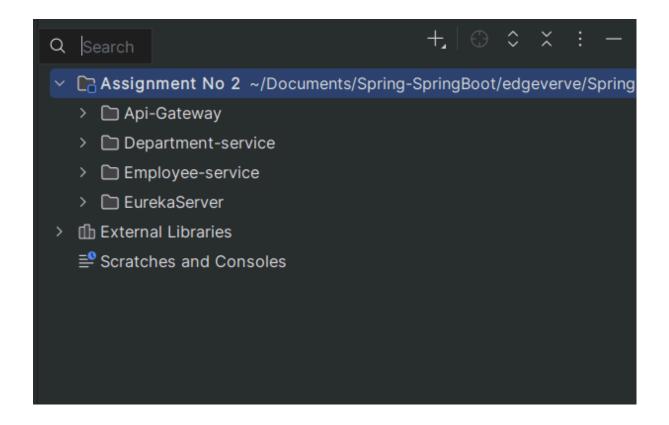
Assignment No. 2

Name - Aditya Pawar

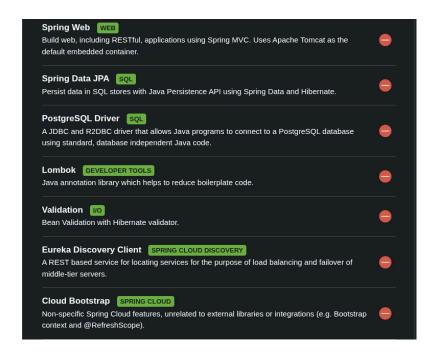
USN - 72233061J

Folder Structure:



Department-service

Dependencies



DepartmentController.java

```
package com.aditya.Department_service.controller;
import com.aditya.Department_service.model.Department;
import com.aditya.Department_service.repository
.DepartmentRepo;
import org.springframework.beans.factory.annotation
.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;
import java.util.List;
@RestController
@RequestMapping("/departments")
public class DepartmentController {
  @Autowired
  private DepartmentRepo departmentRepo;
  @GetMapping("/allDepartments")
  public List<Department> getAllDepartments(){
```

```
return departmentRepo.findAll();
  }
  @PostMapping("/addDepartment")
  public Department addDepartment(@RequestBody
  Department department){
    return departmentRepo.save(department);
  }
  @GetMapping("/{deptId}")
  public ResponseEntity<Department>
  getDepartmentById(@PathVariable("deptId")
  Long deptId){
    Department department = departmentRepo.
    findById(deptId).orElseThrow(() \rightarrow new
    RuntimeException("Department ID Not Found:
    " +deptld ));
    return ResponseEntity.ok(department);
  }
}
```

Department.java

```
package com.aditya.Department_service.model;

import jakarta.persistence.*;
import lombok.AllArgsConstructor;
import lombok.Getter;
import lombok.NoArgsConstructor;
import lombok.Setter;

@AllArgsConstructor
@NoArgsConstructor
@Getter
@Setter
@Entity
@Table(name = "department-info")
public class Department {
```

```
@Id
@GeneratedValue(strategy = GenerationType
.IDENTITY)
private Long deptId;
private String deptName;
private Long managerId;
}
```

DepartmentRepo.java

```
package com.aditya.Department_service.repository;

import com.aditya.Department_service.model.Department;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;

@Repository
public interface DepartmentRepo extends JpaRepository<Department, Long>
}
```

DepartmentServiceApplication.java

```
package com.aditya.Department_service;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.cloud.client.discovery.EnableDiscoveryClient;

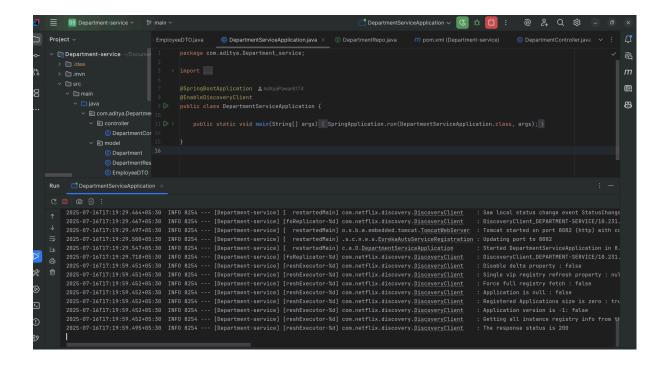
@SpringBootApplication
@EnableDiscoveryClient
public class DepartmentServiceApplication {

   public static void main(String[] args) {
        SpringApplication.run(DepartmentServiceApplication.class, args);
    }
}
```

