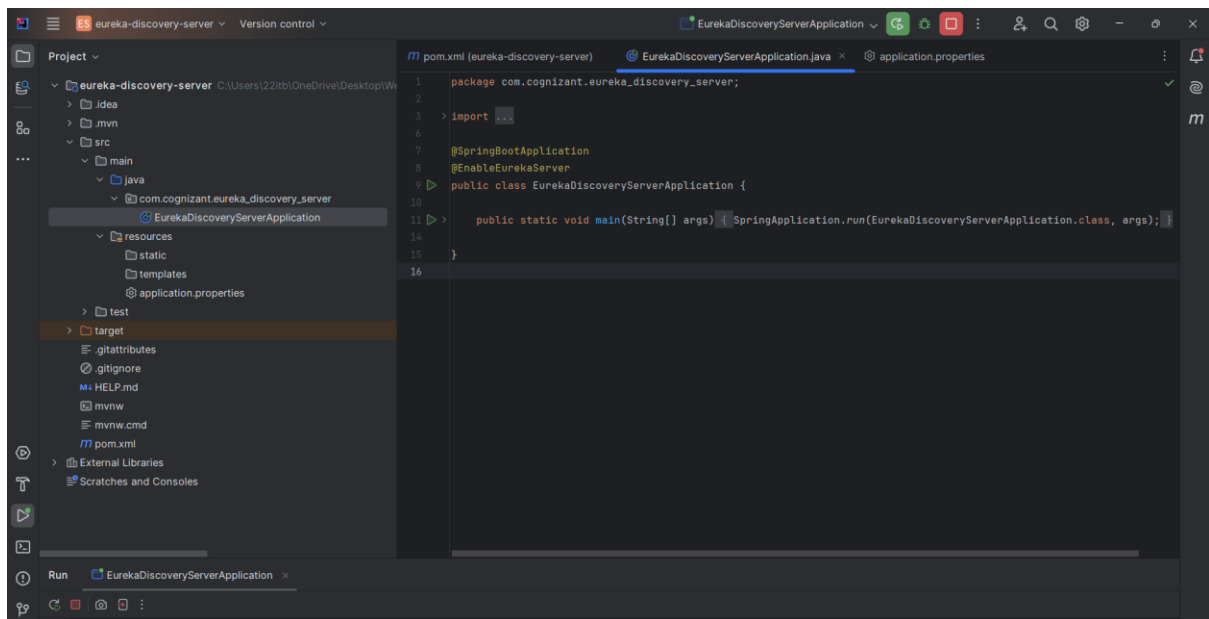


# Week 5 : Microservice

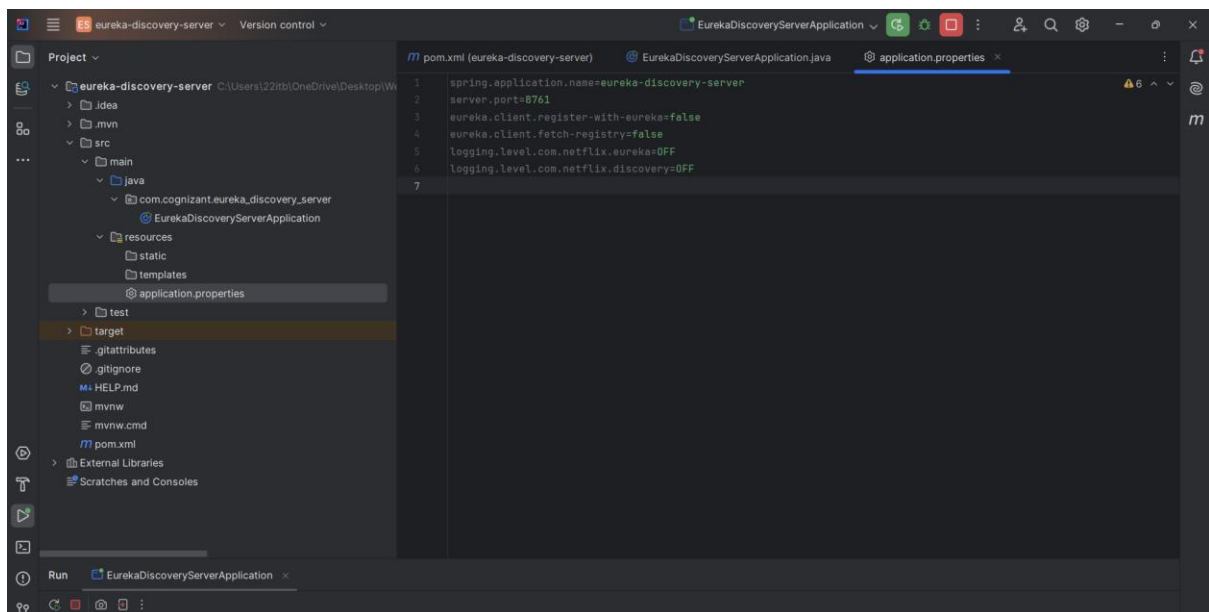
## Create Eureka Discovery Server and register and Microservices

