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www.earth.lk/community
2004-2024 (20th Anniversary)

Sprint-2 Plan

Employee Detail Management

1. Establishing Project Folder Architecture
2. Server App Initialization
3. **Sprint-2 Execution** [2(a), 2(b), 2(c), **2(d)(i)(ii)(iii)(iv)(v)**, 2(e), 2(f)]
4. Completing Sprint-1 Objectives

2(a) Employee Module - Analysis, Design & DB-Preparation

2(b) Employee View

2(c) Employee Search

2(d) Employee Insert

2(e) Employee Update

2(f) Employee Delete

2(d) Employee Insert

1. Folder and Project preparation with Backups
2. Prepare Supportive Data for the Insert Form
3. Prepare Regex(Regular Expression) Service for the Insert Form
4. Client App
 1. Define Form Controls with Required Validator
 2. Define HTML Form Controls with relevant Binding
 3. Test for Error Messages
 4. Test for Confirmation Message
 5. Service Implementation with POST Request
5. **Server-App with Error Message Testing**

1. **Implement Employee Controller → post() with JpaRepository.save()**
2. **Test for Error Messages**

Discuss the different Query Method available in Spring Data and Hibernate
Discuss why we use “Query by Property” method

Discuss the Types of Validation to avoid GIGO

Pattern Validation

Range Validation

Required/Optional

Cross Field Validation

System/Database/Existence Validation

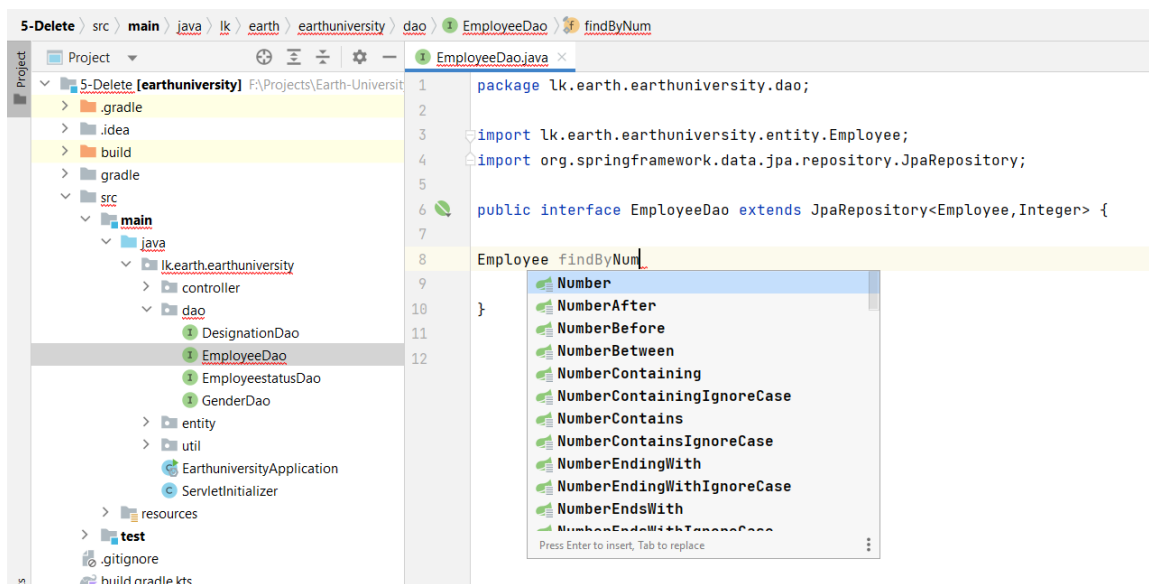
Important of Server Side Validation even though we have validated them at Client Side

Object Deserialization at Dispatcher Servlet, Jackson Library, Validation Framework & Annotation in Entity Classes
Data Type Conversion and Binding, Sanitizing Variables