Application.properties

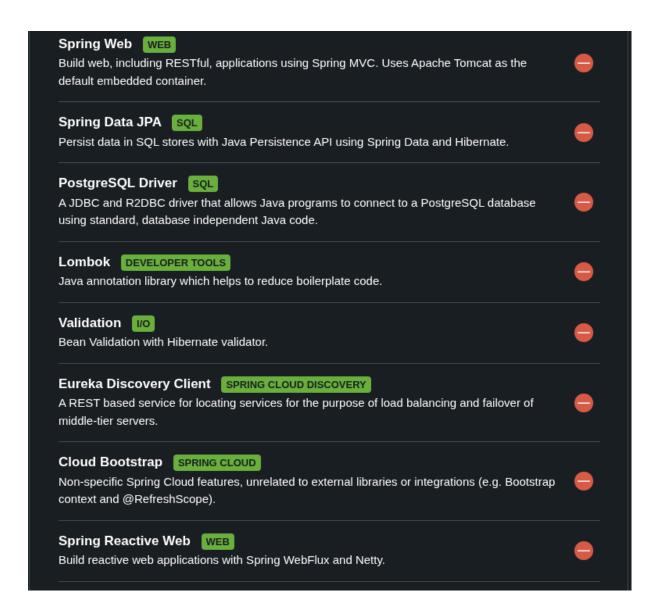
```
spring.application.name=Department-service
spring.datasource.username=postgres
spring.datasource.password=root
spring.datasource.driverClassName=org.postgresql.Driver
spring.datasource.url=jdbc:postgresql://localhost:5432/department_db
spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.PostgreSQLDiale
spring.jpa.hibernate.ddl-auto=update
spring.data.jpa.repositories.bootstrap-mode=default
spring.jpa.defer-datasource-initialization=true
server.port=8082
spring.jpa.show-sql=true
spring.jpa.properties.hibernate.format-sql=true
eureka.client.service-url-defaultZone=http://localhost:8761/eureka/
eureka.client.register-with-eureka=true
eureka.client.fetch-registry=true
eureka.instance.prefer-ip-address=true
```

Output:



Employee-service

Dependencies



WebClientConfig.java

```
package com.aditya.Employee_service.config;

import org.springframework.context.annotation.Bean;
import org.springframework.context.annotation.Configuration;
import org.springframework.web.reactive.function.client.WebClient;

@Configuration
public class WebClientConfig {

@Bean
public WebClient.Builder webClientBuilder(){
return WebClient.builder();
```

```
}
```

EmployeeController.java

```
package com.aditya.Employee_service.controller;
import com.aditya.Employee_service.model.DepartmentDTO;
import com.aditya.Employee_service.model.Employee;
import com.aditya.Employee_service.model.EmployeeResponseDTO;
import com.aditya.Employee_service.repository.EmployeeRepo;
import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.http.ResponseEntity;
import org.springframework.web.bind.annotation.*;
import org.springframework.web.reactive.function.client.WebClient;
import reactor.core.publisher.Mono;
import java.util.List;
@RestController
@RequestMapping("/employees")
public class EmployeeController {
  @Autowired
  private EmployeeRepo employeeRepo;
  @Autowired
  private WebClient.Builder webClientBuilder;
  @GetMapping("/allEmployees")
  public List<Employee> allEmployees(){
    return employeeRepo.findAll();
  }
  @GetMapping("/{empld}")
  public ResponseEntity<Employee> getEmployeeById(@PathVariable("employeeById(@PathVariable("employee)
  empld){
    Employee employee = employeeRepo.findById(empld).orElseThrow(() →
```

```
new RuntimeException("employee ID Not Found: "+empld ));
    return ResponseEntity.ok(employee);
  }
  @PostMapping("/addEmployee")
  public Mono<ResponseEntity<EmployeeResponseDTO>> addDepartment(@
  Employee employee){
    return webClientBuilder.build().get()
        .uri("http://localhost:8082/departments/"+ employee.getDeptId())
        .retrieve()
        .bodyToMono(DepartmentDTO.class)
        .map(departmentDTO \rightarrow {
          employeeRepo.save(employee);
          EmployeeResponseDTO responseDTO = new EmployeeResponseI
          responseDTO.setEmpId(employee.getEmpId());
          responseDTO.setEmpName(employee.getEmpName());
          responseDTO.setEmpSalary(employee.getEmpSalary());
          responseDTO.setDeptId(departmentDTO.getDeptId());
          responseDTO.setDeptName(departmentDTO.getDeptName());
          responseDTO.setManagerId(departmentDTO.getManagerId());
          return ResponseEntity.ok(responseDTO);
        });
  }
}
```