### 1.Eureka Discovery Server

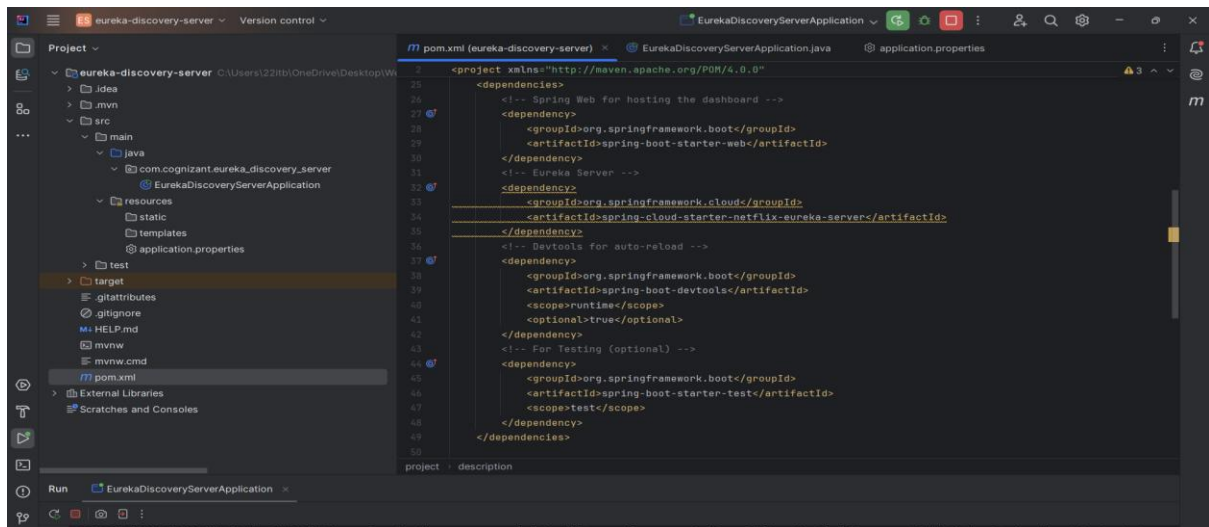
#### Eurekadiscoveryserver.java



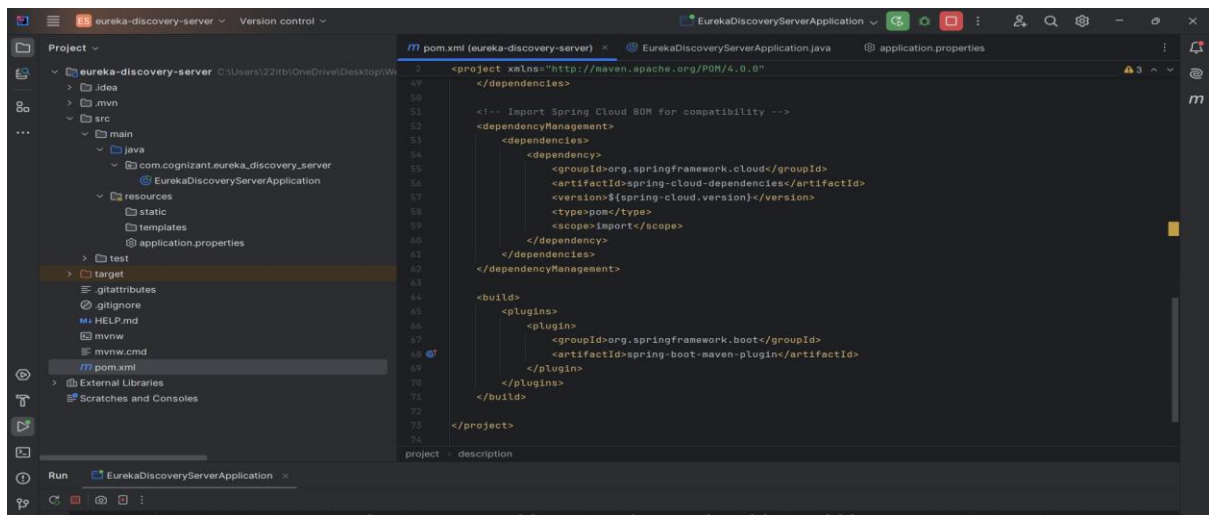
#### Application.property



# Pom.xml

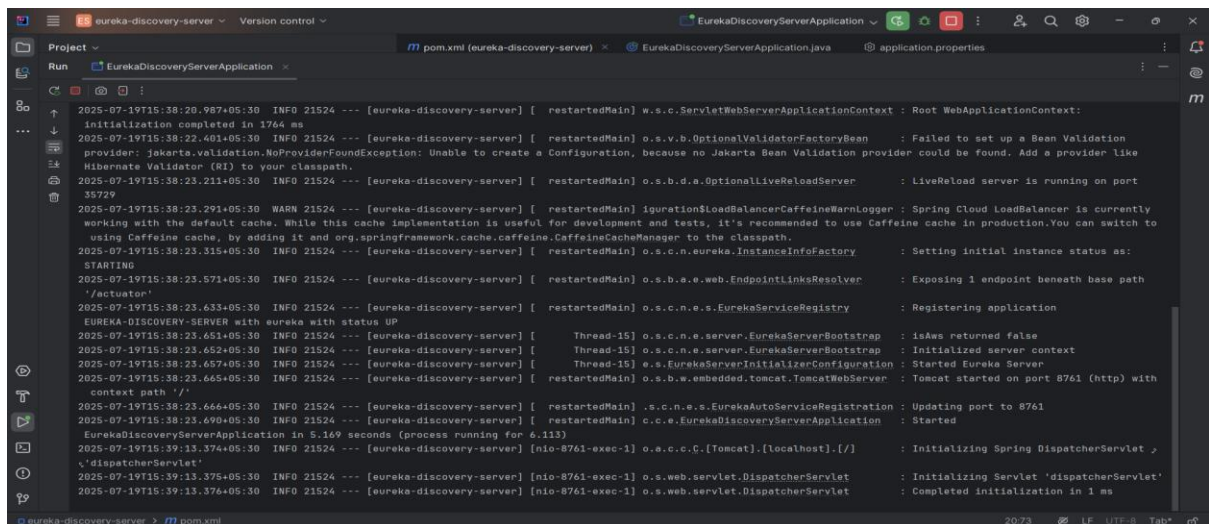


```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
  <dependencies>
    <!-- Spring Web for hosting the dashboard -->
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-web</artifactId>
    </dependency>
    <!-- Eureka Server -->
    <dependency>
      <groupId>org.springframework.cloud</groupId>
      <artifactId>spring-cloud-starter-netflix-eureka-server</artifactId>
    </dependency>
    <!-- DevTools for auto-reload -->
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-devtools</artifactId>
      <scope>runtime</scope>
      <optional>true</optional>
    </dependency>
    <!-- For Testing (optional) -->
    <dependency>
      <groupId>org.springframework.boot</groupId>
      <artifactId>spring-boot-starter-test</artifactId>
      <scope>test</scope>
    </dependency>
  </dependencies>
</project>
```



```
<?xml version="1.0" encoding="UTF-8"?>
<project xmlns="http://maven.apache.org/POM/4.0.0"
  </dependencies>
  <!-- Import Spring Cloud BOM for compatibility -->
  <dependencyManagement>
    <dependencies>
      <dependency>
        <groupId>org.springframework.cloud</groupId>
        <artifactId>spring-cloud-dependencies</artifactId>
        <version>${spring-cloud.version}</version>
        <type>pom</type>
        <scope>import</scope>
      </dependency>
    </dependencies>
  </dependencyManagement>
  <build>
    <plugins>
      <plugin>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-maven-plugin</artifactId>
      </plugin>
    </plugins>
  </build>
</project>
```

## Console Output

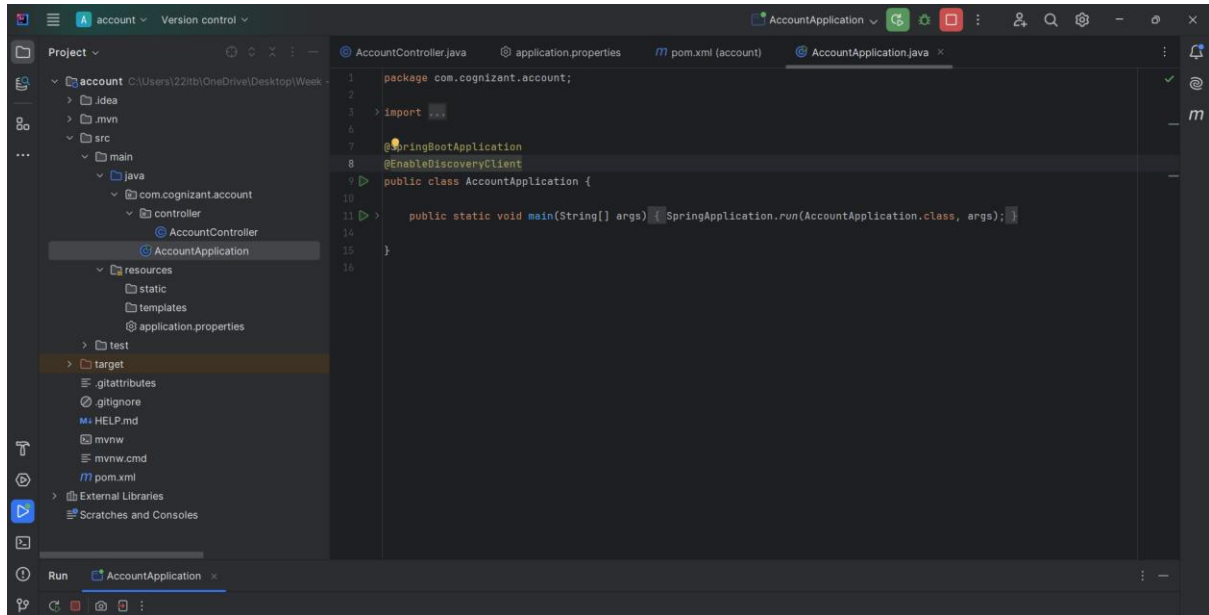


```
2025-07-19T15:38:20.987+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] w.s.c.ServletWebServerApplicationContext : Root WebApplicationContext:
Initialization completed in 1764 ms
2025-07-19T15:38:22.401+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.v.b.OptionalValidatorFactoryBean : Failed to set up a Bean Validation
provider: jakarta.validation.NoProviderFoundException: Unable to create a Configuration, because no Jakarta Bean Validation provider could be found. Add a provider like
Hibernate Validator (RI) to your classpath.
2025-07-19T15:38:23.211+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.b.d.a.OptionalLiveReloadServer : LiveReload server is running on port
