

SpringBoot

- SpringMVC using thymleaf
- Employee Relationship Management(ERM)
- CURD Operations

SpringBoot starters

- Spring-boot-starter-web
- spring-boot-starter-data-jpa
- spring-boot-starter-thymeleaf

pom.xml

```
<dependencies>
    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-web</artifactId>
    </dependency>

    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-test</artifactId>
        <scope>test</scope>
    </dependency>

    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-devtools</artifactId>
    </dependency>

    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-data-jpa</artifactId>
    </dependency>

    <dependency>
        <groupId>com.mysql</groupId>
        <artifactId>mysql-connector-j</artifactId>
        <scope>runtime</scope>
    </dependency>

    <dependency>
        <groupId>org.springframework.boot</groupId>
        <artifactId>spring-boot-starter-thymeleaf</artifactId>
    </dependency>
</dependencies>
```

Control flow

=====

Controller -----SpringMVC-----> Service -----> DAO -----
SpringDataJPA-----> Database

request : http://localhost:9999/employees/

```

+++++++
EmployeeController.java
+++++++
@RequestMapping("/")
public String viewHomePage(Model model) {
    return "redirect:/employees/list";
}

*****Display by executing the controller binded to "/list"
*****.

@GetMapping("/list")
public String listEmployees(Model model) {
    List<Employee> employees = service.findAllEmployees();
    model.addAttribute("employees", employees);
    return "/employees/list-employees";
}
*****Display by executing the html(thymeleaf-template) list-employees.html
*****.

+++++++
list-employees.html
+++++++
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="utf-8"/>
<title>Product Manager</title>
</head>
<body>
<div align="center">
    <h1>Employee List</h1>
    <a href="/employees/showFormForAdd">Create New Employee</a>
    <br/><br/>
    <table border="1" cellpadding="10">
        <thead>
            <tr>
                <th>Employee ID</th>
                <th>First Name</th>
                <th>Last Brand</th>
                <th>Email</th>
                <th>Address</th>
                <th>Actions</th>
            </tr>
        </thead>
        <tbody>
            <tr th:each="employee : ${employees}">
                <td th:text="${employee.id}">Employee ID</td>
                <td th:text="${employee.firstName}">First Name</td>
                <td th:text="${employee.lastName}">Last Name</td>
                <td th:text="${employee.email}">Email</td>
                <td th:text="${employee.address}">Address</td>
                <td>
                    <a th:href="@{/employees/showFormForUpdate(eid=${employee.id})}">UPDATE</a>
                    <a th:href="@{/employees/delete(eid=${employee.id})}">DELETE</a>
                </td>
            </tr>
        </tbody>
    </table>
</div>

```

```

        </tbody>
    </table>
</div>
</body>
</html>

```

*****Upon clicking Create New Employee(/employees/showFormForAdd)*****

```

+++++++
EmployeeController.java
+++++++

```

```

@GetMapping("/showFormForAdd")
public String showFormForAdd(Model model) {
    model.addAttribute("employee", new Employee());
    return "/employees/employee-form";
}
=> It display employee-form.html(thymeleaf-template)

```

```

+++++++
employee-form.html
+++++++

```

```

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="utf-8" />
<title>Create New Employee</title>
</head>
<body>
    <div align="center">
        <h1>Create New Employee</h1>
        <br />
        <form action="#" th:action="@{/employees/save}" th:object="${employee}"
              method="post">

            <table border="0" cellpadding="10">
                <tr>
                    <td>Employee First Name:</td>
                    <td><input type="text" th:field="*{firstName}" /></td>
                </tr>
                <tr>
                    <td>Employee Last Name:</td>
                    <td><input type="text" th:field="*{lastName}" /></td>
                </tr>
                <tr>
                    <td>Email:</td>
                    <td><input type="text" th:field="*{email}" /></td>
                </tr>
                <tr>
                    <td>Address:</td>
                    <td><input type="text" th:field="*{address}" /></td>
                </tr>
                <tr>
                    <td colspan="2"><button type="submit">Save</button> </td>
                </tr>
            </table>
        </form>
    </div>

