G.Mahendra

23KQ5A4704(IOT)

(Mini project)

Abstract

The Employee Management System (EMS) is a comprehensive software application designed to manage employee information within an organization effectively. It automates various HR functions, from hiring and onboarding to performance tracking and payroll management. The EMS aims to improve operational efficiency, ensure data accuracy, and provide robust reporting capabilities to support strategic decision-making

Technologies Used

Java SE (Standard Edition): Core language for developing the application.

Spring Framework: For dependency injection, transaction management, and building RESTful web services.

Hibernate: For ORM (Object-Relational Mapping) to manage database operations.

MySQL: Database for storing employee information.

Apache Tomcat: Web server for deploying the application.

Maven: For project management and build automation.

Gathering:

**Employee information Managaement:

Add, update, and delete employee records.

View detailed employee profiles.

**Attendance and Leave Management:

Record daily attendance.

Apply for and approve leaves.

** Payroll Management:

Calculate and manage employee salaries.

Generate pay slips and manage deductions.

**Performance Management:

Manage access control to various features

The project

```
//Appilication.java
package edu.pace.obs1;

import org.springframework.boot.SpringApplication;
import org.springframework.boot.autoconfigure.SpringBootApplication;

@SpringBootApplication
public class Obs1Application {

	public static void main(String[] args) {
		SpringApplication.run(Obs1Application.class, args);
	}

}
```

//controller Package

```
package edu.pace.obs1.controller;

import org.springframework.beans.factory.annotation.Autowired;
import org.springframework.stereotype.Controller;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.GetMapping;
import org.springframework.web.bind.annotation.ModelAttribute;
import org.springframework.web.bind.annotation.PathVariable;
import org.springframework.web.bind.annotation.PostMapping;

import edu.pace.obs1.model.Employee;
import edu.pace.obs1.services.EmployeeService;

@Controller
public class EmployeeController {

  @Autowired
  private EmployeeService employeeService;

  // display list of employees
  @GetMapping("/")
  public String viewHomePage(Model model) {
    model.addAttribute("listEmployees", employeeService.getAllEmployees());
    return "index";
  }
```

```
@GetMapping("/showNewEmployeeForm")
public String showNewEmployeeForm(Model model) {
   // create model attribute to bind form data
   Employee employee = new Employee();
   model.addAttribute("employee", employee);
   return "new_employee";
}

@PostMapping("/saveEmployee")
public String saveEmployee(@ModelAttribute("employee") Employee employee) {
   // save employee to database
   employeeService.saveEmployee(employee);
   return "redirect:/";
}

@GetMapping("/showFormForUpdate/{id}")
public String showFormForUpdate(@PathVariable(value = "id") long id, Model model) {

   // get employee from the service
   Employee employee = employeeService.getEmployeeById(id);

   // set employee as a model attribute to pre-populate the form
   model.addAttribute("employee", employee);
   return "update_employee";
}

@GetMapping("/deleteEmployee/{id}")
public String deleteEmployee(@PathVariable(value = "id") long id) {
        // call delete employee method
        this.employeeService.deleteEmployeeById(id);
        return "redirect:/";
    }
}
```

//Moddel Package

```
package edu.pace.obs1.model;

import jakarta.persistence.*;
@Entity
@Table(name = "emp")
public class Employee {

    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    private long id;

    @Column(name = "first_name")
    private String firstName;

    @Column(name = "last_name")
    private String lastName;
    @Column(name = "email")
    private String email;
    public long getId() {
        return id;
    }
    public void setId(long id) {
        this.id = id;
    }
    public String getFirstName() {
        return firstName;
    }
    public void setFirstName(String firstName) {
        this.firstName = firstName;
    }
    public String getLastName() {
        return lastName;
    }
    public void setLastName(String lastName) {
        this.lastName = lastName;
    }
    public String getEmail() {
        return email;
    }
    public void setEmail(String email) {
        this.email = email;
    }
}
```

//Repository Package

```
package edu.pace.obs1.repository;

import org.springframework.data.jpa.repository.
JpaRepository;
import org.springframework.stereotype.Repository;

import edu.pace.obs1.model.Employee;


@Repository
public interface EmployeeRepository
extends JpaRepository<Employee, Long>{

}
```

//services package

```
package edu.pace.obs1.services;

import java.util.List;
import edu.pace.obs1.model.Employee;

public interface EmployeeService {
    List <Employee> getAllEmployees();
    void saveEmployee(Employee employee);
    Employee getEmployeeById(long id);
    void deleteEmployeeById(long id);
}
```

```
package edu.pace.obs1.services;
import java.util.List;
import java.util.Optional;
```

