

Name: Bhavesh Kewalramani

Roll No.: A-25

Section: A

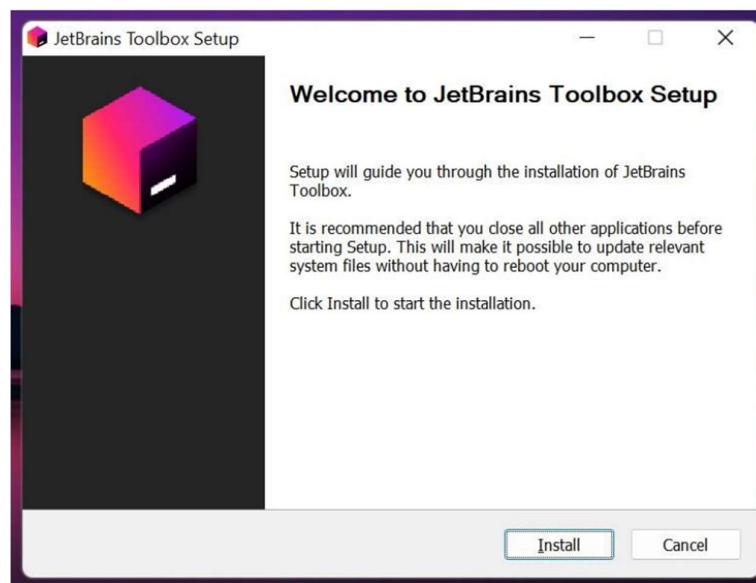
Semester: VII

Shift: I

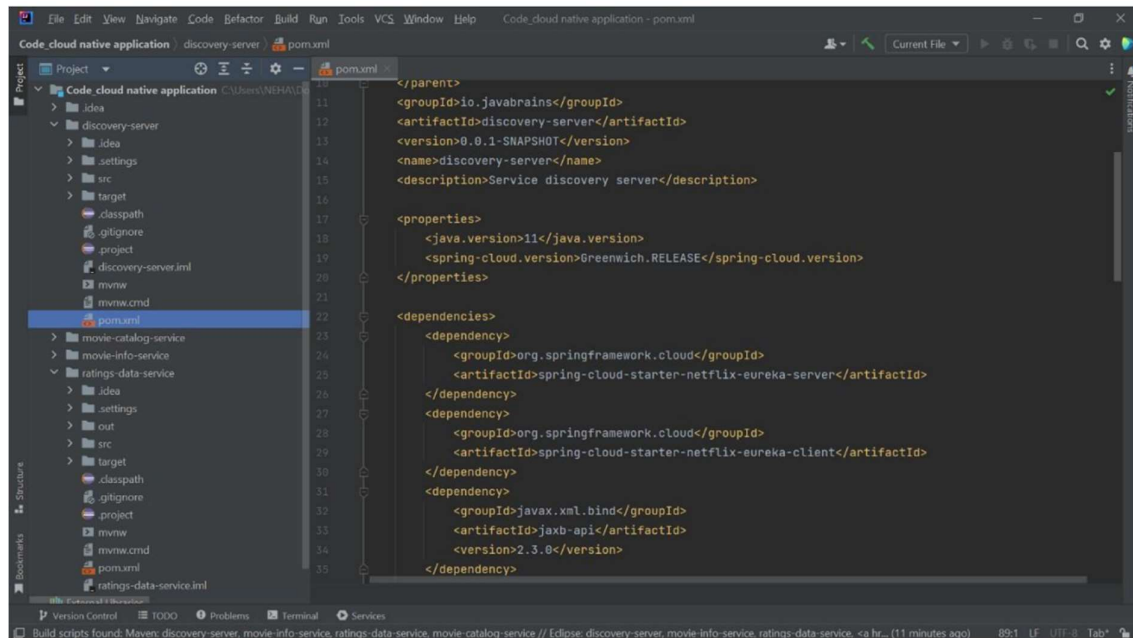
Batch: A1

Aim: To develop an application using cloud native approach with microservice technique.

