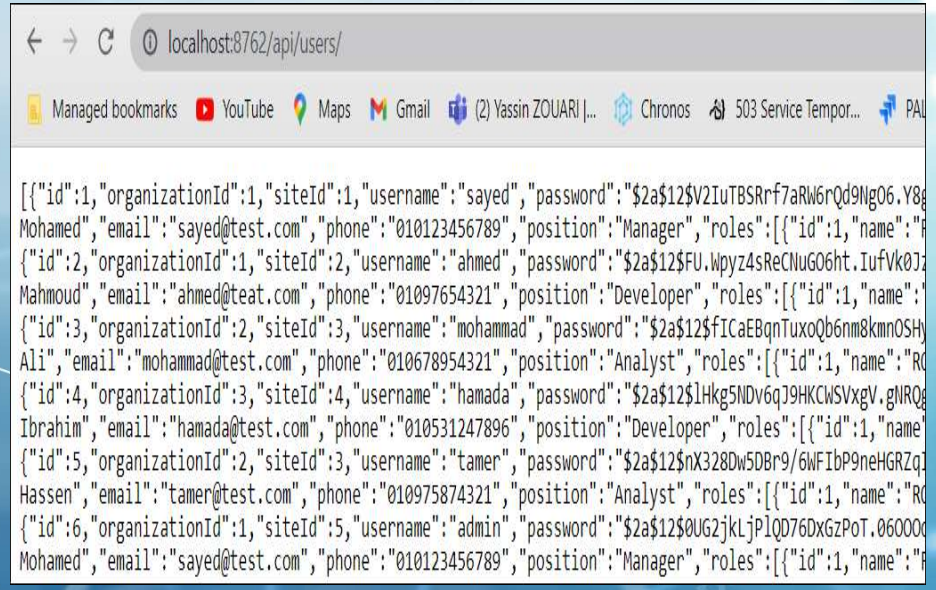


http://localhost:8762/

Gateway

Tous nos microservices sont opérationnels et disponibles via le gateway. Le gateway sert de point d'entrée unique pour l'accès à nos microservices, offrant une interface centralisée pour les requêtes entrantes et sortantes. Cela permet de simplifier la gestion des requêtes et d'améliorer l'efficacité de l'architecture globale.





Docker est une plateforme open-source qui permet de créer et de déployer des applications dans des conteneurs légers et isolés. Cela facilite la gestion des applications, la portabilité et l'isolation de leurs dépendances.

ancaireMs.py | index.html | dockerfile

```
# Use the official Python image as the base image
FROM python:3.8-slim-buster

# Set the working directory in the container
WORKDIR /app

# Copy the requirements.txt file to the container
COPY requirements.txt .

# Install the Python dependencies
RUN pip install --no-cache-dir -r requirements.txt

# Copy the application code to the container
COPY . .

# Expose the port on which the application will run
EXPOSE 5000



# Run the application
CMD ["python", "CarteBancaireMs.py"]
```

