**WEEK 4 : SPRING REST USING SPRINGBOOT HANDSON**

**SUPERSET ID : 6386707**

**PROBLEM STATEMENT : Display Employee List and Edit Employee form Using RESTful Web Service**

**Employee.java**

package com.cognizant.springlearn;

public class Employee {

private String id;

private String name;

private String department;

private double salary;

// Getters and Setters

}

**Employee.xml**

<beans xmlns="http://www.springframework.org/schema/beans"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.springframework.org/schema/beans

http://www.springframework.org/schema/beans/spring-beans.xsd">

<bean id="emp1" class="com.cognizant.springlearn.Employee">

<property name="id" value="101"/>

<property name="name" value="John Doe"/>

<property name="department" value="HR"/>

<property name="salary" value="45000"/>

</bean>

<bean id="emp2" class="com.cognizant.springlearn.Employee">

<property name="id" value="102"/>

<property name="name" value="Jane Smith"/>

<property name="department" value="Finance"/>

<property name="salary" value="55000"/>

</bean>

<bean id="employeeList" class="java.util.ArrayList">

<constructor-arg>

<list>

<ref bean="emp1"/>

<ref bean="emp2"/>

</list>

</constructor-arg>

</bean>

</beans>

**EmployeeController.java**

package com.cognizant.springlearn.controller;

import com.cognizant.springlearn.Employee;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import org.springframework.web.bind.annotation.\*;

import java.util.List;

@RestController

public class EmployeeController {

@GetMapping("/employees")

public List<Employee> getEmployees() {

ApplicationContext context = new ClassPathXmlApplicationContext("employee.xml");

return context.getBean("employeeList", List.class);

}

@GetMapping("/employees/{id}")

public Employee getEmployeeById(@PathVariable String id) {

ApplicationContext context = new ClassPathXmlApplicationContext("employee.xml");

List<Employee> list = context.getBean("employeeList", List.class);

return list.stream()

.filter(e -> e.getId().equals(id))

.findFirst()

.orElse(null);

}

}

**Employee.service.ts**

@Injectable({

providedIn: 'root'

})

export class EmployeeService {

private apiUrl = 'http://localhost:8083/employees';

constructor(private http: HttpClient) { }

getEmployees(): Observable<Employee[]> {

return this.http.get<Employee[]>(this.apiUrl);

}

getEmployeeById(id: string): Observable<Employee> {

return this.http.get<Employee>(`${this.apiUrl}/${id}`);

}

}

**Employee-list.component.ts**

ngOnInit(): void {

this.employeeService.getEmployees().subscribe(data => {

this.employees = data;

});

}

**Edit-employee.component.ts**

ngOnInit(): void {

const id = this.route.snapshot.paramMap.get('id');

if (id) {

this.employeeService.getEmployeeById(id).subscribe(emp => {

this.employee = emp;

});

}

}

**Create static employee list data using spring xml configuration**

**Employee.xml**

<beans xmlns="http://www.springframework.org/schema/beans"

xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"