```

```
</body>
```

```
</html>
```

=> Upon entering the details, if the user clicks on Save button then (/employees/save) controller will be executed.

```
+++++
```

```
EmployeeController.java
```

```
+++++
```

```
@PostMapping("/save")
```

```
public String saveEmployee(@ModelAttribute Employee employee) {  
    service.saveEmployee(employee);  
    return "redirect:/employees/list";  
}
```

=> It gets redirected to "/employee/list".

```
@GetMapping("/list")
```

```
public String listEmployees(Model model) {  
    List<Employee> employees = service.findAllEmployees();  
    model.addAttribute("employees", employees);  
    return "/employees/list-employees";  
}
```

*****Display by executing the html(thymeleaf-template) list-employees.html
*****.

```
+++++
```

```
list-employees.html
```

```
+++++
```

```
<!DOCTYPE html>
```

```
<html xmlns="http://www.w3.org/1999/xhtml"
```

```
    xmlns:th="http://www.thymeleaf.org">
```

```
<head>
```

```
<meta charset="utf-8"/>
```

```
<title>Product Manager</title>
```

```
</head>
```

```
<body>
```

```
<div align="center">
```

```
    <h1>Employee List</h1>
```

```
    <a href="/employees/showFormForAdd">Create New Employee</a>
```

```
    <br/><br/>
```

```
    <table border="1" cellpadding="10">
```

```
        <thead>
```

```
            <tr>
```

```
                <th>Employee ID</th>
```

```
                <th>First Name</th>
```

```
                <th>Last Brand</th>
```

```
                <th>Email</th>
```

```
                <th>Address</th>
```

```
                <th>Actions</th>
```

```
            </tr>
```

```
        </thead>
```

```
        <tbody>
```

```
            <tr th:each="employee : ${employees}">
```

```
                <td th:text="${employee.eid}">Employee ID</td>
```

```
                <td th:text="${employee.firstName}">First Name</td>
```

```
                <td th:text="${employee.lastName}">Last Name</td>
```

```
                <td th:text="${employee.email}">Email</td>
```

```
                <td th:text="${employee.address}">Address</td>
```

```

        <td>
            <a th:href="@{/employees/showFormForUpdate(eid=${employee.eid})}">UPDATE</a>
            <a th:href="@{/employees/delete(eid=${employee.eid})}">DELETE</a>
        </td>
    </tr>
</tbody>
</table>
</div>
</body>
</html>

```


If the user clicks on update link then

```

+++++++
EmployeeController.java
+++++++
@RequestMapping("/showFormForUpdate")
public String showFormForUpdate(@RequestParam("eid") Integer id, Model model) {
    Employee employee = service.findEmployeeById(id);
    model.addAttribute("employee", employee);
    return "/employees/edit-employee";
}

```

=> Control now navigates to "/edit-employee".

```

+++++++
edit-employee.html
+++++++
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="utf-8" />
<title>Edit Product</title>
</head>
<body>
    <div align="center">
        <h1>Edit Employee</h1>
        <br />
        <form action="#" th:action="@{/employees/save}" th:object="${employee}"
            method="post">

            <table border="0" cellpadding="10">
                <tr>
                    <td>Employee ID:</td>
                    <td>
                        <input type="text" th:field="*{eid}" readonly="readonly" />
                    </td>
                </tr>
                <tr>
                    <td>First Name:</td>
                    <td>
                        <input type="text" th:field="*{firstName}" />
                    </td>
                </tr>
            </table>

```

```

        <td>Last Name:</td>
        <td><input type="text" th:field="*{lastName}" /></td>
    </tr>
    <tr>
        <td>Email:</td>
        <td><input type="text" th:field="*{email}" /></td>
    </tr>
    <tr>
        <td>Address:</td>
        <td><input type="text" th:field="*{address}" /></td>
    </tr>
    <tr>
        <td colspan="2"><button type="submit">Save</button> </td>
    </tr>
</table>
</form>
</div>
</body>
</html>

```

=> upon entering the new values, if the user clicks on save button then the new values gets updated.