docker-compose.yml

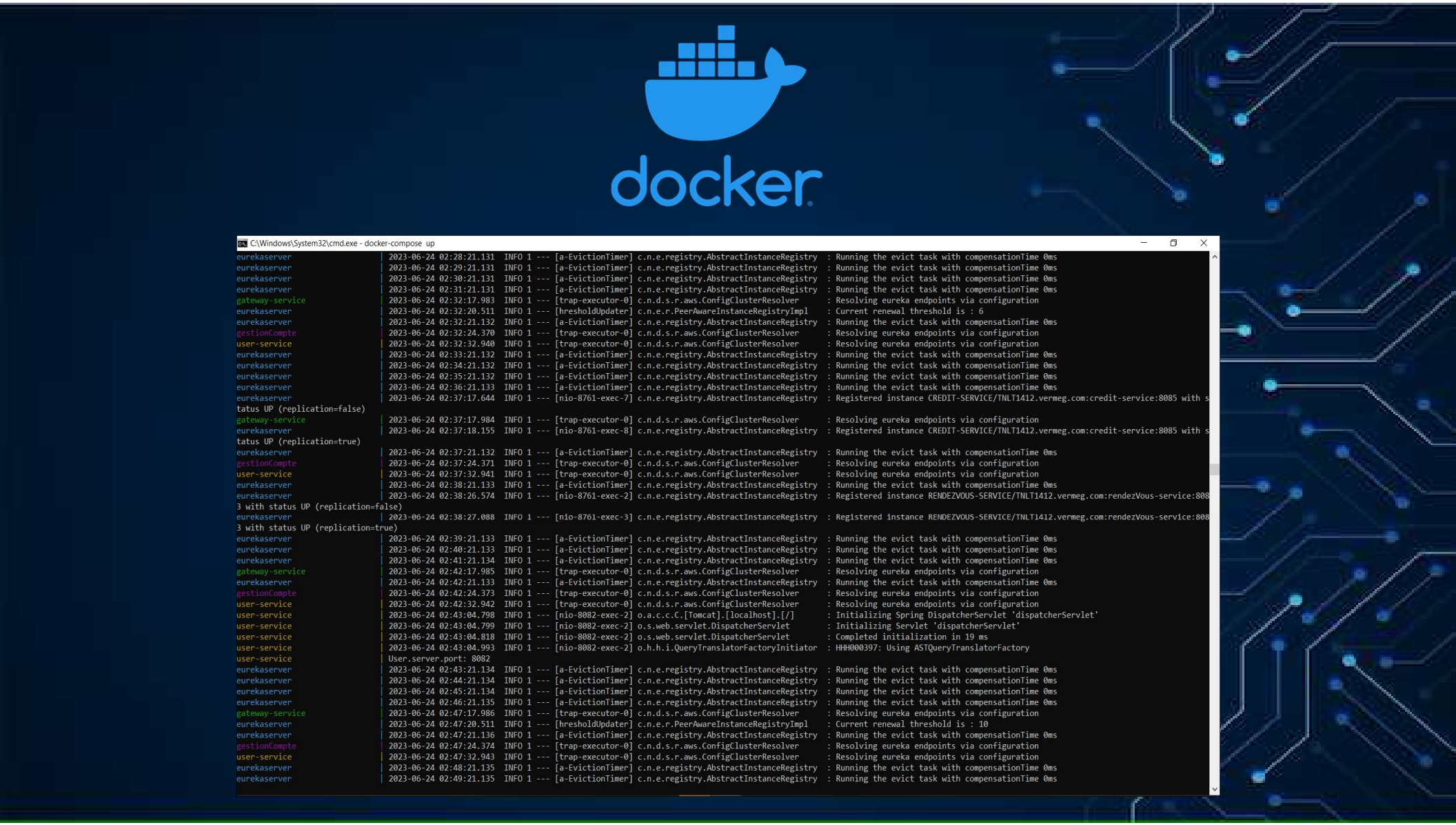
```
version: "3.0"

services:
  eurekaserver:
    build: discovery-service
    container_name: eurekaserver
    image: eurekaserver
    networks:
      - eureka-server
    depends_on:
      - fluent-bit
    ports:
      - "8761:8761"
    logging:
      driver: fluentd
      options:
        fluentd-address: localhost:24225
        tag: eurekaserver
  microservice-gestion-compte:
    build: gestionCompte
    container_name: gestionCompte
  #  network_mode: host
    image: msgestioncompte
    ports:
      - "8081:8081"
    networks:
      - eureka-server
    environment:
      - eureka.client.serviceUrl.defaultZone=http://eurekaserver:8761/eureka
    depends_on:
      - eurekaserver
      - fluent-bit
    logging:
      driver: fluentd
      options:
        fluentd-address: localhost:24225
        tag: gestionCompte
  microservice-gestion-user:
    build: user-service
    container_name: user-service
  #  network_mode: host
    image: msgestionusers
    ports:
      - "8082:8082"
    networks:
      - eureka-server
    environment:
      - eureka.client.serviceUrl.defaultZone=http://eurekaserver:8761/eureka
    depends_on:
      - eurekaserver
      - fluent-bit
    logging:
      driver: fluentd
      options:
        fluentd-address: localhost:24225
        tag: user-service
```