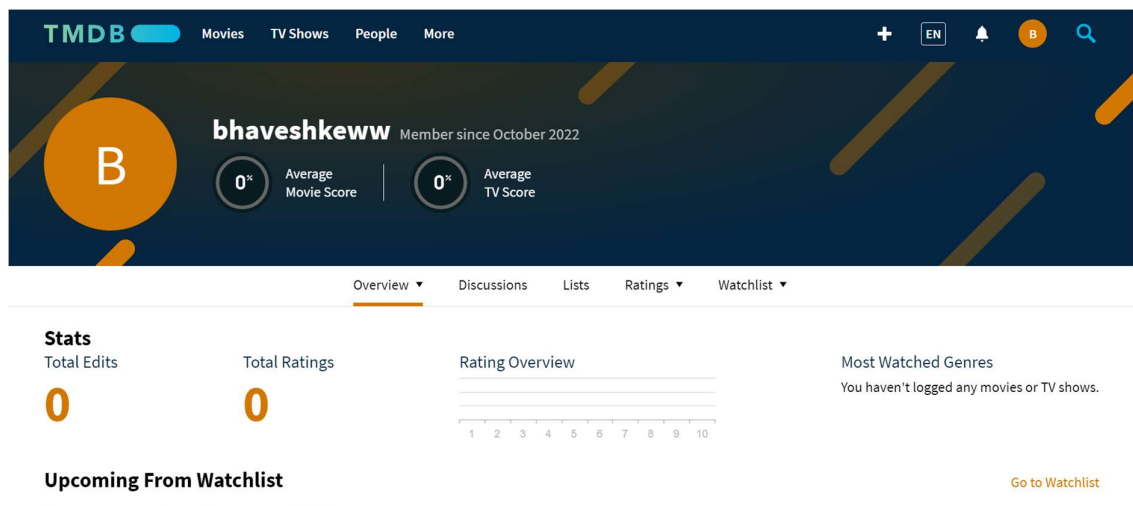
Outputs:



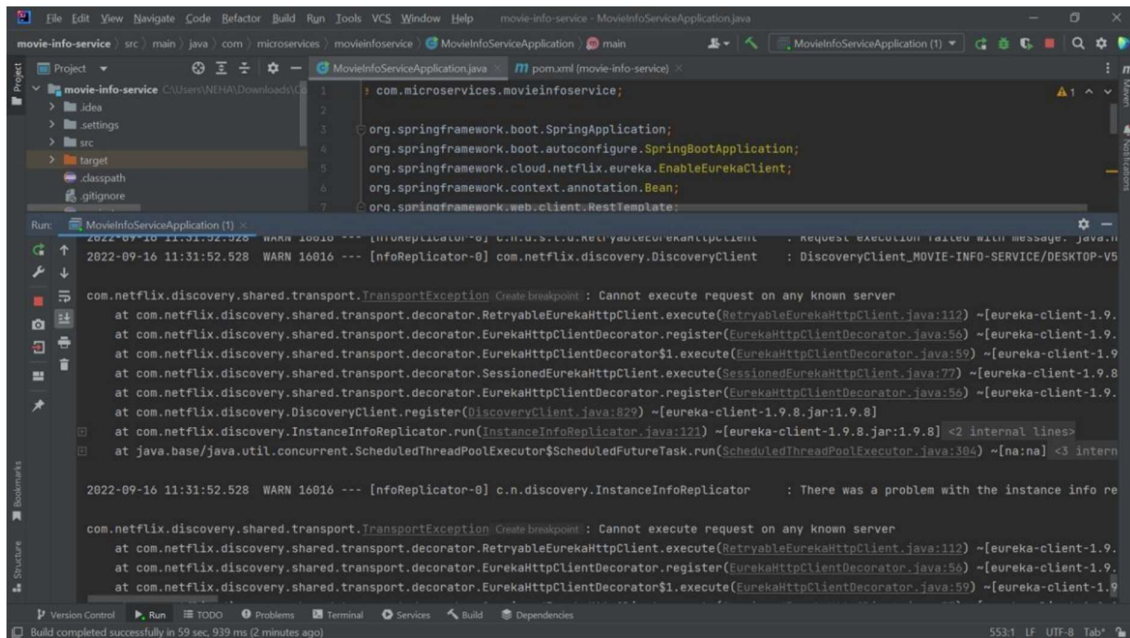
Download the IntelliJ IDE from its official website and install it