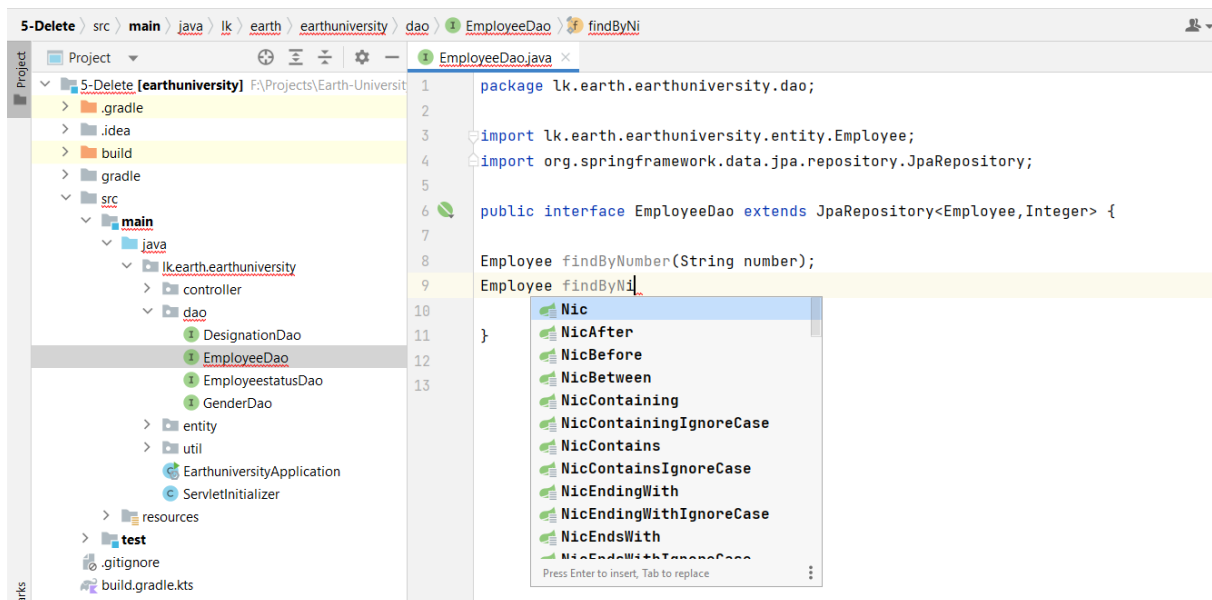
1. Implement Employee Controller → **post()** with **JpaRepository.save()**

(a) Implement “EmployeeDao.getAllByNumber()” and “EmployeeDao.getAllByNic()”

Type “Employee findByN[Ctrl+Space for Suggestion]” ← Use Suggestion to minimize Mistakes



```
1 package lk.earth.earthuniversity.dao;
2
3 import lk.earth.earthuniversity.entity.Employee;
4 import org.springframework.data.jpa.repository.JpaRepository;
5
6 public interface EmployeeDao extends JpaRepository<Employee,Integer> {
7
8     Employee findByNumber
9
10 }
11
12
```



```
1 package lk.earth.earthuniversity.dao;
2
3 import lk.earth.earthuniversity.entity.Employee;
4 import org.springframework.data.jpa.repository.JpaRepository;
5
6 public interface EmployeeDao extends JpaRepository<Employee,Integer> {
7
8     Employee findByNumber(String number);
9     Employee findByNic
10
11 }
12
13
```

```

1 package lk.earth.earthuniversity.dao;
2
3 import lk.earth.earthuniversity.entity.Employee;
4 import org.springframework.data.jpa.repository.JpaRepository;
5
6 public interface EmployeeDao extends JpaRepository<Employee,Integer> {
7
8     Employee findByNumber(String number);
9     Employee findByNic(String nic);
10
11 }
12

```

(b) Implement Controller

5-Delete src > main > java > lk > earth > earthuniversity > controller > EmployeeController