Nous avons dokarisé la base de données, Eureka, le gateway et les microservices.

docker-compose.yml | docker-compose-grafana.yml

```yaml
version: '3'

services:
  loki:
    image: grafana/loki:latest
    container_name: loki
    expose:
      - "3100"
    networks:
      - loki
    volumes:
      - loki-volume:/loki

  grafana:
    image: grafana/grafana:latest
    container_name: grafana
    ports:
      - "3000:3000"
    environment:
      GF_RENDERING_SERVER_URL: http://renderer:8081/render
      GF_RENDERING_CALLBACK_URL: http://grafana:3000/
      GF_LOG_FILTERS: rendering:debug
    networks:
      - loki
    volumes:
      - grafana-volume:/var/lib/grafana

  renderer:
    image: grafana/grafana-image-renderer:latest
    container_name: grafana-image-renderer
    expose:
      - "8081"
    environment:
      ENABLE_METRICS: "true"
    networks:
      - loki
    volumes:
      - renderer-volume:/usr/share/grafana-image-renderer

networks:
  loki:
    external: true

volumes:
  grafana-volume:
  loki-volume:
  renderer-volume:
```

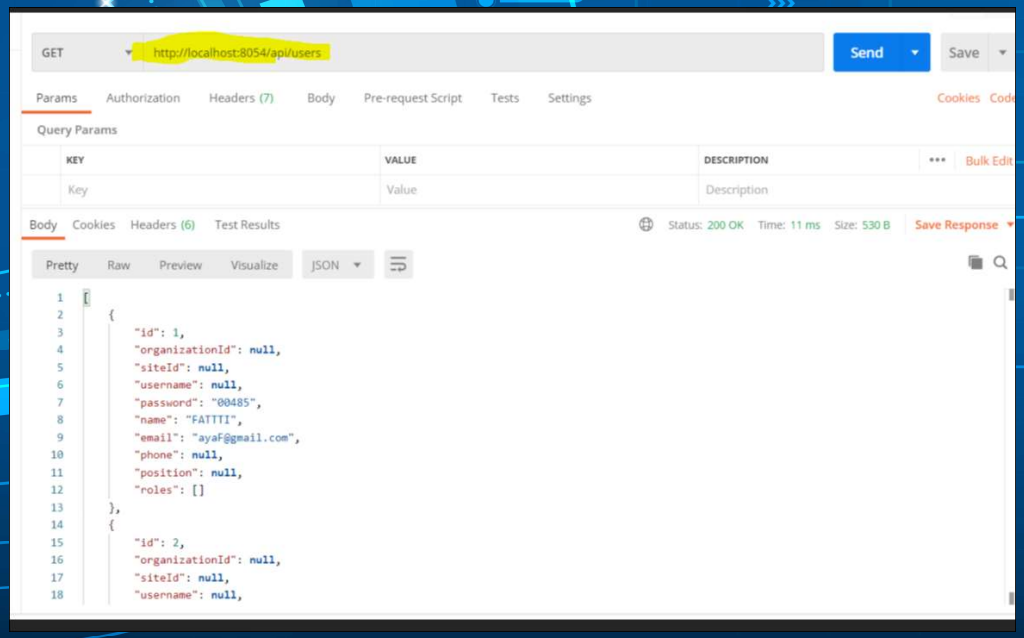
```yaml
version: '3.0'

services:
  postgres-14.3:
    image: "postgres:14.3-alpine"
    container_name: "postgres14ms"
    environment:
      LANG: C.UTF-8
      LC_ALL: C.UTF-8
      POSTGRES_USER: postgres
      POSTGRES_PASSWORD: Postgres+123
      POSTGRES_DB: cartecredit
    ports:
      - "5432:5432"
    volumes:
      - "./scripts:/docker-entrypoint-initdb.d/"
    command: ["--max_prepared_transactions=180", "--max_connections=500"]
    healthcheck:
      test: ["CMD-SHELL", "pg_isready -U postgres"]
      interval: 10s
      retries: 10
    networks:
      - eureka-server

  carte-bancaire-ms:
    build:
      context: .
      dockerfile: Dockerfile
    container_name: carte-bancaire-ms
    image: carte-bancaire-ms
    ports:
      - "5000:5000"
    depends_on:
      - postgres-14.3
    networks:
      - eureka-server

networks:
  eureka-server:
    driver: bridge
```

