**Exercise 7: Employee Management System - Enabling Entity Auditing**

**Business Scenario:**

Implement auditing to track the creation and modification of employees and departments.

**Instructions:**

1. **Entity Auditing:**
   * Enable auditing in your application by configuring auditing properties.
   * Use annotations like **@CreatedBy, @LastModifiedBy, @CreatedDate**, and **@LastModifiedDate**.

**AuditorAwareImpl.java 🡪**

package com.code.employee.audit;

import java.util.Optional;

import org.springframework.data.domain.AuditorAware;

public class AuditorAwareImpl implements AuditorAware<String>{

    @Override

    public Optional<String> getCurrentAuditor(){

        return Optional.of("Utsav"); // just for testing

    }

}

**Employee.java 🡪**

package com.code.employee.entity;

import java.time.LocalDateTime;

import org.springframework.data.annotation.CreatedBy;

import org.springframework.data.annotation.CreatedDate;

import org.springframework.data.annotation.LastModifiedBy;

import org.springframework.data.annotation.LastModifiedDate;

import org.springframework.data.jpa.domain.support.AuditingEntityListener;

import jakarta.persistence.\*;

import lombok.Getter;

import lombok.Setter;

@Entity

@Table

@Getter

@Setter

@NamedQueries({

    @NamedQuery(

        name = "Employee.findByEmail",

        query = "SELECT e FROM Employee e WHERE e.email = :email"

    ),

    @NamedQuery(

            name = "Employee.findByDepartmentId",

            query = "SELECT e FROM Employee e WHERE e.department = :department"

    )

})

@EntityListeners(AuditingEntityListener.class)

public class Employee {

    @Id

    @GeneratedValue(strategy = GenerationType.AUTO)

    private int id;

    @Column(name="name", nullable=false)

    private String name;

    @Column(name="email", nullable=false, unique=true)

    private String email;

    //relationship with department one employee can work in one department

    //under one department there will be many employees

    @ManyToOne

    //creating a foreign key department id ref to the pk of department

    @JoinColumn(name = "department\_id", nullable = false)

    private Department department;

    @CreatedDate

    @Column(nullable = false, updatable = false)

    private LocalDateTime createdDate;

    @LastModifiedDate

    @Column(nullable = false)

    private LocalDateTime lastModifiedDate;

    @CreatedBy

    @Column(nullable = false)

    private String createdBy;

    @LastModifiedBy

    @Column(nullable = false)

    private String lastModifiedBy;

    public Employee() {

        this.id = 0;

        this.name = null;

        this.email = null;

    }

}

**EmployeeManagementSystemApplication.java 🡪**

package com.code.employee;

import org.springframework.boot.SpringApplication;

import org.springframework.boot.autoconfigure.SpringBootApplication;

import org.springframework.context.annotation.Bean;

import org.springframework.data.domain.AuditorAware;

import org.springframework.data.jpa.repository.config.EnableJpaAuditing;

import com.code.employee.audit.AuditorAwareImpl;

@SpringBootApplication

// enable the Jpa Auditing

@EnableJpaAuditing(auditorAwareRef = "auditorAware")

public class EmployeeManagementSystemApplication {

    // create a bean of AuditorAware

    @Bean

    public AuditorAware<String>auditorAware(){

        return new AuditorAwareImpl();

    }

    public static void main(String[] args) {

        SpringApplication.run(EmployeeManagementSystemApplication.class, args);

    }

}