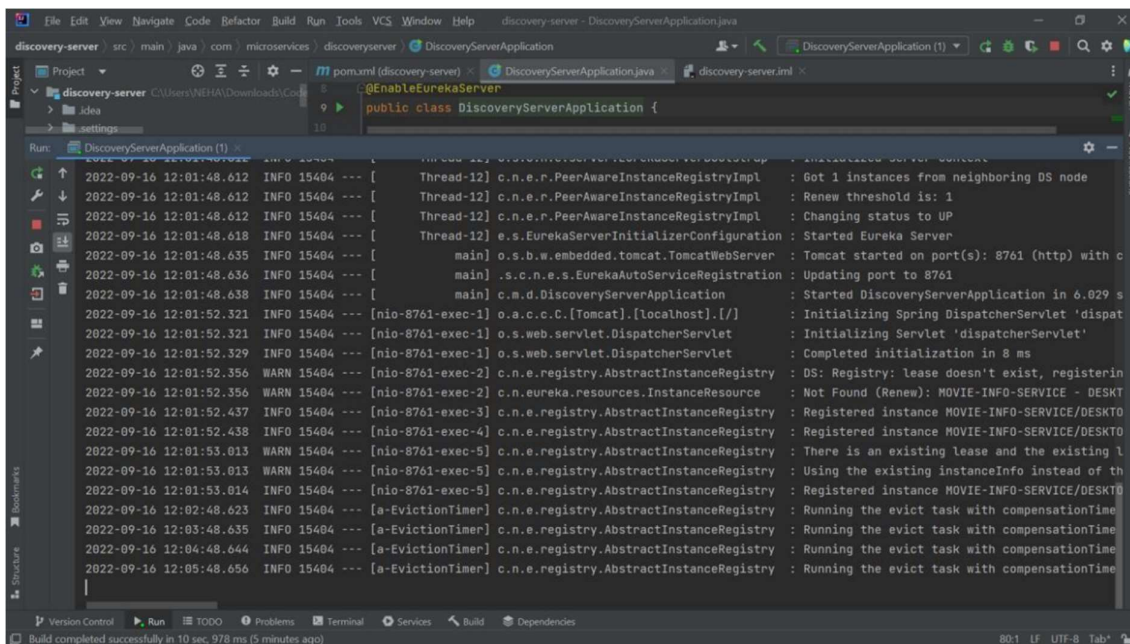
We then add springboot and eureka server in the pom.xml file



We then navigate to TMDb website and create the account. After account creation, activate it using the submitted email address. Go to the settings and there navigate to API tab. In that request the key. A new api key will be generated



Now go to ide and open project. Go to movie-info-service project and install dependencies



Go to Discover server project and install dependencies

```
1 usage
2
3 @SpringBootApplication
4
5 @EnableEurekaClient
6
7 public class RatingsDataServiceApplication {
8
9     public static void main(String[] args) {
10         SpringApplication.run(RatingsDataServiceApplication.class, args);
11     }
12 }
```

```
2022-09-16 12:19:17.028 INFO 20924 --- [main] c.n.d.s.r.aws.ConfigClusterResolver : Resolving eureka endpoints via configuration
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Disable delta property : false
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Single vip registry refresh property : null
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Force full registry fetch : false
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Application is null : false
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Registered Applications size is zero : true
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Application version is -1: true
2022-09-16 12:19:17.136 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Getting all instance registry info from the e
2022-09-16 12:19:17.262 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : The response status is 200
2022-09-16 12:19:17.266 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Starting heartbeat executor: renew interval i
2022-09-16 12:19:17.270 INFO 20924 --- [main] c.n.discovery.InstanceInfoReplicator : InstanceInfoReplicator onDemand update allowe
2022-09-16 12:19:17.274 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Discovery Client initialized at timestamp 166
2022-09-16 12:19:17.276 INFO 20924 --- [main] o.s.c.n.e.s.EurekaServiceRegistry : Registering application RATINGS-DATA-SERVICE
2022-09-16 12:19:17.278 INFO 20924 --- [main] com.netflix.discovery.DiscoveryClient : Saw local status change event StatusChangeEve
2022-09-16 12:19:17.280 INFO 20924 --- [nfoReplicator-0] com.netflix.discovery.DiscoveryClient : DiscoveryClient_RATINGS-DATA-SERVICE/DESKTOP-
2022-09-16 12:19:17.318 INFO 20924 --- [main] o.s.b.w.embedded.tomcat.TomcatWebServer : Tomcat started on port(s): 8083 (http) with c
2022-09-16 12:19:17.320 INFO 20924 --- [main] .s.c.n.e.s.EurekaAutoServiceRegistration : Updating port to 8083
2022-09-16 12:19:17.324 INFO 20924 --- [main] c.m.r.RatingsDataServiceApplication : Started RatingsDataServiceApplication in 5.40
2022-09-16 12:19:17.329 INFO 20924 --- [nfoReplicator-0] com.netflix.discovery.DiscoveryClient : DiscoveryClient_RATINGS-DATA-SERVICE/DESKTOP-
```