35729
2025-07-19T15:38:23.291+05:30 WARN 21524 --- [eureka-discovery-server] [ restartedMain] igurationLoadBalancerCaffeineWarnLogger : Spring Cloud LoadBalancer is currently
working with the default cache. While this cache implementation is useful for development and tests, it's recommended to use Caffeine cache in production.You can switch to
using Caffeine cache, by adding it and org.springframework.cache.caffeine.CaffeineCacheManager to the classpath.
2025-07-19T15:38:23.315+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.c.n.eureka.InstanceInfoFactory : Setting initial instance status as:
STARTING
2025-07-19T15:38:23.571+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.b.a.e.web.EndpointLinksResolver : Exposing 1 endpoint beneath base path
'/actuator'
2025-07-19T15:38:23.633+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.c.n.e.s.EurekaServiceRegistry : Registering application
EUREKA-DISCOVERY-SERVER with eureka with status UP
2025-07-19T15:38:23.651+05:30 INFO 21524 --- [eureka-discovery-server] [ Thread-15] o.s.c.n.e.s.server.EurekaServerBootstrap : isAws returned false
2025-07-19T15:38:23.652+05:30 INFO 21524 --- [eureka-discovery-server] [ Thread-15] o.s.c.n.e.s.server.EurekaServerBootstrap : Initialized server context
2025-07-19T15:38:23.657+05:30 INFO 21524 --- [eureka-discovery-server] [ Thread-15] o.s.EurekaServerInitializerConfiguration : Started Eureka Server
2025-07-19T15:38:23.665+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port 8761 (http) with
context path '/'
2025-07-19T15:38:23.666+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] .s.c.n.e.s.EurekaAutoServiceRegistration : Updating port to 8761
2025-07-19T15:38:23.690+05:30 INFO 21524 --- [eureka-discovery-server] [ restartedMain] c.c.e.EurekaDiscoveryServerApplication : Started
EurekaDiscoveryServerApplication in 5.169 seconds (process running for 6.113)
2025-07-19T15:39:13.374+05:30 INFO 21524 --- [eureka-discovery-server] [nio-8761-exec-1] o.s.c.g.C.[Tomcat].[localhost].[/] : Initializing Spring DispatcherServlet
'dispatcherServlet'
2025-07-19T15:39:13.375+05:30 INFO 21524 --- [eureka-discovery-server] [nio-8761-exec-1] o.s.web.servlet.DispatcherServlet : Initializing Servlet 'dispatcherServlet'
2025-07-19T15:39:13.376+05:30 INFO 21524 --- [eureka-discovery-server] [nio-8761-exec-1] o.s.web.servlet.DispatcherServlet : Completed initialization in 1 ms
```