Project: 5-Delete [earthuniversity] F:\Projects\Earth-Un

EmployeeController.java

```

48
49 @PostMapping
50 @ResponseStatus(HttpStatus.CREATED)
51 public HashMap<String,String> add(@RequestBody Employee employee){
52
53     HashMap<String,String> response = new HashMap<>();
54     String errors="";
55
56     if(employeeDao.findByNumber(employee.getNumber())!=null)
57         errors = errors+"<br> Existing Number";
58     if(employeeDao.findByNic(employee.getNic())!=null)
59         errors = errors+"<br> Existing NIC";
60
61     if(errors=="")
62         employeeDao.save(employee);
63     else errors = "Server Validation Errors : <br> "+errors;
64
65     response.put("id",String.valueOf(employee.getId()));
66     response.put("url","/employees/"+employee.getId());
67     response.put("errors",errors);
68
69     return response;
70 }
71

```

2. Testing for Validation

If you are testing the same data exists in the Database, better to delete that record and re-evaluate.

MySQL Workbench

Local instance MySQL80

File Edit View Query Database Server Tools Scripting Help

Navigator

SCHEMAS

Filter objects

earth1

earthuniversity

Tables

designation

employee

employeeestatus

gender

module

privilege

role

user

userrole

userstatus

Views

Stored Procedures

Functions

entitytest

Administration Schemas

Query 1 employee

Limit to 1000 rows

1 • SELECT * FROM earthuniversity.employee;

Result Grid

id	number	fullname	callingname	photo	gender	dobirth	nic	address	mobile	land	doassignment	designation_id	employeeestatus_j	description
19	2201	Ashani Pathum	Ashani	NULL	1	2001-01-01	NULL	Dabulla	0779666666	NULL	2022-01-01	1	1	BIT UG
20	2202	Dilesha Ru...	Rukmal	NULL	1	2022-01-01	NULL	Kagalle	0769666666	NULL	2022-01-01	1	1	BIT UG
21	2203	Thahir Imran	Imran	NULL	1	2022-11-01	NULL	Waththala	0719666666	NULL	2022-11-01	1	1	BIT UG
22	2301	Lakshan Ru...	Lakshan	NULL	1	2023-01-01	NULL	Kirindiwala	0729666666	NULL	2023-01-01	1	1	BIT UG
23	2302	Arshad Aha...	Arshad	NULL	1	2023-01-01	NULL	Galle	0759666666	NULL	2023-01-01	1	1	BIT/BSC UG
24	2303	Imasha Gau...	Imasha	NULL	1	2023-01-01	NULL	Galle	0789666666	NULL	2023-01-01	1	1	BIT UG/TTC
25	2304	Imasha Gau...	Imasha	NULL	1	2023-01-01	NULL	Galle	0789666666	NULL	2023-01-01	1	1	BIT UG/TTC