//services Package

```
import org.springframework.beans.factory.
annotation.
@Autowired;
import org.springframework.stereotype.Service;
import edu.pace.obs1.model.Employee;
import edu.pace.obs1.repository.EmployeeRepository;
@Service
public class EmployeeServiceImpl implements EmployeeService {
    @Autowired
    private EmployeeRepository employeeRepository;
    @Override
    public List < Employee > getAllEmployees() {
        return employeeRepository.findAll();
    }
    @Override
    public void saveEmployee(Employee employee) {
        this.employeeRepository.save(employee);
    }
    @Override
    public Employee getEmployeeById(long id) {
        Optional < Employee > optional =
                         employeeRepository.findById(id);
        Employee employee = null;
        if (optional.isPresent()) {
            employee = optional.get();
        } else {
throw new RuntimeException(" Employee not found for id :: " + id);
        }
        return employee;
    }
    @Override
    public void deleteEmployeeById(long id) {
        this.employeeRepository.deleteById(id);
    }
}
```

Index.html

```
<!DOCTYPE html>
```

```
<html lang="en" xmlns:th="http://www.thymeleaf.org">


<head>
  <meta charset="ISO-8859-1">
  <title>Employee Management System</title>


  <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css"
integrity="sha384-
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous">


</head>
<body >


  <div class="container my-2">
    <hr><hr> <h1 align ="center" ><font face="algerian"size="8" color="red">Employees
Data</font></h1><hr><hr>


      <a th:href="@{/showNewEmployeeForm}" class="btn btn-primary btn-sm mb-3"> Add
Employee </a>


      <table border="1" class="table table-striped table-responsive-md">
        <thead>
          <tr>
            <th><u>Employee First Name</th>
            <th><u>Employee Last Name</th>
            <th><u>Employee Email</th>
            <th> Actions </th>
          </tr>
        </thead>
```

```
          <tbody>
            <tr th:each="employee : ${listEmployees}">
              <td th:text="${employee.firstName}"></td>
              <td th:text="${employee.lastName}"></td>
              <td th:text="${employee.email}"></td>
              <td> <a th:href="@{/showFormForUpdate/{id}(id=${employee.id})}" class="btn
btn-primary">Update</a>
                <a th:href="@{/deleteEmployee/{id}(id=${employee.id})}" class="btn btn-
danger">Delete</a>
              </td>
            </tr>
          </tbody>
        </table>
  </div>
</body>

</html>
```

New.html

```
<!DOCTYPE html>
<html lang="en" xmlns:th="http://www.thymeleaf.org">

<head>
  <meta charset="ISO-8859-1">
  <title>Employee Management System</title>
  <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css"
integrity="sha384-
```

```
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous">

</head>


<body >

   <div class="container">

       <h1 align="center" ><font face="stensil"><u>Employee Management
System</font></h1>

       <hr><hr>

       <h2>Save Employee</h2>


       <form action="#" th:action="@{/saveEmployee}" th:object="${employee}"
method="POST">

           <input type="text" th:field="*{firstName}" placeholder="Employee First Name"
class="form-control mb-4 col-4">


           <input type="text" th:field="*{lastName}" placeholder="Employee Last Name"
class="form-control mb-4 col-4">


           <input type="text" th:field="*{email}" placeholder="Employee Email" class="form-
control mb-4 col-4">


           <button type="submit" class="btn btn-info col-2"> Save Employee</button>

       </form>


       <hr><hr>


       <a th:href="@{/}"> Back to Employee List</a>

   </div>

</body>
```

```
</html>
```

Update.html

```
<!DOCTYPE html>
<html lang="en" xmlns:th="http://www.thymeleaf.org">

<head>
   <meta charset="ISO-8859-1">
   <title>Employee Management System</title>

   <link rel="stylesheet"
href="https://stackpath.bootstrapcdn.com/bootstrap/4.1.3/css/bootstrap.min.css"
integrity="sha384-
MCw98/SFnGE8fJT3GXwEOngsV7Zt27NXFoaoApmYm81iuXoPkFOJwJ8ERdknLPMO"
crossorigin="anonymous">
</head>

<body>
   <div class="container">
      <h1>Employee Management System</h1>
      <hr>
      <h2>Update Employee</h2>

      <form action="#" th:action="@{/saveEmployee}" th:object="${employee}"
method="POST">

         <!-- Add hidden form field to handle update -->
         <input type="hidden" th:field="*{id}" />
```

```
            <input type="text" th:field="*{firstName}" class="form-control mb-4 col-4">

            <input type="text" th:field="*{lastName}" class="form-control mb-4 col-4">

            <input type="text" th:field="*{email}" class="form-control mb-4 col-4">

            <button type="submit" class="btn btn-info col-2"> Update Employee</button>
        </form>

        <hr>

        <a th:href="@{/}"> Back to Employee List</a>
    </div>
</body>

</html>
```

Application.properties

```
spring.application.name=obs1
spring.datasource.url=jdbc:mysql://localhost:3306/pace?useSSL=false&serverTimezone=UT
C&useLegacyDatetimeCode=false
spring.datasource.username=root
spring.datasource.password=root
```