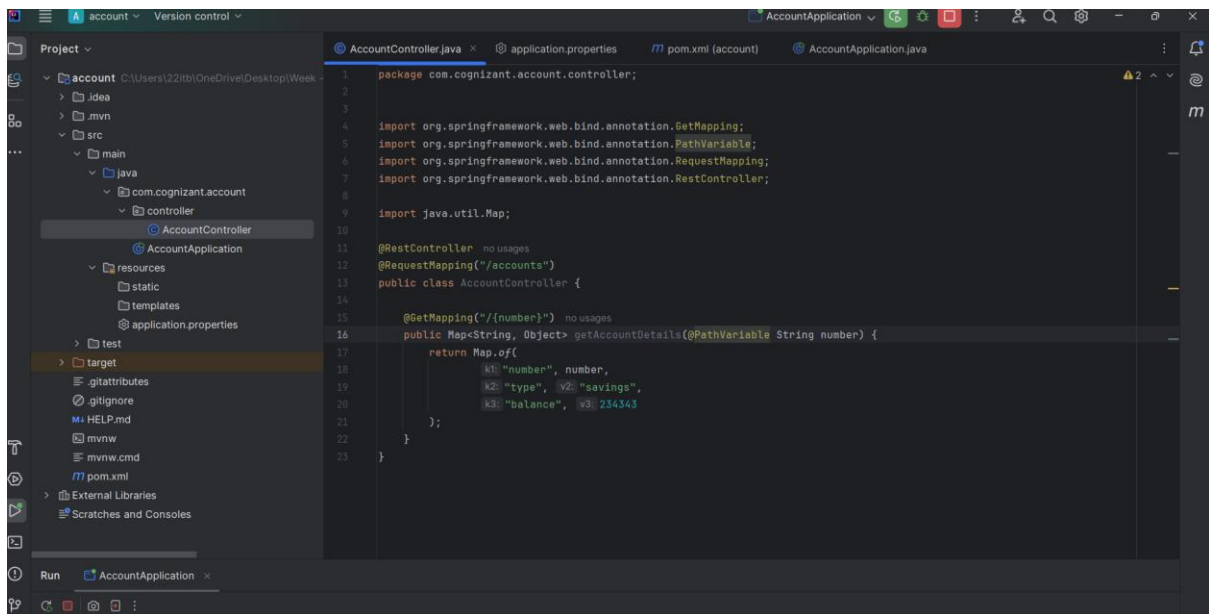
## 2.Service Discovery Clients

### i)Account – Service

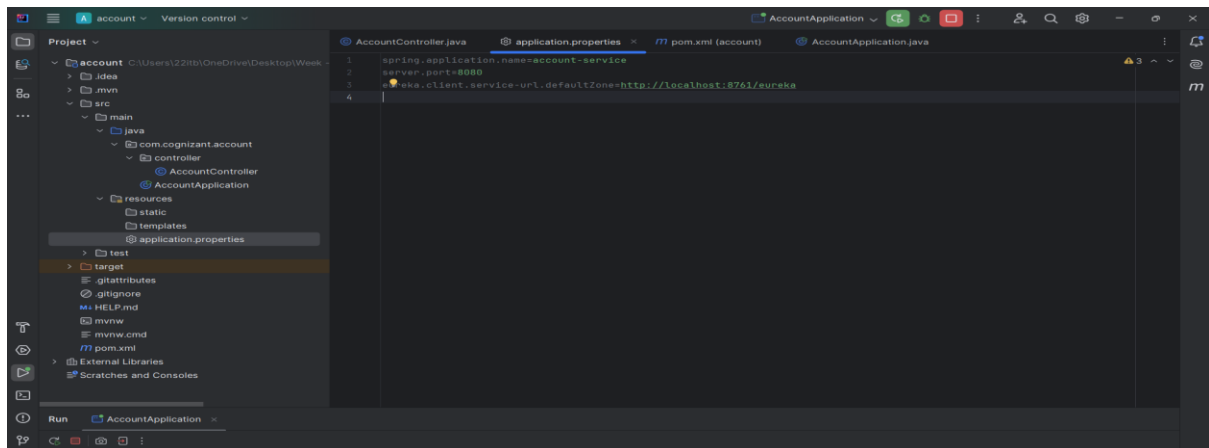
#### AccountApplication.java



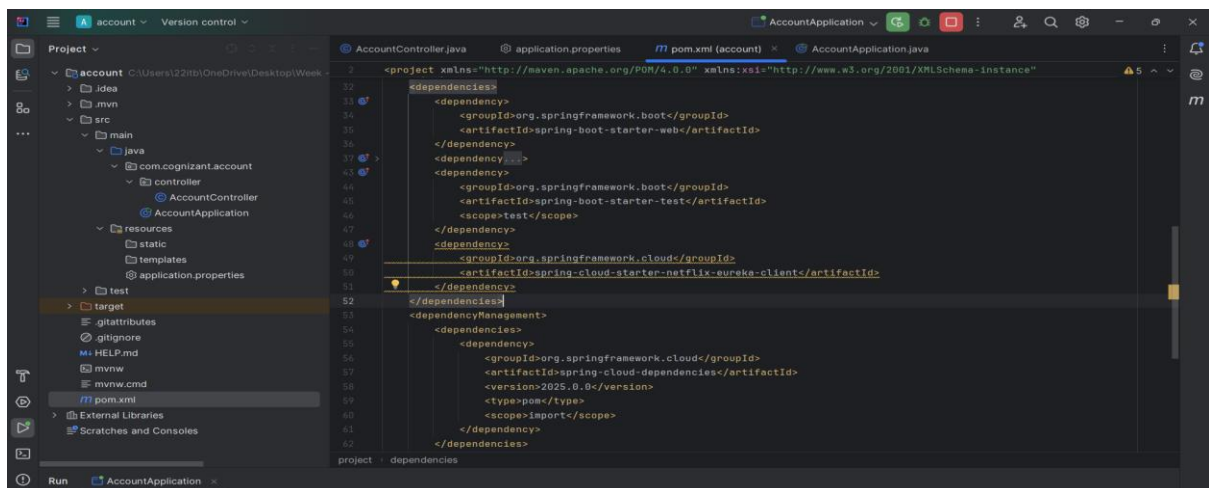
### Controller



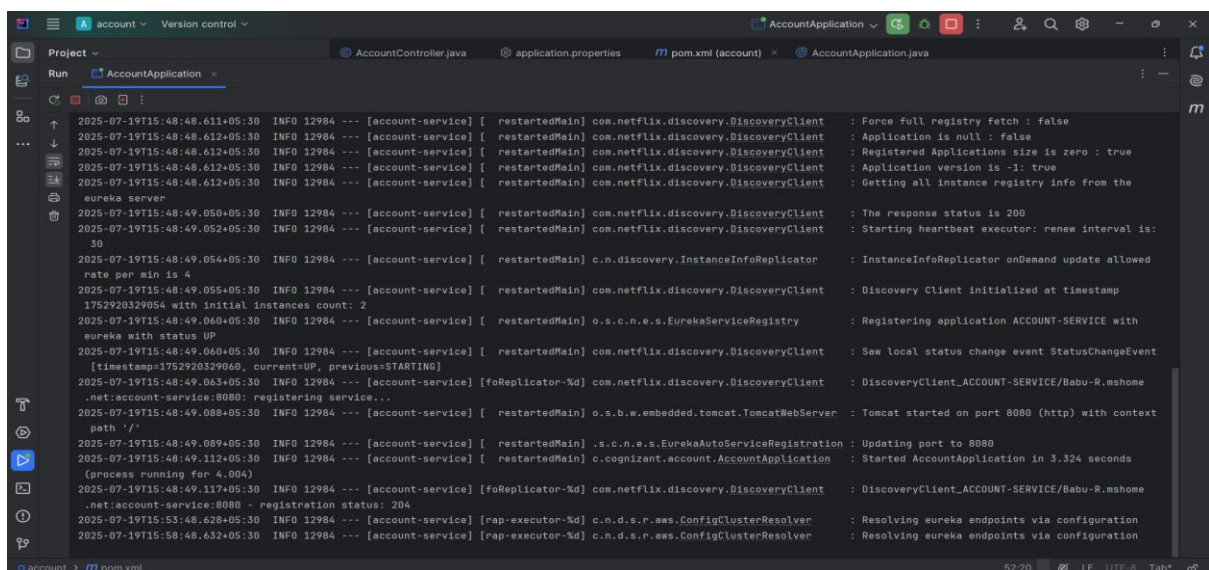