Open Value in Editor

Set Field to NULL

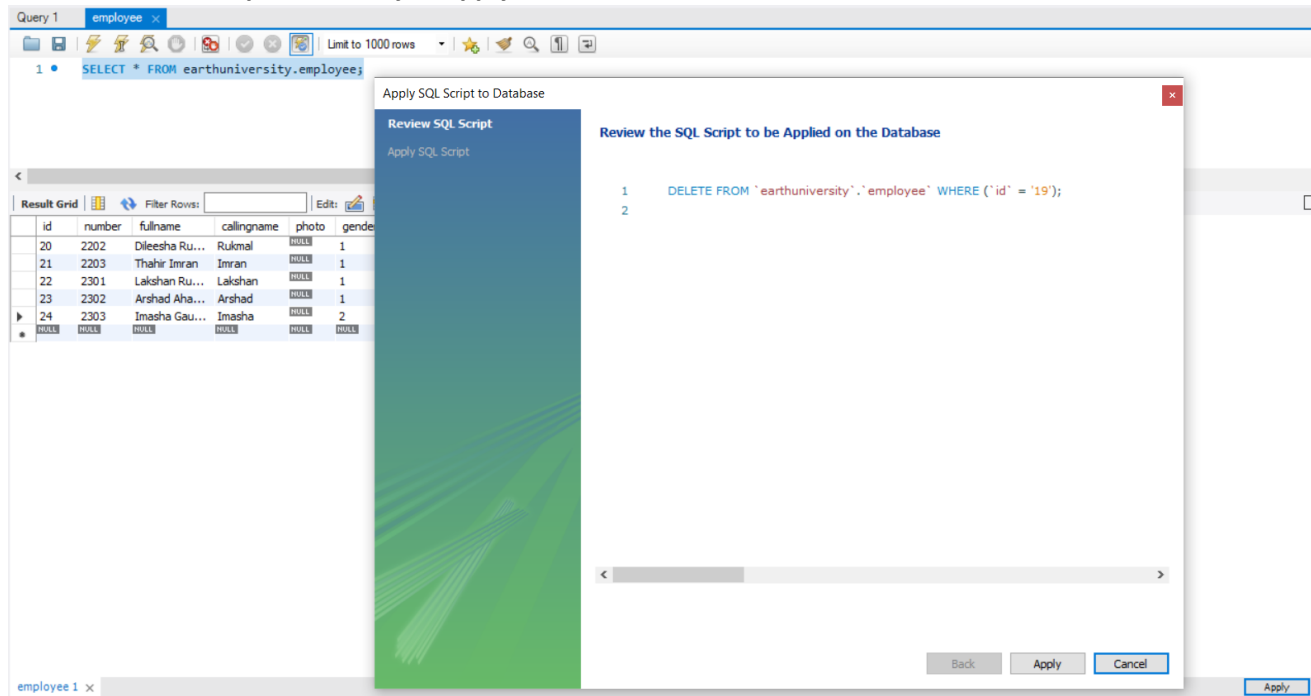
Mark Field Value as a Function/Literal

Delete Row(s)

Load Value From File...

Save Value To File...

Delete will not completed until you apply deletion and confirmed as follows



Refresh the List to make sure the deletion

id	number	fullname	callingname	photo	gender	dobirth	nic	address	mobile	land	doassignment	designation_id	employeestatus_j	description
20	2202	Dileesha Rukmal	Rukmal		1	2001-01-02		Kagalle	0769666666		2022-01-01	1	1	BIT UG
21	2203	Thahir Imran	Imran		1	2001-01-03		Waththala	0719666666		2022-11-01	1	1	BIT UG
22	2301	Lakshan Ruwinda	Lakshan		1	2001-01-04		Kirindiwala	0729666666		2023-01-01	1	1	BIT UG
23	2302	Arshad Ahamad	Arshad		1	2001-01-05		Galle	0759666666		2023-01-01	1	1	BIT/BSC UG
24	2303	Imasha Gaupadi	Imasha		2	2001-01-06		Galle	0789666666		2023-01-01	1	1	BIT UG/TTC

- (1) Test with Successful Post
- (2) Test with existing Number and NIC
- (3) Test with Service Unavailable
- (4) Test with Invalid Data
- (5) Test with Undefined Data

(1) Test with Successful Post

Employee Detail

Number*

2201

Full Name*

Ashan Pathum

Calling Name*

Ashan

Gender*

Male

NIC*

200124500256

Birth Date*

4/26/2023

Select

Clear

Address*

Gampaha

Employee Detail

Select

Clear

Address*

Gampaha

Mobile*

0776233233

Land*

0112687688

Designation*

Demonstrator L2

Assignment Date*

4/26/2023

Description*

Good in Coding

Employee Status*

Active


Add

Clear

Update

Delete

Employee Detail



Select

Clear

Address*

Gampaha

Mobile*

0776233233

Land*

0112687688

Designation*

Demonstrator L2

Assignment Date*

4/26/2023

Description*

Good in Coding

Employee Status*

Active

Add

Clear

Update

Delete

Employee Search

Search by Number

Search by Fullname

Gender

Designation

Search

Clear Search

2301	Lakshan	Male
------	---------	------

Confirmation - Employee Add


Are you sure to Add the following Employee?