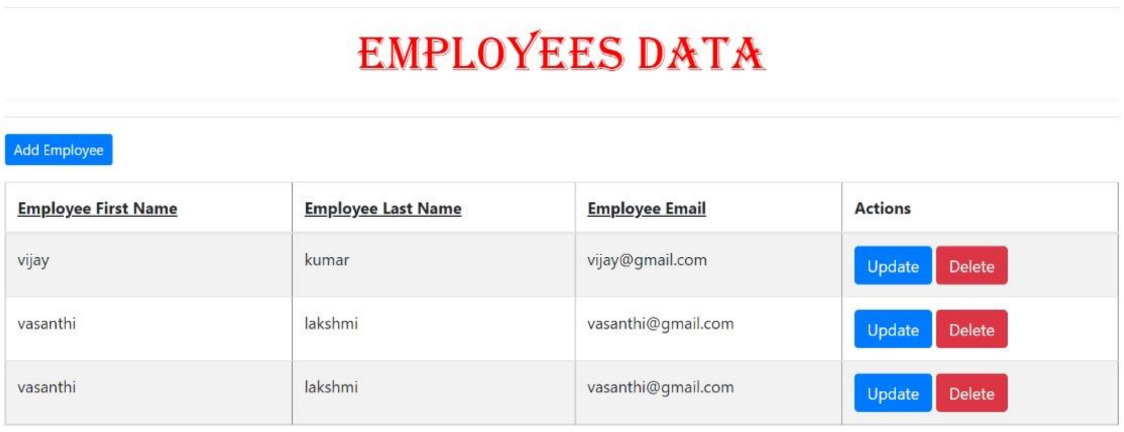
```
server.port=904

# Hibernate

# The SQL dialect makes Hibernate generate better SQL for the chosen database
spring.jpa.properties.hibernate.dialect = org.hibernate.dialect.MySQLDialect

# Hibernate ddl auto (create, create-drop, validate, update)
spring.jpa.hibernate.ddl-auto = update

logging.level.org.hibernate.SQL=DEBUG
logging.level.org.hibernate.type=TRACE
```

OUTPUT

```
spring.application.name=obs1
spring.datasource.url=jdbc:mysql://localhost:3306/pace?useSSL=false&serverT
imezone=UTC&useLegacyDatetimeCode=false
spring.datasource.username=root
spring.datasource.password=root

server.port=904
# Hibernate

# The SQL dialect makes Hibernate generate better SQL for the chosen
database
```

```
spring.jpa.properties.hibernate.dialect = org.hibernate.dialect.MySQLDialect

# Hibernate ddl auto (create, create-drop, validate, update)
spring.jpa.hibernate.ddl-auto = update

logging.level.org.hibernate.SQL=DEBUG
logging.level.org.hibernate.type=TRACE
```

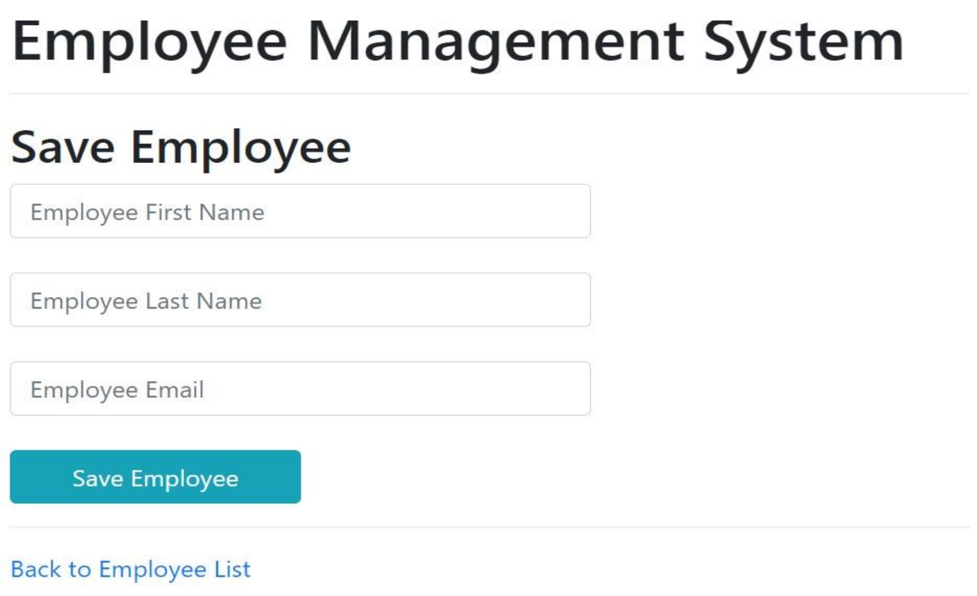
<u>OUTPUT</u>



EMPLOYEES DATA

Add Employee

Employee First Name	Employee Last Name	Employee Email	Actions
vijay	kumar	vijay@gmail.com	Update Delete
vasanthi	lakshmi	vasanthi@gmail.com	Update Delete
vasanthi	lakshmi	vasanthi@gmail.com	Update Delete



Employee Management System

Save Employee