# Application.property



# Pom.xml

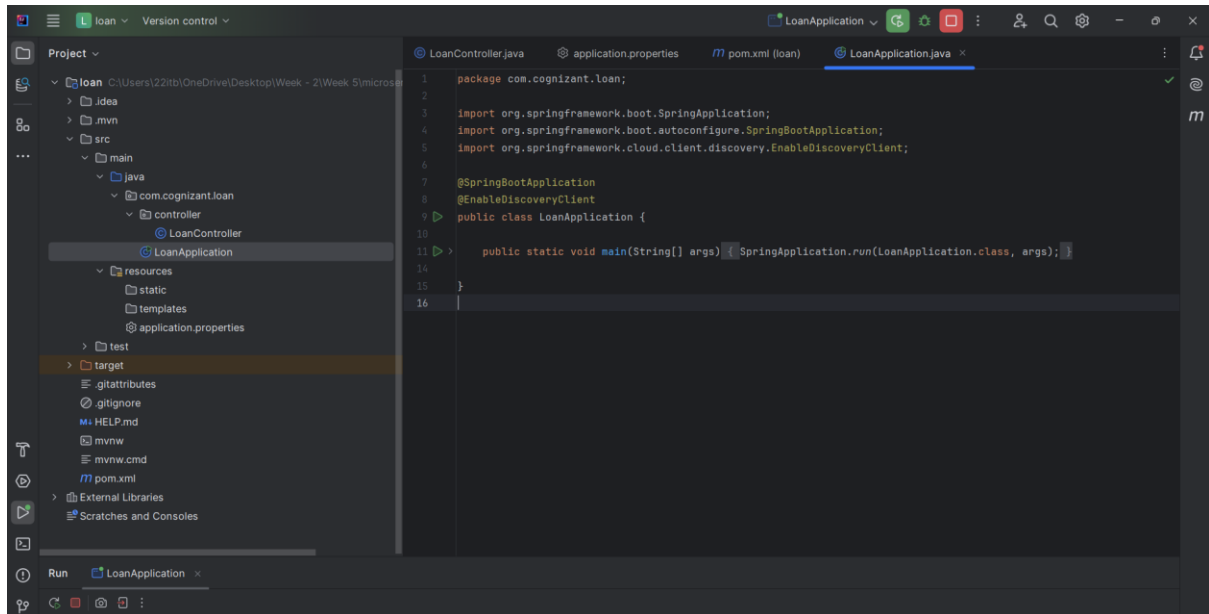


# Console output



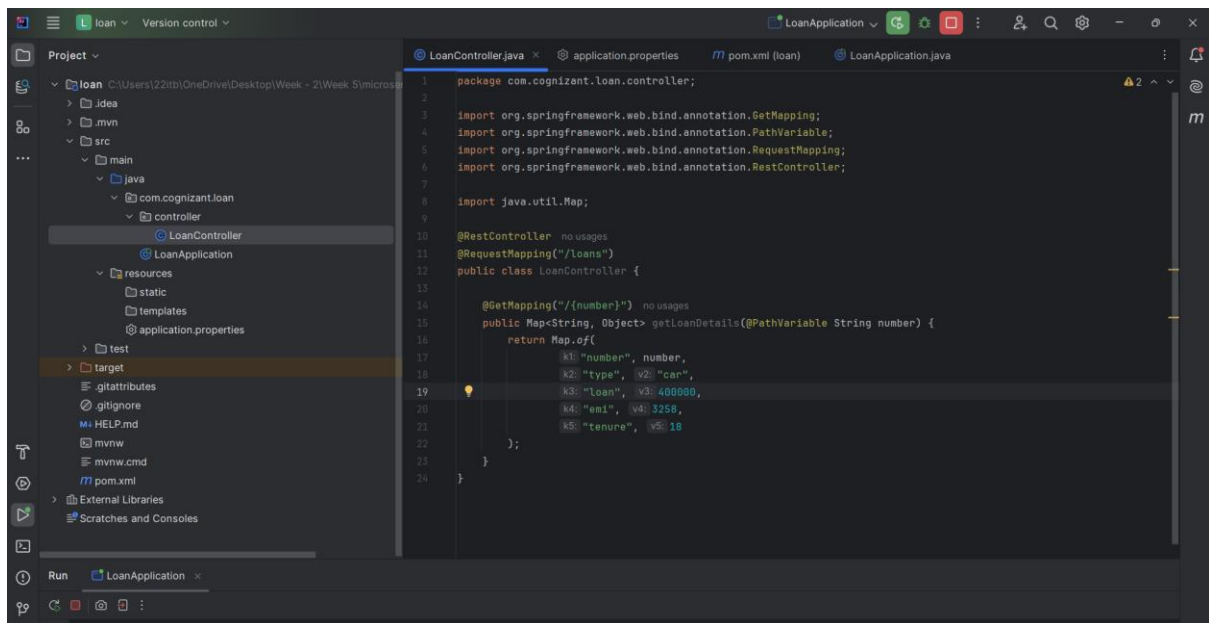
## ii) Loan-Service

### LoanApplication.java



```
1 package com.cognizant.loan;
2
3 import org.springframework.boot.SpringApplication;
4 import org.springframework.boot.autoconfigure.SpringBootApplication;
5 import org.springframework.cloud.client.discovery.EnableDiscoveryClient;
6
7 @SpringBootApplication
8 @EnableDiscoveryClient
9 public class LoanApplication {
10
11     public static void main(String[] args) { SpringApplication.run(LoanApplication.class, args); }
12
13 }
14
15
16
```