Number is : 2201
Fullname is : Ashan Pathum
Callingname is : Ashan

Yes

No

Employee Detail



Select

Clear

Address*

Mobile*

Land*

Designation*

Assignment Date*

Description*

Employee Status*

Add

Clear

Update

Delete

Employee Search

Search by Number

Search by Fullname

Gender

Designation

Search

Clear Search

















2203	Imran	Male
2301	Lakshan	Male

Status -Employee Add

Successfully Saved

OK

Confirm successful save with Database Data
(Refresh before observe)

	id	number	fullname	callingname	photo	gender	dobirth	nic	address	mobile	land	doassignment	designation_id	employeestatus_j	description
	20	2202	Dilesha Rukmal	Rukmal		1	2001-01-02		Kagalle	0769666666		2022-01-01	1	1	BIT UG
	21	2203	Thahir Imran	Imran		1	2001-01-03		Waththala	0719666666		2022-11-01	1	1	BIT UG
	22	2301	Lakshan Ruwinda	Lakshan		1	2001-01-04		Kirindiwala	0729666666		2023-01-01	1	1	BIT UG
	23	2302	Arshad Ahamad	Arshad		1	2001-01-05		Galle	0759666666		2023-01-01	1	1	BIT/BSC UG
	24	2303	Imasha Gaupadi	Imasha		2	2001-01-06		Galle	0789666666		2023-01-01	1	1	BIT UG/TTC
	37	2201	Ashan Pathum	Ashan		1		200124500256	Gampaha	0776233233	0112687...		4	1	Good in Coding

(2) Test with existing Number and NIC

Employee Detail

Number*


Full Name*

Calling Name*

Gender*


NIC*

Birth Date*



Address*

Employee Detail



Address*

Mobile*

Land*


Designation*

Assignment Date*

Description*

Employee Status*

Employee Detail



Address*

Mobile*

Land*

Designation*

Assignment Date*

Description*

Employee Status*

Employee Search

Search by Number Search by Full Name

Gender Designation


Number	Full Name	Gender
2202	Rukmal	Male
2203	Imran	Male
2301	Lakshan	Male

Confirmation - Employee Add

Are you sure to Add the following Employee?

Number is : 2201
Fullname is : Dileesha Rukmal
Callingname is : Dileesha

Employee Detail



Address*

Mobile*

Land*

Designation*

Assignment Date*

Description*

Employee Status*

Employee Search

Search by Number Search by Full Name

Gender Designation

Number	Full Name	Gender
2202	Rukmal	Male
2203	Imran	Male
2301	Lakshan	Male

Status -Employee Add

Server Validation Errors :

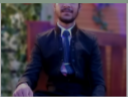
Existing Number
Existing NIC

Change the Number from **2201** to **2209** (not in the employee table)

Employee Detail

Number*
2209

Employee Detail



Select

Clear

Address*
Kagalle

Mobile*
0775555555

Land*
0362288888

Designation*
Demonstrator L2

Assignment Date*
4/26/2023

Description*
Good in Coding

Employee Search

Search by Number

Search by Fullname

Gender

Designation

Search

Clear Search

Status -Employee Add

Server Validation Errors :

Existing NIC


OK

Change the NIC from **200124500256** to **200124500277** (not in the employee table)

NIC*

200124500277

Employee Detail



Select

Clear

Address*

Mobile*

Land*

Designation*

Assignment Date*

Description*

Employee Search

Search by Number

Search by Fullname

Gender

Designation

Search








Clear Search

Status -Employee Add

Successfully Saved

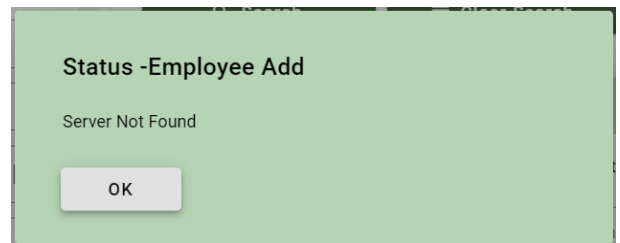
OK

Observe the Database (Refresh)