Employee.java

```
package com.aditya.Employee_service.model;

import jakarta.persistence.*;
import lombok.AllArgsConstructor;
import lombok.Getter;
import lombok.NoArgsConstructor;
import lombok.Setter;

@AllArgsConstructor
```

```
@NoArgsConstructor
@Getter
@Setter
@Entity
@Table(name = "employee-info")
public class Employee {
    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private Long empld;
    private String empName;
    private Long deptld;
    private Double empSalary;
}
```

EmployeeResponseDTO.java

```
package com.aditya.Employee_service.model;
import lombok.AllArgsConstructor;
import lombok.Getter;
import lombok.NoArgsConstructor;
import lombok.Setter;
@AllArgsConstructor
@NoArgsConstructor
@Getter
@Setter
public class EmployeeResponseDTO {
  private Long empld;
  private String empName;
  private Double empSalary;
  private Long deptld;
  private String deptName;
  private Long managerId;
}
```

DepartmentDTO.java

```
package com.aditya.Employee_service.model;
import lombok.AllArgsConstructor;
import lombok.Getter;
import lombok.NoArgsConstructor;
import lombok.Setter;
@AllArgsConstructor
@NoArgsConstructor
@Getter
@Setter
public class EmployeeResponseDTO {
  private Long empld;
  private String empName;
  private Double empSalary;
  private Long deptld;
  private String deptName;
  private Long managerId;
}
```

EmployeeRepo.java

```
package com.aditya.Employee_service.repository;

import com.aditya.Employee_service.model.Employee;
import org.springframework.data.jpa.repository.JpaRepository;
import org.springframework.stereotype.Repository;

@Repository
public interface EmployeeRepo extends JpaRepository<Employee, Long> {
}
```

EmployeeServiceApplication.java

```
package com.aditya.Employee_service;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.cloud.client.discovery.EnableDiscoveryClient;

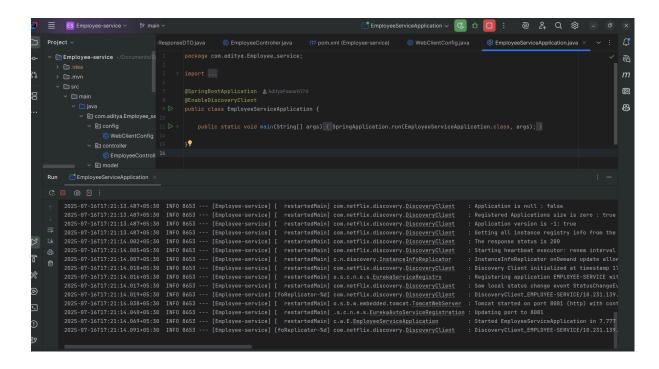
@SpringBootApplication
@EnableDiscoveryClient
public class EmployeeServiceApplication {

   public static void main(String[] args) {
      SpringApplication.run(EmployeeServiceApplication.class, args);
   }
}
```

Application.properties

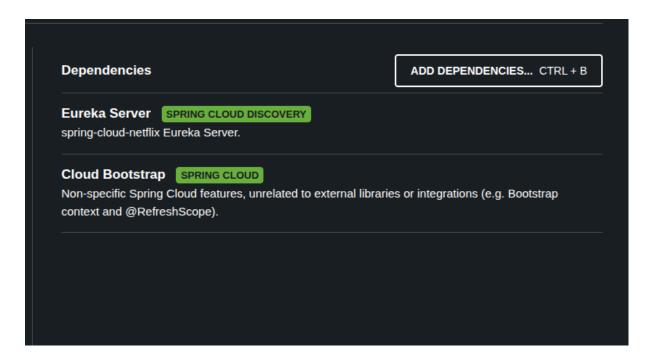
```
spring.application.name=Employee-service
spring.datasource.username=postgres
spring.datasource.password=root
spring.datasource.driverClassName=org.postgresql.Driver
spring.datasource.url=jdbc:postgresql://localhost:5432/employee_db
spring.jpa.properties.hibernate.dialect=org.hibernate.dialect.PostgreSQLDiale
spring.jpa.hibernate.ddl-auto=update
spring.data.jpa.repositories.bootstrap-mode=default
spring.jpa.defer-datasource-initialization=true
server.port=8081
spring.jpa.show-sql=true
spring.jpa.properties.hibernate.format-sql=true
eureka.client.service-url-defaultZone=http://localhost:8761/eureka/
eureka.client.register-with-eureka=true
eureka.client.fetch-registry=true
eureka.instance.prefer-ip-address=true
```