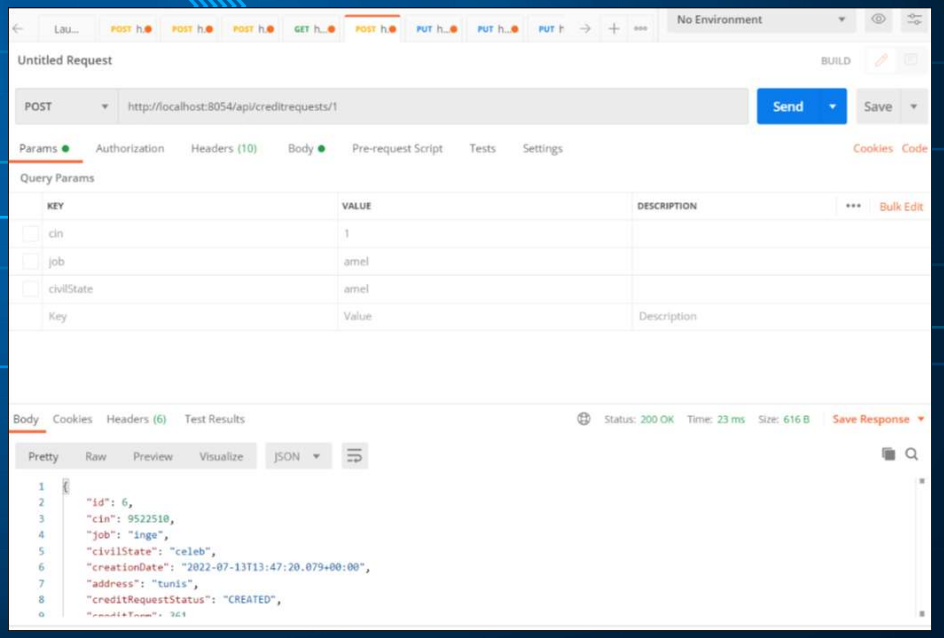

docker
C:\Windows\System32\cmd.exe - docker-compose up
eurekaserver | 2023-06-24 02:28:21.131 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:29:21.131 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:30:21.131 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:31:21.131 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gateway-service | 2023-06-24 02:32:17.983 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:32:20.511 INFO 1 --- [hresholdUpdater] c.n.e.r.PeerAwareInstanceRegistryImpl : Current renewal threshold is : 6
eurekaserver | 2023-06-24 02:32:21.132 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gestionCompte | 2023-06-24 02:32:24.370 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
user-service | 2023-06-24 02:32:32.940 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:33:21.132 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:34:21.132 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:35:21.132 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:36:21.133 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:37:17.644 INFO 1 --- [nio-8761-exec-7] c.n.e.registry.AbstractInstanceRegistry : Registered instance CREDIT-SERVICE/TNLT1412.vermeg.com:credit-service:8085 with s
tatus UP (replication=false)
gateway-service | 2023-06-24 02:37:17.984 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:37:18.155 INFO 1 --- [nio-8761-exec-8] c.n.e.registry.AbstractInstanceRegistry : Registered instance CREDIT-SERVICE/TNLT1412.vermeg.com:credit-service:8085 with s
tatus UP (replication=true)
eurekaserver | 2023-06-24 02:37:21.132 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gestionCompte | 2023-06-24 02:37:24.371 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
user-service | 2023-06-24 02:37:32.941 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:38:21.133 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:38:26.574 INFO 1 --- [nio-8761-exec-2] c.n.e.registry.AbstractInstanceRegistry : Registered instance RENDEZVOUS-SERVICE/TNLT1412.vermeg.com:rendezVous-service:808
3 with status UP (replication=false)
eurekaserver | 2023-06-24 02:38:27.088 INFO 1 --- [nio-8761-exec-3] c.n.e.registry.AbstractInstanceRegistry : Registered instance RENDEZVOUS-SERVICE/TNLT1412.vermeg.com:rendezVous-service:808
3 with status UP (replication=true)
eurekaserver | 2023-06-24 02:39:21.133 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:40:21.133 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:41:21.134 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gateway-service | 2023-06-24 02:42:17.985 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:42:21.133 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gestionCompte | 2023-06-24 02:42:24.373 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