Go to ratings data service project and install dependencies

spring Eureka HOME LAST 1000 SINCE STARTUP

System Status

Environment	test
Data center	default

Current time	2022-09-16T12:26:45 +0530
Uptime	00:25
Lease expiration enabled	true
Renews threshold	6
Renews (last min)	8

DS Replicas

localhost

Instances currently registered with Eureka

Application	AMIs	Availability Zones	Status
MOVIE-INFO-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-V5220K4.mshome.net:movie-info-service:8082
RATINGS-DATA-SERVICE	n/a (1)	(1)	UP (1) - DESKTOP-V5220K4.mshome.net:ratings-data-service:8083

Go to the localhost:8761 and you can see the instance data there

General Info

Name	Value
total-avail-memory	149mb
environment	test
num-of-cpus	8
current-memory-usage	69mb (46%)
server-uptime	00:25
registered-replicas	http://localhost:8761/eureka/
unavailable-replicas	http://localhost:8761/eureka/
available-replicas	

Instance Info

Name	Value
ipAddr	192.168.137.81
status	UP

You can also see the general information there

```

@SpringBootApplication
@EnableEurekaClient
public class RatingsDataServiceApplication {

    public static void main(String[] args) { SpringApp
  
```

```

Run: RatingsDataServiceApplication (T) x ratings-data-service [package]
  % ratings-data-service [package]: 37 sec
  % io.javabrain:ratings-data-service:jar:0.0.1-SNAPSHOT 34 sec
[INFO] Scanning for projects...
[INFO]
[INFO] -----< io.javabrain:ratings-data-service >-----
[INFO] Building ratings-data-service 0.0.1-SNAPSHOT
[INFO] -----[ jar ]-----
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-bo
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-bo
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-bo
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-bo
Downloading from central: https://repo.maven.apache.org/maven2/org/springframework/boot/spring-bo
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-re
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/plugins/maven-pl
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/31/m
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/maven/maven-parent/31/m
Downloading from central: https://repo.maven.apache.org/maven2/org/apache/apache/19/apache-19-po
  
```

Now we run the ratings data service file in the IDE


```
localhost:8081/catalog/foo

[[{"name":"Lock, Stock and Two Smoking Barrels","desc":"A card shark and his unwillingly-enlisted friends need to make a lot of cash quick after losing a sketchy poker match. To do this they decide to pull a heist on a small-time gang who happen to be operating out of the flat next door.", "rating":3}, {"name":"Star Trek: Insurrection","desc":"When an alien race and factions within Starfleet attempt to take over a planet that has 'regenerative' properties, it falls upon Captain Picard and the crew of the Enterprise to defend the planet's people as well as the very ideals upon which the Federation itself was founded.", "rating":4}]
```