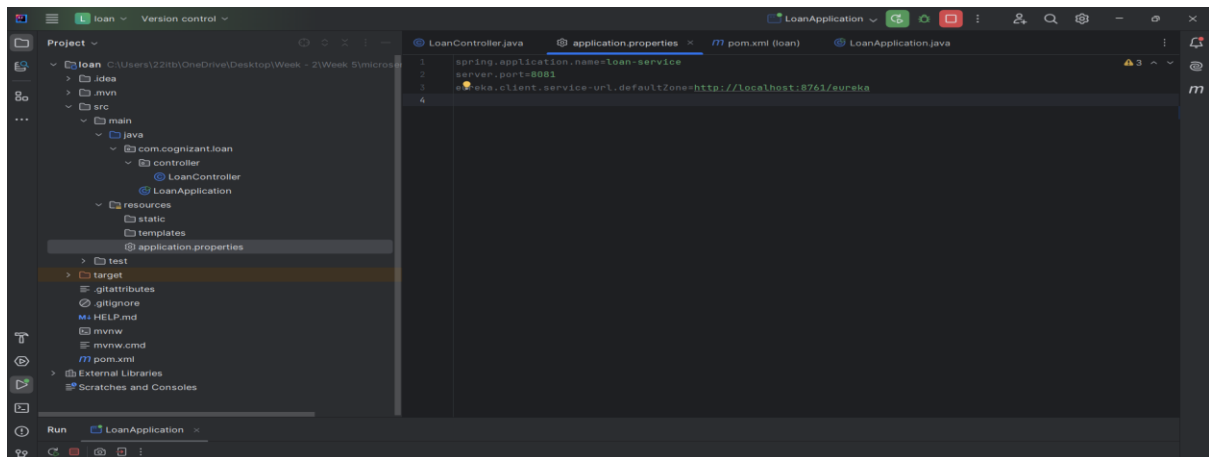
### Controller



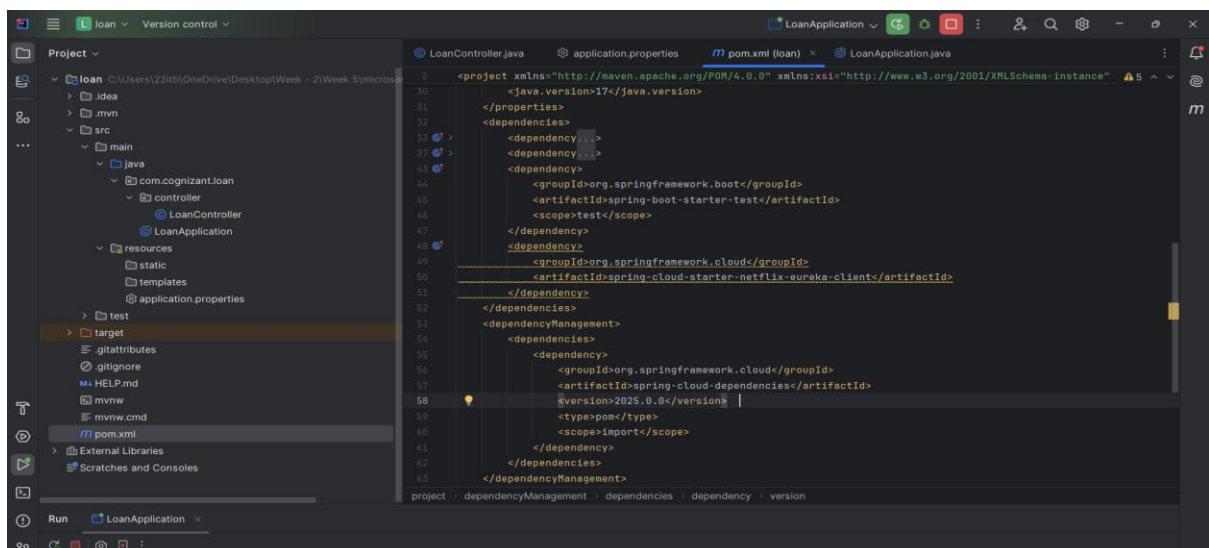
```
1 package com.cognizant.loan.controller;
2
3 import org.springframework.web.bind.annotation.GetMapping;
4 import org.springframework.web.bind.annotation.PathVariable;
5 import org.springframework.web.bind.annotation.RequestMapping;
6 import org.springframework.web.bind.annotation.RestController;
7
8 import java.util.Map;
9
10 @RestController
11 @RequestMapping("/loans")
12 public class LoanController {
13
14     @GetMapping("/{number}")
15     public Map<String, Object> getLoanDetails(@PathVariable String number) {
16         return Map.of(
17             k1: "number", number,
18             k2: "type", "car",
19             k3: "loan", "400000",
20             k4: "emi", "3250",
21             k5: "tenure", "18"
22         );
23     }
24 }
```