user-service | 2023-06-24 02:42:32.942 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
user-service | 2023-06-24 02:43:04.798 INFO 1 --- [nio-8082-exec-2] o.a.c.c.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet 'dispatcherServlet'
user-service | 2023-06-24 02:43:04.799 INFO 1 --- [nio-8082-exec-2] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
user-service | 2023-06-24 02:43:04.818 INFO 1 --- [nio-8082-exec-2] o.s.web.servlet.DispatcherServlet : Completed initialization in 19 ms
user-service | 2023-06-24 02:43:04.993 INFO 1 --- [nio-8082-exec-2] o.h.h.i.QueryTranslatorFactoryInitiator : HHH000397: Using ASTQueryTranslatorFactory
user-service | User.server.port: 8082
eurekaserver | 2023-06-24 02:43:21.134 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:44:21.134 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:45:21.134 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:46:21.135 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gateway-service | 2023-06-24 02:47:17.986 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:47:20.511 INFO 1 --- [hresholdUpdater] c.n.e.r.PeerAwareInstanceRegistryImpl : Current renewal threshold is : 10
eurekaserver | 2023-06-24 02:47:21.136 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
gestionCompte | 2023-06-24 02:47:24.374 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
user-service | 2023-06-24 02:47:32.943 INFO 1 --- [trap-executor-0] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
eurekaserver | 2023-06-24 02:48:21.135 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms
eurekaserver | 2023-06-24 02:49:21.135 INFO 1 --- [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry : Running the evict task with compensationTime 0ms

On a utilisé Grafana pour visualiser et analyser les logs de nossystème. Grafana est une plateforme de surveillance et de visualisation qui vous permet de collecter et de présenter des données en temps réel sous forme de tableaux de bord interactifs

Communication Microservice

Nous avons connecté les deux microservices "Utilisateur" et "Crédit". Lorsque le service de demande de crédit reçoit une demande, il vérifie d'abord si l'utilisateur existe en appelant le microservice "Utilisateur" via le service d'ajout d'utilisateurs. Si l'utilisateur n'existe pas, le service d'ajout d'utilisateurs créera un nouvel utilisateur. Dans le cas où l'utilisateur existe déjà, le service de demande de crédit procède directement à la demande de crédit.