Now we navigate to the localhost:8081/catalog/foo and see the output generated

```
Command Prompt - java -Dserver.port=8200 -jar ratings-data-service-0.0.1-SNAPSHOT.jar
Caused by: java.lang.ClassNotFoundException: C:\Server\port=8200

C:\Users\Poco\OneDrive\Desktop\VII SEM\CLAB\Lab4\Code\cloud native application\ratings-data-service>target>java -Dserver.port=8200 -jar ratings-data-service-0.0.1-SNAPSHOT.jar
2022-09-16 15:15:37.981 INFO 15852 --- [main] trationDelegatesBeanPostProcessorChecker : Bean 'org.springframework.cloud.autoconfigure.ConfigurationPropertiesRebinderAutoConfiguration' of type [org.springframework.cloud.autoconfigure.ConfigurationPropertiesRebinderAutoConfiguration$$EnhancerBySpringCGLIB$$7d845bf] is not eligible for getting processed by all BeanPostProcessors (for example: not eligible for auto-proxying)
2022-09-16 15:15:38.160 INFO 15852 --- [main] trationDelegatesBeanPostProcessorChecker : Bean 'org.springframework.cloud.autoconfigure.ConfigurationPropertiesRebinderAutoConfiguration' of type [org.springframework.cloud.autoconfigure.ConfigurationPropertiesRebinderAutoConfiguration$$EnhancerBySpringCGLIB$$7d845bf] is not eligible for getting processed by all BeanPostProcessors (for example: not eligible for auto-proxying)
2022-09-16 15:15:38.293 INFO 15852 --- [main] c.m.r.RatingsDataServiceApplication : No active profile set, falling back to default profiles: default
2022-09-16 15:15:38.035 INFO 15852 --- [main] o.s.c.context.scope.GenericScope : Beanfactory id=39a977fa-cfea-3f98-99eb-f3fca0977225
2022-09-16 15:15:38.644 INFO 15852 --- [main] o.s.c.sources.URLConfigurationSource : No URLs will be polled as dynamic configuration sources.
2022-09-16 15:15:38.644 INFO 15852 --- [main] o.s.c.sources.URLConfigurationSource : To enable URLs as dynamic configuration sources, define System property archaius.configurationSource.additionalUrls or make config.properties available on classpath.
2022-09-16 15:15:38.644 INFO 15852 --- [main] o.s.c.sources.URLConfigurationSource : No URLs will be polled as dynamic configuration sources.
2022-09-16 15:15:38.644 INFO 15852 --- [main] o.s.c.sources.URLConfigurationSource : To enable URLs as dynamic configuration sources, define System property archaius.configurationSource.additionalUrls or make config.properties available on classpath.
2022-09-16 15:15:38.644 INFO 15852 --- [main] o.s.s.concurrent.ThreadPoolTaskExecutor : Initializing ExecutorService 'applicationTaskExecutor'
2022-09-16 15:15:38.888 INFO 15852 --- [main] o.s.c.n.eureka.InstanceInfoFactory : Setting initial instance status as: STARTING
2022-09-16 15:15:40.950 INFO 15852 --- [main] com.netflix.discovery.DiscoveryClient : Initializing eureka in region us-east-1
2022-09-16 15:15:41.325 INFO 15852 --- [main] c.n.d.provider.DiscoveryJerseyProvider : Using JSON encoding codec LegacyJacksonJson
2022-09-16 15:15:41.325 INFO 15852 --- [main] c.n.d.provider.DiscoveryJerseyProvider : Using JSON decoding codec LegacyJacksonJson
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by com.thoughtworks.xstream.core.util.Fields (jar:file:/C:/Users/Poco/OneDrive/Desktop/VII SEM\CLAB\Lab4\Code\cloud native application\ratings-data-service/target\ratings-data-service-0.0.1-SNAPSHOT.jar!/BOOT-INF/lib/xstream-1.4.10.jar/) to field java.util.TreeMap.comparator
WARNING: Please consider reporting this to the maintainers of com.thoughtworks.xstream.core.util.Fields
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
```

Now we open the command prompt and run the same file. We can see the output as shown above.

Instances currently registered with Eureka			
Application	AMIs	Availability Zones	Status
MOVIE-CATALOG-SERVICE	n/a (1)	(1)	UP (1) - LAPTOP-RJ1TG8BM.mshome.net:movie-catalog-service:8081
MOVIE-INFO-SERVICE	n/a (1)	(1)	UP (1) - LAPTOP-RJ1TG8BM.mshome.net:movie-info-service:8082
RATINGS-DATA-SERVICE	n/a (2)	(2)	UP (2) - LAPTOP-RJ1TG8BM.ratings-data-service:8083 , LAPTOP-RJ1TG8BM.mshome.net:ratings-data-service:8200

General Info	
Name	Value
total-avail-memory	183mb
environment	test
num-of-cpus	8
current-memory-usage	100mb (54%)
server-up-time	00:54
registered-replicas	http://localhost:8761/eureka/
unavailable-replicas	http://localhost:8761/eureka/
available-replicas	

Instance Info	
Name	Value

In the eureka we can also see the fault tolerance and load balancing

Conclusion:

The cloud native approach with microservice technique is a great way to develop an application. It allows for a more modular approach to development, which can make the development process more efficient and less error-prone. Additionally, microservices can be deployed independently, which can make the overall application more scalable.