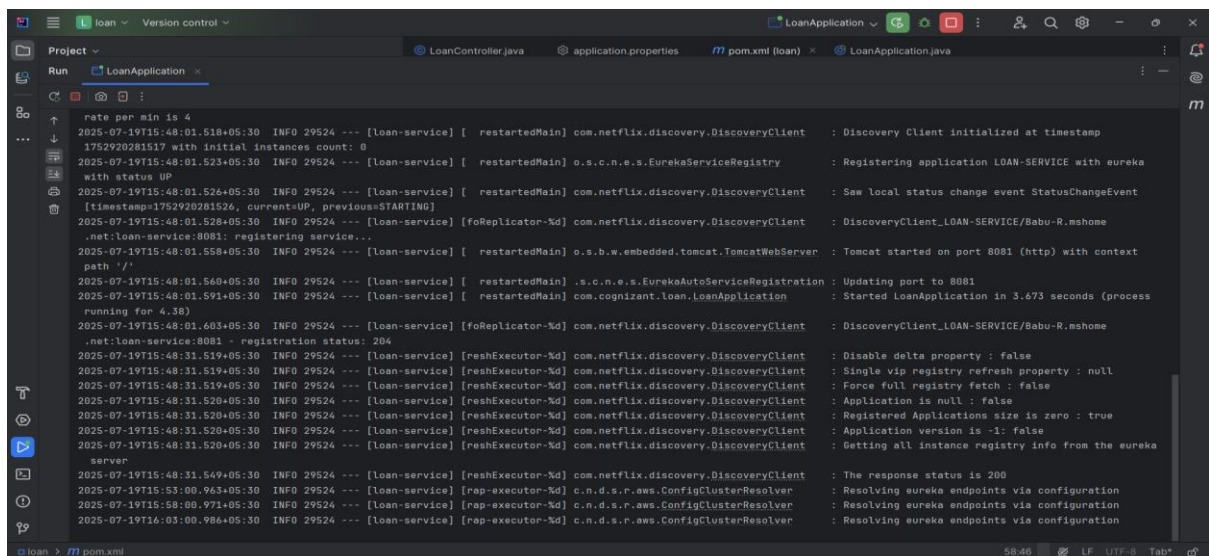
# Application.property



# Pom.xml




# Console Output



# Eureka Server

← → ↻ localhost:8761

☆ ⬇ School



HOME LAST 1000 SINCE STARTUP

System Status

Environment	test	Current time	2025-07-19T16:04:39 +0530
Data center	default	Uptime	00:26
		Lease expiration enabled	true
		Renews threshold	5
		Renews (last min)	8

DS Replicas

localhost

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
ACCOUNT-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:account-service:8080</a>
LOAN-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:loan-service:8081</a>

General Info

← → ↻ localhost:8761

☆ ⬇ School

DS Replicas

localhost

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
ACCOUNT-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:account-service:8080</a>
LOAN-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:loan-service:8081</a>

General Info

Name	Value
total-avail-memory	92mb
num-of-cpus	16
current-memory-usage	78mb (84%)
server-uptime	00:26
registered-replicas	<a href="#">http://localhost:8761/eureka/</a>
unavailable-replicas	<a href="#">http://localhost:8761/eureka/</a> ,
available-replicas	

Instance Info

← → ↻ localhost:8761

☆ ⬇ School

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
ACCOUNT-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:account-service:8080</a>
LOAN-SERVICE	n/a (1)	(1)	UP (1) - <a href="#">Babu-R.mshome.net:loan-service:8081</a>

General Info

Name	Value
total-avail-memory	92mb
num-of-cpus	16
current-memory-usage	78mb (84%)
server-uptime	00:26
registered-replicas	<a href="#">http://localhost:8761/eureka/</a>
unavailable-replicas	<a href="#">http://localhost:8761/eureka/</a> ,
available-replicas	

Instance Info

Name	Value
ipAddr	172.19.192.1
status	UP

# Account Service

Menu

Collections

Environments

Flows

History

Overview

GET http://localhost:8080/loans

GET http://localhost:8081/loans

Search Postman

Ctrl K

Invite

Upgrade

Save

Share

</>

http://localhost:8080/accounts/00987987973432

GET

http://localhost:8080/accounts/00987987973432

Send

Params

Authorization

Headers (10)

Body

Scripts

Tests

Settings

Query Params

Key	Value	Description
Key	Value	Description

Bulk Edit

Body

Cookies

Headers (5)

Test Results

JSON

Preview

Visualize

1

2

3

4

5

{

"number": "00987987973432",

"balance": 234343,

"type": "savings"

}

200 OK

106 ms

225 B

Postbot

Runner

Start Proxy

Cookies

Vault

Trash

# Loan Service

Menu

Collections

Environments

Flows

History

Overview

GET http://localhost:8080/loans

GET http://localhost:8081/loans

Search Postman

Ctrl K

Invite

Upgrade

Save

Share

</>

http://localhost:8081/loans/H00987987972342

GET

http://localhost:8081/loans/H00987987972342

Send

Params

Authorization

Headers (7)

Body

Scripts

Tests

Settings

Query Params

Key	Value	Description
Key	Value	Description

Bulk Edit

Body

Cookies

Headers (5)

Test Results

JSON

Preview

Visualize

1

2

3

4

5

6

7

{

"type": "cas",

"number": "H00987987972342",

"tenure": 10,

"emi": 3250,

"loan": 400000

}

200 OK

127 ms

242 B

Postbot

Runner

Start Proxy

Cookies

Vault

Trash