	id	number	fullname	callingname	photo	gender	dobirth	nic	address	mobile	land	doassignment	designation_id	employeeestatus_j	description
	20	2202	Dileesha Rukmal	Rukmal		1	2001-01-02	200124500256	Kagalle	0769666666	0362288...	2022-01-01	1	1	BIT UG
	21	2203	Thahir Imran	Imran		1	2001-01-03	200124500256	Waththala	0719666666	0362288...	2022-11-01	1	1	BIT UG
	22	2301	Lakshan Ruwinda	Lakshan		1	2001-01-04	200124500256	Kirindiwala	0729666666	0362288...	2023-01-01	1	1	BIT UG
	23	2302	Arshad Ahamad	Arshad		1	2001-01-05	200124500256	Galle	0759666666	0362288...	2023-01-01	1	1	BIT/BSC UG
	24	2303	Imasha Gaupadi	Imasha		2	2001-01-06	200124500256	Galle	0789666666	0362288...	2023-01-01	1	1	BIT UG/TTC
	37	2201	Ashan Pathum	Ashan		1	2001-01-06	200124500256	Gampaha	0776233233	0112687...	2023-01-01	4	1	Good in Coding
	38	2209	Dileesha Rukmal	Dileesha		1	2001-01-06	200124500277	Kagalle	0775555555	0362288...	2023-01-01	4	1	Good in Coding

(3) Test with Service Unavailable

Fill the form with Valid Data
Stop the Server
Click on "Add" and the "Confirm"



You can test the same error by using invalid URL in the Service Method

(4) Test with Invalid Data

You can use Postman to test this with Invalid Data
Or modify the Service as follows

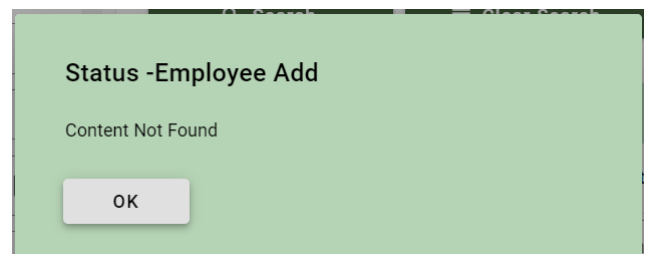
```
async add(employee: Employee): Promise<[]|undefined>{  
    //console.log("Employee Adding-"+JSON.stringify(employee));  
    employee.number="47457";  
    return this.http.post<[]>({ url: 'http://localhost:8080/employees', employee}).toPromise();  
}
```

Now employee object contains invalid number
Posted data contain invalid data

(5) Test with Undefined Data

Set the Return Type of the Server Controller to null → Re Compile and Run the Server
Test with valid Client Data

```
@PostMapping  
@ResponseStatus(HttpStatus.CREATED)  
public HashMap<String,String> add(@RequestBody Employee employee){  
  
    HashMap<String,String> response = new HashMap<>();  
    String errors="";  
  
    if(employeedao.findByNumber(employee.getNumber())!=null)  
        errors = errors+"<br> Existing Number";  
    if(employeedao.findByNic(employee.getNic())!=null)  
        errors = errors+"<br> Existing NIC";  
  
    if(errors=="")  
        employeedao.save(employee);  
    else errors = "Server Validation Errors : <br> "+errors;  
  
    response.put("id",String.valueOf(employee.getId()));  
    response.put("url", "/employees/"+employee.getId());  
    response.put("errors",errors);  
  
    return null;  
}
```



Re correct these changes once the test finishes

Call "loadTable()" at the end of successful save to refresh updated data in the UI.

```
}).finally( onfinally: () =>{  
  
    if(addstatus) {  
        addmessage = "Successfully Saved";  
        this.form.reset();  
        this.clearImage();  
        this.loadTable( query: "");  
    }  
}
```

Add a new Record → Observe Table Data Updated in the UI