=> To display the page the controller will use "/employees/save".

```

+++++++
EmployeeController.java
+++++++

```

```

@PostMapping("/save")
public String saveEmployee(@ModelAttribute Employee employee) {
    service.saveEmployee(employee);
    return "redirect:/employees/list";
}

```

```

@GetMapping("/list")
public String listEmployees(Model model) {
    List<Employee> employees = service.findAllEmployees();
    model.addAttribute("employees", employees);
    return "/employees/list-employees";
}

```

*****Display by executing the html(thymeleaf-template) list-employees.html (now with new values)*****.

```

+++++++
list-employees.html
+++++++

```

```

<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml"
      xmlns:th="http://www.thymeleaf.org">
<head>
<meta charset="utf-8"/>
<title>Product Manager</title>
</head>
<body>
<div align="center">
    <h1>Employee List</h1>
    <a href="/employees/showFormForAdd">Create New Employee</a>
    <br/><br/>
    <table border="1" cellpadding="10">

```

```

        <thead>
            <tr>
                <th>Employee ID</th>
                <th>First Name</th>
                <th>Last Brand</th>
                <th>Email</th>
                <th>Address</th>
                <th>Actions</th>
            </tr>
        </thead>
        <tbody>
            <tr th:each="employee : ${employees}">
                <td th:text="${employee.eid}">Employee ID</td>
                <td th:text="${employee.firstName}">First Name</td>
                <td th:text="${employee.lastName}">Last Name</td>
                <td th:text="${employee.email}">Email</td>
                <td th:text="${employee.address}">Address</td>
                <td>
                    <a th:href="@{/employees/showFormForUpdate(eid=${employee.eid})}">UPDATE</a>
                    <a th:href="@{/employees/delete(eid=${employee.eid})}">DELETE</a>
                </td>
            </tr>
        </tbody>
    </table>
</div>
</body>
</html>

```


=> If the user clicks on delete button then

EmployeeController.java

@RequestMapping("/delete")

public String deleteEmployee(@RequestParam("eid") Integer id) {

service.deleteById(id);

return "redirect:/employees/list";

}

*****Display by executing the html(thymeleaf-template) list-employees.html
(now with new values)*****.

list-employees.html

<!DOCTYPE html>

<html xmlns="http://www.w3.org/1999/xhtml">

xmlns:th="http://www.thymeleaf.org">

<head>

<meta charset="utf-8"/>

<title>Product Manager</title>

</head>

<body>

<div align="center">

<h1>Employee List</h1>

Create New Employee

<table border="1" cellpadding="10">

```

<thead>
  <tr>
    <th>Employee ID</th>
    <th>First Name</th>
    <th>Last Brand</th>
    <th>Email</th>
    <th>Address</th>
    <th>Actions</th>
  </tr>
</thead>
<tbody>
  <tr th:each="employee : ${employees}">
    <td th:text="${employee.id}">Employee ID</td>
    <td th:text="${employee.firstName}">First Name</td>
    <td th:text="${employee.lastName}">Last Name</td>
    <td th:text="${employee.email}">Email</td>
    <td th:text="${employee.address}">Address</td>
    <td>
      <a th:href="@{/employees/showFormForUpdate(eid=${employee.id})}">UPDATE</a>
      <a th:href="@{/employees/delete(eid=${employee.id})}">DELETE</a>
    </td>
  </tr>
</tbody>
</table>
</div>
</body>
</html>

```

Note: It is also possible to send the values through "PathVariable".

```

+++++
list-employees.html
+++++
<td>
  <a th:href="@{/employees/showFormForUpdate/{eid}}(eid=${employee.id})">UPDATE</a>
  <a th:href="@{/employees/delete/{eid}}(eid=${employee.id})">DELETE</a>
</td>

+++++
EmployeeController.java
+++++
@RequestMapping("/showFormForUpdate/{eid}")
public String showFormForUpdate(@PathVariable("eid") Integer id, Model model) {
    Employee employee = service.findEmployeeById(id);
    model.addAttribute("employee", employee);
    return "/employees/edit-employee";
}

@RequestMapping("/delete/{eid}")
public String deleteEmployee(@PathVariable("eid") Integer id) {
    service.deleteById(id);
    return "redirect:/employees/list";
}

```