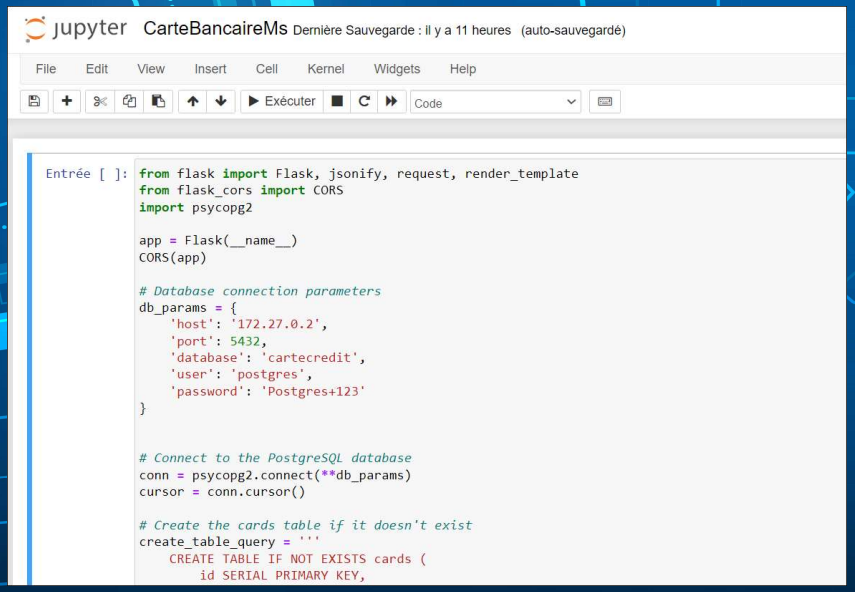


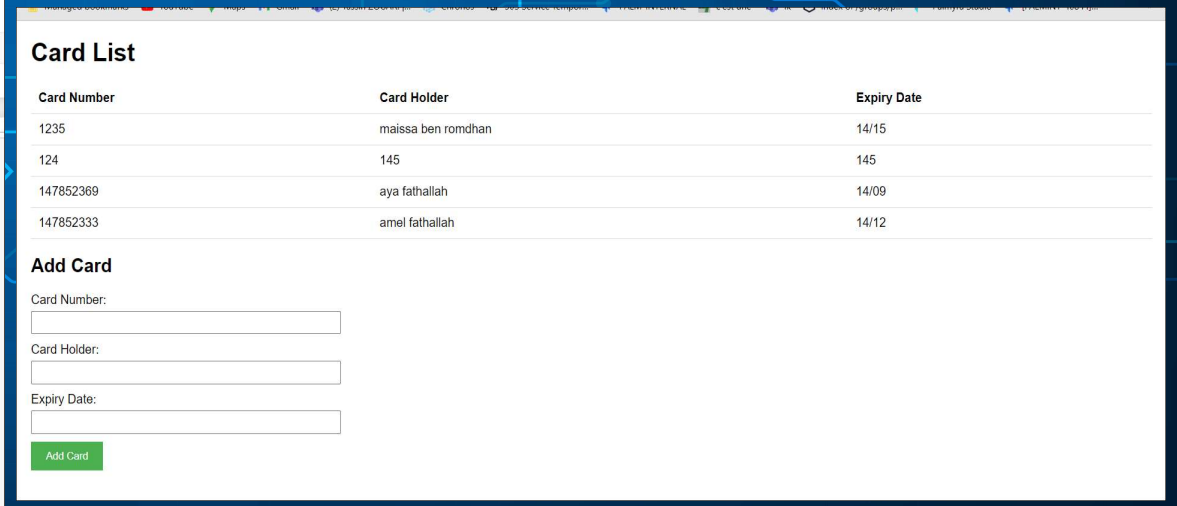



Front-end

Gestion carte bancaire

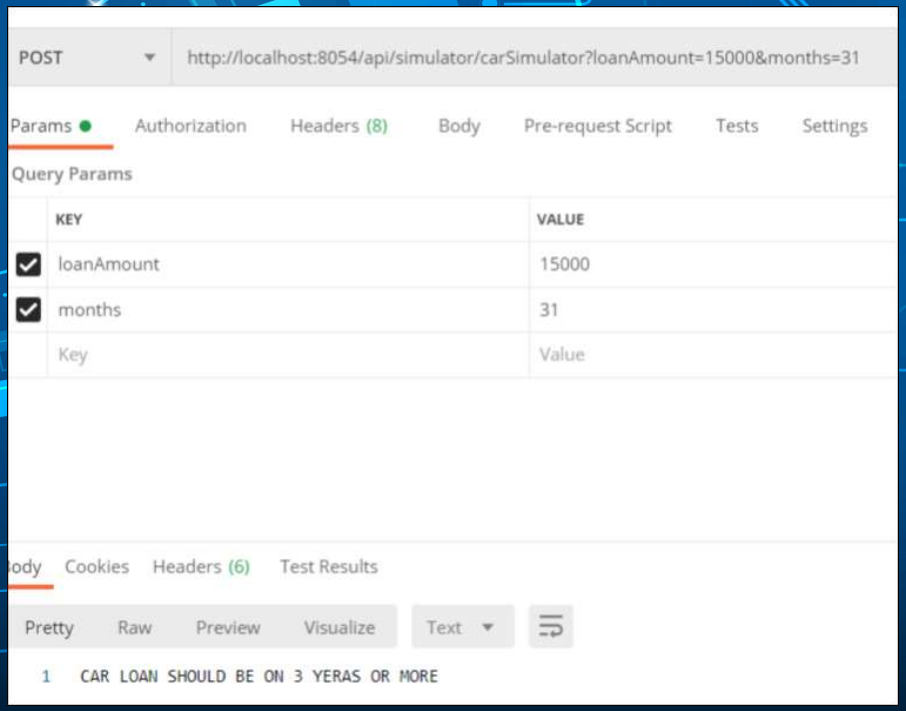
Nous avons créé une application CRUD (Create, Read, Update, Delete) pour la gestion des cartes bancaires en utilisant Python et JavaScript. dokarisé la base de données en PostgreSQL, et l'application