Output:



EurekaServer

Dependencies



EurekaServerApplication.java

```
package com.aditya.EurekaServer;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.cloud.netflix.eureka.server.EnableEurekaServer;

@SpringBootApplication
@EnableEurekaServer
public class EurekaServerApplication {

   public static void main(String[] args) {
      SpringApplication.run(EurekaServerApplication.class, args);
   }
}
```

Application.properties

```
spring.application.name=EurekaServer

server.port=8761

eureka.client.register-with-eureka=false

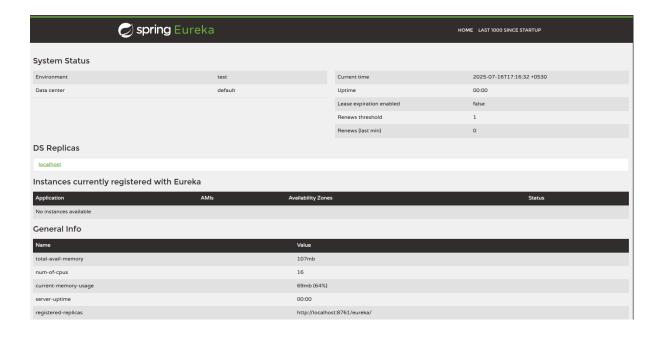
eureka.client.fetch-registry=false

eureka.instance.prefer-ip-address=true
```

Output:

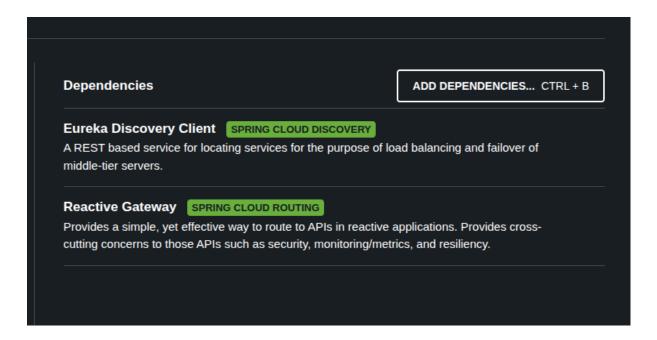
```
ES EurekaServer
                                                                                                                                                                                         『EurekaServerApplication v 🕝 🌣 🔲 : @ 名 Q 🕸
                                                                                                package com.aditya.EurekaServer:
                                                                                                                                                                                                                                                                                                                                          83
                  ( EurekaServerApplication
2025-07-16T17:15:43.654+05:30 INFO 7130
                                                                                       [EurekaServer] [
[EurekaServer] [
[EurekaServer] [
                                                                                                                                                                                                                                       : Renew threshold is: 1
2025-07-16T17:15:43.655+05:30 INFO 7130 2025-07-16T17:15:43.657+05:30 INFO 7130
                                                                                                                                     Thread-9] c.n.e.r.PeerAwareInstanceRegistryImpl
main] o.s.b.w.embedded.tomcat.TomcatWebServer
 2025-07-16T17:15:43.659+05:30 INFO 7130 -
2025-07-16T17:15:43.668+05:30 INFO 7130 -
2025-07-16T17:15:43.724+05:30 INFO 7130 -
                                                                                                                                     main] .s.c.n.e.s.EurekaAutoServiceRegistration :
Thread-9] e.s.EurekaServerInitializerConfiguration :
                                                                                       [EurekaServer] [ main] c.a.E.<u>EurekaServerApplication</u>
[EurekaServer] [nio-8761-exec-1] o.a.c.c.<u>C.</u>[Tomcat].[localhost].[/]
[EurekaServer] [nio-8761-exec-1] o.s.web.servlet.<u>DispatcherServlet</u>
 2025-07-16T17:16:31.889+05:30 INFO 7130
2025-07-16T17:16:31.902+05:30 INFO 7130
 2025-07-16T17:16:31.932+05:30 INFO 7130 2025-07-16T17:16:43.657+05:30 INFO 7130 2025-07-16T17:17:43.657+05:30 INFO 7130
                                                                                       [EurekaServer] [nio-8761-exec-1] o.s.web.servlet.DispatcherServlet
[EurekaServer] [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry
[EurekaServer] [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry
                                                                                                                                                                                                                                           Completed initialization in 29 ms
Running the evict task with compensationTime Oms
Running the evict task with compensationTime Oms
 [EurekaServer] [a-EvictionTimer] c.n.e.registry.AbstractInstanceRegistry
[EurekaServer] [nio-8761-exec-3] c.n.e.registry.AbstractInstanceRegistry
                                                                                                                                                                                                                                           Running the evict task with compensationTime Ome
Registered instance DEPARTMENT-SERVICE/10.231.1
```