xsi:schemaLocation="http://www.springframework.org/schema/beans

http://www.springframework.org/schema/beans/spring-beans.xsd">

<!-- Departments -->

<bean id="dept1" class="com.cognizant.springlearn.Department">

<property name="id" value="1"/>

<property name="name" value="HR"/>

</bean>

<bean id="dept2" class="com.cognizant.springlearn.Department">

<property name="id" value="2"/>

<property name="name" value="Finance"/>

</bean>

<bean id="dept3" class="com.cognizant.springlearn.Department">

<property name="id" value="3"/>

<property name="name" value="Technology"/>

</bean>

<!-- Skills -->

<bean id="skill1" class="com.cognizant.springlearn.Skill">

<property name="id" value="1"/>

<property name="name" value="Java"/>

</bean>

<bean id="skill2" class="com.cognizant.springlearn.Skill">

<property name="id" value="2"/>

<property name="name" value="MySQL"/>

</bean>

<bean id="skill3" class="com.cognizant.springlearn.Skill">

<property name="id" value="3"/>

<property name="name" value="Angular"/>

</bean>

<!-- Employee 1 -->

<bean id="emp1" class="com.cognizant.springlearn.Employee">

<property name="id" value="101"/>

<property name="name" value="John Doe"/>

<property name="department" ref="dept1"/>

<property name="salary" value="50000"/>

<property name="permanent" value="true"/>

<property name="dateOfBirth" value="1990-05-15"/>

<property name="skillList">

<list>

<ref bean="skill1"/>

<ref bean="skill2"/>

</list>

</property>

</bean>

<!-- Employee 2 -->

<bean id="emp2" class="com.cognizant.springlearn.Employee">

<property name="id" value="102"/>

<property name="name" value="Jane Smith"/>

<property name="department" ref="dept2"/>

<property name="salary" value="60000"/>

<property name="permanent" value="false"/>

<property name="dateOfBirth" value="1988-07-10"/>

<property name="skillList">

<list>

<ref bean="skill2"/>

<ref bean="skill3"/>

</list>

</property>

</bean>

<!-- Employee 3 -->

<bean id="emp3" class="com.cognizant.springlearn.Employee">

<property name="id" value="103"/>

<property name="name" value="Alice Johnson"/>

<property name="department" ref="dept3"/>

<property name="salary" value="65000"/>

<property name="permanent" value="true"/>

<property name="dateOfBirth" value="1991-02-20"/>

<property name="skillList">

<list>

<ref bean="skill1"/>

<ref bean="skill3"/>

</list>

</property>

</bean>

<!-- Employee 4 -->

<bean id="emp4" class="com.cognizant.springlearn.Employee">

<property name="id" value="104"/>

<property name="name" value="Bob Williams"/>

<property name="department" ref="dept1"/>

<property name="salary" value="70000"/>

<property name="permanent" value="false"/>

<property name="dateOfBirth" value="1985-12-12"/>

<property name="skillList">

<list>

<ref bean="skill2"/>

<ref bean="skill3"/>

</list>

</property>

</bean>

<!-- Employee List -->

<bean id="employeeList" class="java.util.ArrayList">

<constructor-arg>

<list>

<ref bean="emp1"/>

<ref bean="emp2"/>

<ref bean="emp3"/>

<ref bean="emp4"/>

</list>

</constructor-arg>

</bean>

</beans>

**EmployeeDao.java**

package com.cognizant.springlearn.dao;

import com.cognizant.springlearn.Employee;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import org.springframework.stereotype.Repository;

import java.util.ArrayList;

import java.util.List;

@Repository

public class EmployeeDao {

private static ArrayList<Employee> EMPLOYEE\_LIST;

public EmployeeDao() {

ApplicationContext context = new ClassPathXmlApplicationContext("employee.xml");

EMPLOYEE\_LIST = (ArrayList<Employee>) context.getBean("employeeList");

}

public List<Employee> getAllEmployees() {

return EMPLOYEE\_LIST;

}

}

**CREATE REST SERVICE TO GETS ALL EMPLOYEES**

**EmployeeService.java**

package com.cognizant.springlearn.service;

import com.cognizant.springlearn.Employee;

import com.cognizant.springlearn.dao.EmployeeDao;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Service;

import org.springframework.transaction.annotation.Transactional;

import java.util.List;

@Service // Change from @Component to @Service

public class EmployeeService {

@Autowired

private EmployeeDao employeeDao;

@Transactional

public List<Employee> getAllEmployees() {

return employeeDao.getAllEmployees();

}

}

**EmployeeController.java**

package com.cognizant.springlearn.controller;

import com.cognizant.springlearn.Employee;

import com.cognizant.springlearn.service.EmployeeService;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.web.bind.annotation.\*;

import java.util.List;

@RestController

public class EmployeeController {

@Autowired

private EmployeeService employeeService;

@GetMapping("/employees")

public List<Employee> getAllEmployees() {

return employeeService.getAllEmployees();

}

}

**OUTPUT**

[

{

"id": "101",

"name": "John Doe",

"salary": 50000,

"permanent": true,

"dateOfBirth": "1990-05-15",

"department": {

"id": 1,

"name": "HR"

},

"skillList": [

{"id": 1, "name": "Java"},

{"id": 2, "name": "MySQL"}

]

},

...

]

**CREATE REST SERVICE FOR DEPARTMENT**

**Employee.xml**

<bean id="departmentList" class="java.util.ArrayList">

<constructor-arg>

<list>

<ref bean="dept1"/>

<ref bean="dept2"/>

<ref bean="dept3"/>

</list>

</constructor-arg>

</bean>

**DepartmentDao.java**

package com.cognizant.springlearn.dao;

import com.cognizant.springlearn.Department;

import org.springframework.context.ApplicationContext;

import org.springframework.context.support.ClassPathXmlApplicationContext;

import org.springframework.stereotype.Repository;

import java.util.ArrayList;

import java.util.List;

@Repository

public class DepartmentDao {

private static ArrayList<Department> DEPARTMENT\_LIST;

public DepartmentDao() {

ApplicationContext context = new ClassPathXmlApplicationContext("employee.xml");

DEPARTMENT\_LIST = (ArrayList<Department>) context.getBean("departmentList");

}

public List<Department> getAllDepartments() {

return DEPARTMENT\_LIST;

}

}

**DepartmentService.java**

package com.cognizant.springlearn.service;

import com.cognizant.springlearn.Department;

import com.cognizant.springlearn.dao.DepartmentDao;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.stereotype.Service;

import org.springframework.transaction.annotation.Transactional;

import java.util.List;

@Service

public class DepartmentService {

@Autowired

private DepartmentDao departmentDao;

@Transactional

public List<Department> getAllDepartments() {

return departmentDao.getAllDepartments();

}

}

**DepartmentController.java**

package com.cognizant.springlearn.controller;

import com.cognizant.springlearn.Department;

import com.cognizant.springlearn.service.DepartmentService;

import org.slf4j.Logger;

import org.slf4j.LoggerFactory;

import org.springframework.beans.factory.annotation.Autowired;

import org.springframework.web.bind.annotation.\*;

import java.util.List;

@RestController

public class DepartmentController {

private static final Logger LOGGER = LoggerFactory.getLogger(DepartmentController.class);

@Autowired

private DepartmentService departmentService;

@GetMapping("/departments")

public List<Department> getAllDepartments() {

LOGGER.info("START - getAllDepartments");

List<Department> departments = departmentService.getAllDepartments();

LOGGER.info("END - getAllDepartments");

return departments;

}

}

**OUTPUT**

[

{ "id": 1, "name": "HR" },

{ "id": 2, "name": "Finance" },

{ "id": 3, "name": "Technology" }

]