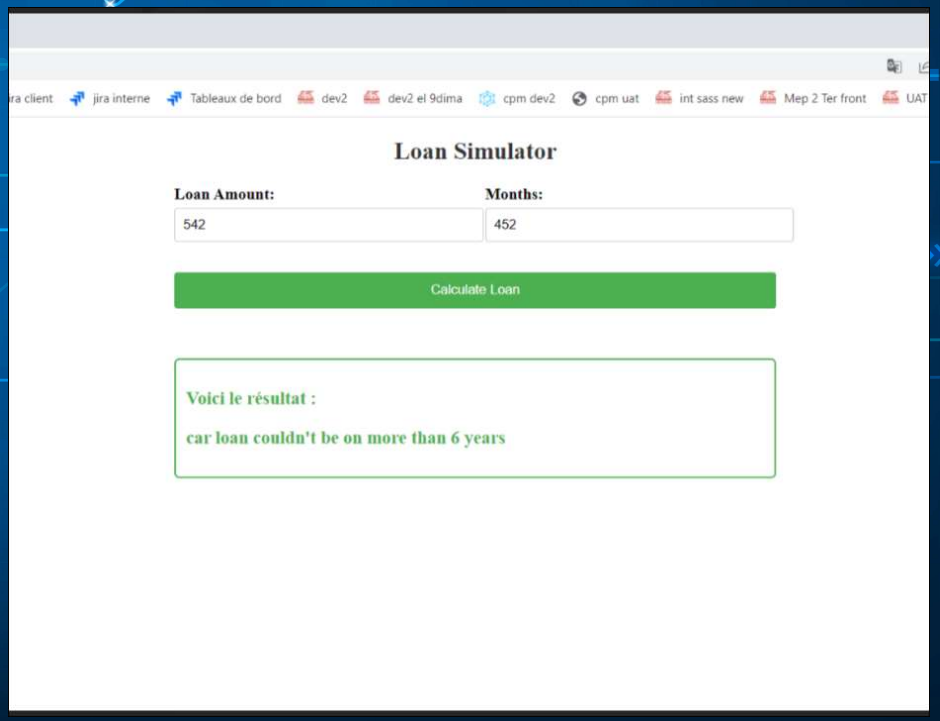


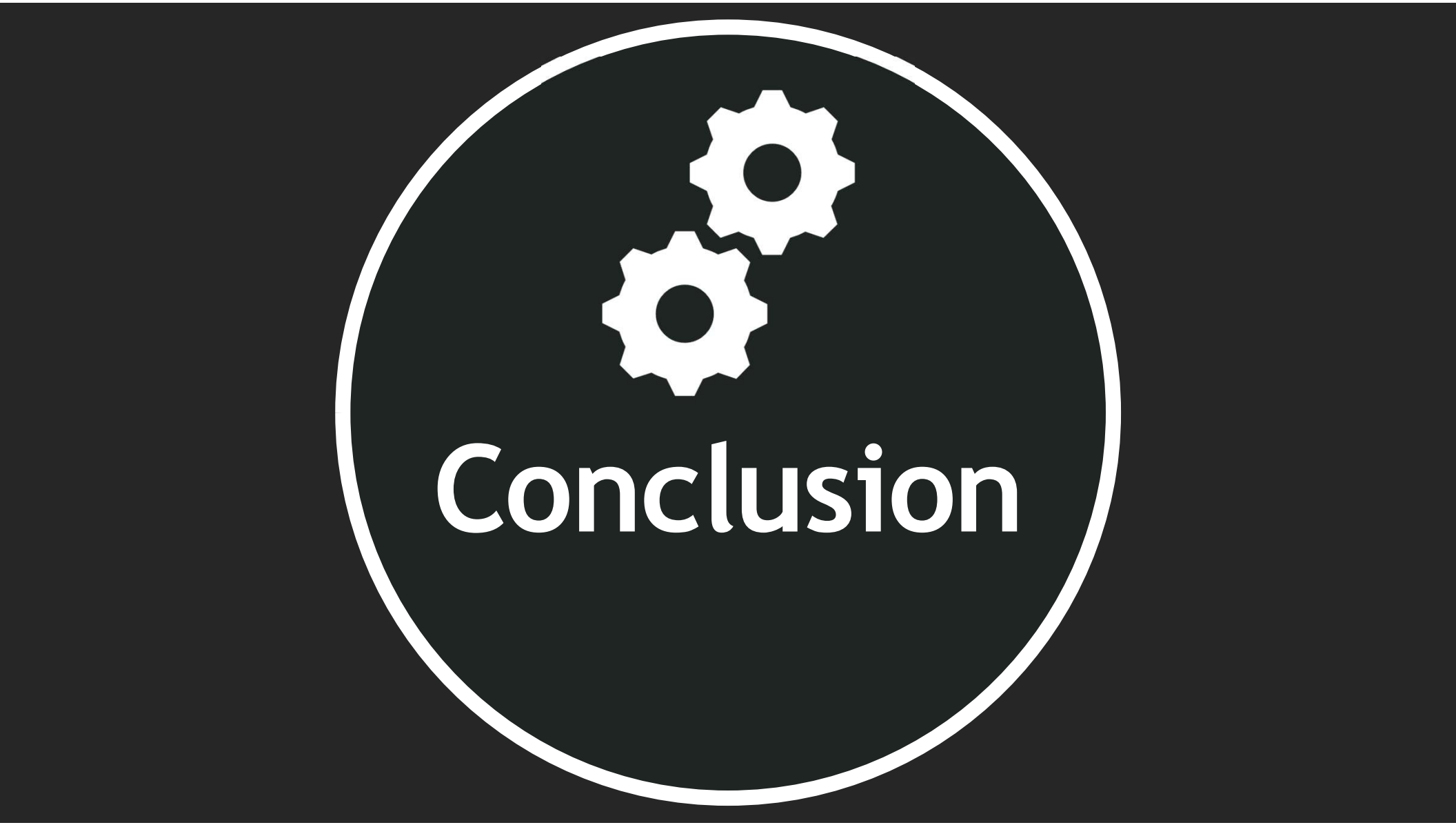


Simulation credit

Nous avons développé une interface front-end en utilisant Angular pour les services de simulation. L'appel vers le microservice se fait via le gateway qui est déjà opérationnel.






Conclusion

Conclusion

En conclusion, nous avant développé les Microservices "user", "Crédit", "Compte", "Carte", "Curancy" et "RDV" pour gérer différentes fonctionnalités de votre système. Cette approche basée sur les microservices vous permet d'organiser votre application de manière modulaire, favorisant la scalabilité et la maintenance indépendante de chaque composant.