(https://localhost:8761/)



Api-Gateway

Dependencies



ApiGatewayApplication.java

```
package com.aditya.Api_Gateway;
import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;
import org.springframework.cloud.client.discovery.EnableDiscoveryClient;

@SpringBootApplication
@EnableDiscoveryClient
public class ApiGatewayApplication {

   public static void main(String[] args) {
        SpringApplication.run(ApiGatewayApplication.class, args);
   }
}
```

Application.properties

```
spring.application.name=Api-Gateway
server.port=8080
```

```
eureka.client.service-url.defaultZone=http://localhost:8761/eureka
spring.cloud.gateway.discovery.locator.enabled=false
spring.cloud.netflix.eureka.discovery.enabled=true

#Define the static router for order service
spring.cloud.gateway.routes[0].id=Department-service
spring.cloud.gateway.routes[0].uri=lb://DEPARTMENT-SERVICE
spring.cloud.gateway.routes[0].predicates[0]=Path=/departments/**

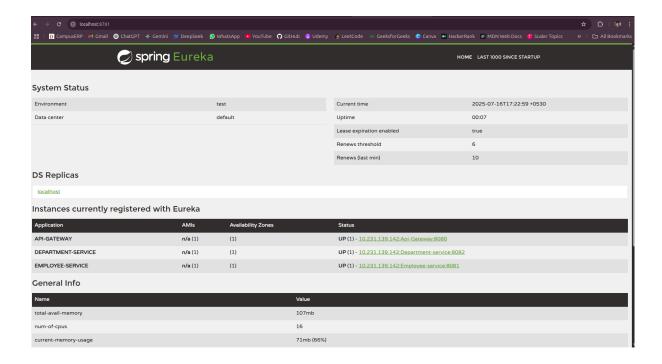
#Define the static router for Employee service
spring.cloud.gateway.routes[1].id=Employee-service
spring.cloud.gateway.routes[1].uri=lb://EMPLOYEE-SERVICE
spring.cloud.gateway.routes[1].predicates[0]=Path=/employees/**
```

Output:

```
Project - Spapication properties Application - Adapted Spapication - Adapted Spapication - Adapted Spapication - S
```

Output:

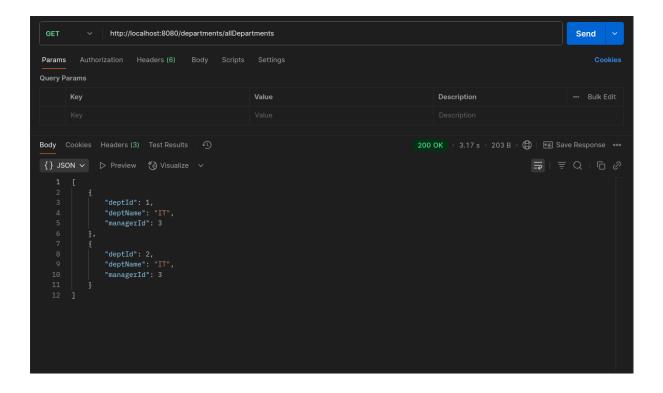
1. Eureka Server

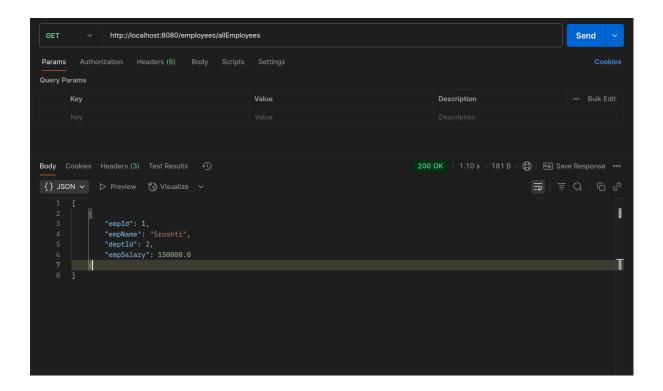


2. Postman

(using Api-gateway port \rightarrow 8080)

Get Mapping →





Post Mapping →

