

TUTORIAL 9 – DEVELOP JAVA WEB WITH SPRING BOOT (3)

❖ Content:

- Setup entity relationship for data filter
- Implement extra features: Search + Sort

❖ Instructions:

1. Import the previous Spring Boot project to continue coding

File ⇒ **Open** ⇒ Select the project folder

2. Add new entity (*Company*) then add a proper attribute as relationship between entities (*Employee – Company : ManyToOne*)

```
@Entity
public class Company {
    @Id
    @GeneratedValue(strategy = GenerationType.IDENTITY)
    @Column(name = "id", nullable = false)
    private Long id;
    @Size(min = 3, max = 30)
    private String name;
    @NotEmpty
    private String image;
    @Length(min = 5, max = 50)
    private String address;
```

Figure 1 - Company.java

```
@ManyToOne
private Company company;
```

Figure 2 - Employee.java

3. Add the *Repository* for *Company* (Refers to Tutorial 7)
4. Add the *Controller* for *Company* (Refers to Tutorial 7)

```
@Controller
@RequestMapping("/company")
public class CompanyController {
    @Autowired
    CompanyRepository companyRepository;
    @Autowired
    EmployeeRepository employeeRepository;
}
```

Figure 3 - CompanyController.java (1)

```
@RequestMapping(value = "/{id}")
public String getCompanyById(
    @PathVariable(value = "id") Long id, Model model) {
    Company company = companyRepository.findById(id);
    List<Employee> employees = employeeRepository.findAll();
    model.addAttribute("employees", employees);
    model.addAttribute("company", company);
    return "companyDetail";
}
```

Figure 4 - CompanyController.java (2)

5. Update *Controller* for *Employee* (update links & add *CompanyRepository*)

```
@RequestMapping("/employee")
public class EmployeeController {
    @Autowired
    EmployeeRepository employeeRepository;
    @Autowired
    CompanyRepository companyRepository;
}
```

Figure 5 - EmployeeController.java (1)

```

@RequestMapping(value = "/add")
public String addEmployee (Model model) {
    Employee employee = new Employee();
    List<Company> companies = companyRepository.findAll();
    model.addAttribute( attributeName: "companies", companies);
    model.addAttribute( attributeName: "employee", employee);
    return "employeeAdd";
}

```

Figure 6 - EmployeeController.java (2)

6. Create View for Company which extends web layout (Refers to Tutorial 7&8)

```

<h4 th:each="employee: ${employees}">
    <a class="text-decoration-none" th:href="'/employee/' + ${employee.id}"
        th:if="(${employee.company.getId()} == ${company.id})" th:text="${employee.name}" />
</h4>

```

Figure 7 - companyDetail.html

7. Update View for Employee

```

<fieldset class="form-group">
    <label>Company name </label>
    <select class="form-select" th:field="*{company}">
        <option th:each="comp : ${companies}" th:value="${comp.id}" th:text="${comp.name}" />
    </select>
</fieldset>

```

Figure 8 - employeeAdd.html

```

<h3 th:if="${employee.company != null}"
    th:text="'Company: ' + ${employee.company.name}" />

```

Figure 9 - employeeDetail.html

8. Update navigation link in web layout

```
<form class="container-fluid justify-content-start">
  <a class="btn btn-outline-danger me-3" th:href="/" th:text="'Home'" />
  <a class="btn btn-outline-success me-3" th:href="/employee/list" th:text="'Employee'" />
  <a class="btn btn-outline-success me-3" th:href="/company/list" th:text="'Company'" />
  <a class="btn btn-outline-info me-3" th:href="/logout" th:text="'Logout'" />
</form>
```

Figure 10 - _layout.html

9. Implement *Search* feature for *Employee*

```
public interface EmployeeRepository extends JpaRepository<Employee, Long> {
    List<Employee> findByNameContaining(String name);
}
```

Figure 11 – EmployeeRepository.java

```
@RequestMapping("/search")
public String searchEmployee(
    Model model,
    @RequestParam(value = "name") String name) {
    List<Employee> employees = employeeRepository.findByNameContaining(name);
    model.addAttribute("employees", employees);
    return "employeeList";
}
```

Figure 12 – EmployeeController.java (3)

```
<div class="mt-3 col-3">
  <form action="/employee/search">
    <input type="search" class="form-control" placeholder="Search by name" name="name" />
  </form>
</div>
```

Figure 13 - employeeList.html

10. Implement *Sort* feature for *Employee*

```
@RequestMapping("/{sort/asc}")
public String sortEmployeeAsc(Model model) {
    List<Employee> employees = employeeRepository.findAll(Sort.by(Sort.Direction.ASC, ...properties: "name"));
    model.addAttribute( attributeName: "employees", employees);
    return "employeeList";
}

@RequestMapping("/{sort/desc}")
public String sortEmployeeDesc(Model model) {
    List<Employee> employees = employeeRepository.findAll(Sort.by(Sort.Direction.DESC, ...properties: "name"));
    model.addAttribute( attributeName: "employees", employees);
    return "employeeList";
}
```

Figure 14 - EmployeeController.java (4)

```
<th>Name
    <a th:href="'/employee/sort/asc'" class="text-decoration-none">
        
    </a>
    <a th:href="'/employee/sort/desc'" class="text-decoration-none">
        
    </a>
</th>
```

Figure 15 - employeeList.java (2)

11. Test the web application

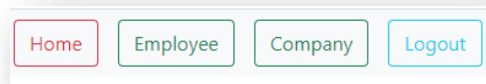



Figure 16 - Navigation bar (updated)

COMPANY LIST









ID	Name	Image	Update	Delete
1	FPT			
2	Viettel	 <small>Hãy nói theo cách của bạn</small>		
3	VNG			

Figure 17 - Company List

COMPANY DETAIL



FPT
Address: Phạm Văn Bạch
Employee List:
Mạnh Linh
Quốc Huy

Figure 18 - Company Detail

ADD EMPLOYEE

Employee name

Employee age

Employee image

Employee address

Company name

Viettel

FPT

Viettel

VNG

Figure 19 - Add Employee (updated)

EMPLOYEE LIST



Search by name















ID	Name  	Image	Company	Update	Delete
13	Mạnh Linh		FPT		
14	Tổ Uyên		Viettel		
15	Quốc Huy		FPT		
16	Hà My		VNG		

Figure 20 - Employee List (updated)

❖ TASKS:

- Complete the remained codes to run web application
- Implement search & sort features for *Company*
- Add new entity *Job* (*Employee – Job : ManyToMany*) then do similar with entity *Company*
- Implement the pagination feature (such as only 5 records per page)
- Compress the whole project and submit to FIT LMS with file name syntax:
FullName_StudentID_SE1_Tut9.zip