

## I. Hal yang dipelajari

Pada tutorial ini melakukan pengaplikasian web service dimana dengan menggunakan web service ini dapat membantu suatu aplikasi berhubungan atau berkomunikasi dengan aplikasi lainnya. Pada tutorial ini, menggunakan service producer yang belaku sebagai merupakan sebagai pemberi data kepada aplikasi yang bertindak sebagai service consumer dimana sebagai aplikasi yang beriteraksi dengan pengguna serta menyediakan dan mengelola data kepada pengguna tanpa memiliki database. Dalam tutorial ini menggunakan anotasi `@Primary` yang digunakan untuk meng-handle data yang diambil pada `StudentService` agar data yang diperoleh tersebut merupakan data yang berasal dari `web service` pada `StudentServiceRest`.

## II. Latihan

## A. Membuat method viewall pada StudentRestController.java

Pada method ini akan diambil data student dengan menggunakan method `selectALLStudents()` yang telah diterapkan pada `StudentService` yang akan mengembalikan data student ke dalam bentuk list.

```
package com.example.rest;

import java.util.List;

@RestController
@RequestMapping("/rest")
public class StudentRestController {

    @Autowired
    StudentService studentService;

    @RequestMapping("/student/view/{npm}")
    public StudentModel view (@PathVariable(value = "npm") String npm) {
        StudentModel student = studentService.selectStudent (npm);
        return student;
    }

    @RequestMapping("/student/viewall")
    public List<StudentModel> viewall (Model model) {
        List<StudentModel> students = studentService.selectALLStudents ();
        model.addAttribute ("students", students);

        return students;
    }
}
```

Berikut merupakan tampilan seluruh data student:

```
{
  "npm": "1406623083", "name": "Dwi Arfi Faradina Hawardi", "gpa": 2.75,
  "npm": "1506737823", "name": "Kermie", "gpa": 3.32,
  "npm": "1506737824", "name": "Ellene", "gpa": 2.89,
  "npm": "1506737825", "name": "Delmer", "gpa": 2.58,
  "npm": "1506737826", "name": "Kristian", "gpa": 2.33,
  "npm": "1506737827", "name": "Marilyn", "gpa": 3.49,
  "npm": "1506737828", "name": "Katti", "gpa": 3.73,
  "npm": "1506737829", "name": "Titus", "gpa": 3.11,
  "npm": "1506737830", "name": "Glenden", "gpa": 3.38,
  "npm": "1506737831", "name": "Milt", "gpa": 3.39,
  "npm": "1506737832", "name": "Henri", "gpa": 2.31,
  "npm": "1506737833", "name": "Buffy", "gpa": 3.35,
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  "npm": "1506737835", "name": "Petronille", "gpa": 2.61,
  "npm": "1506737836", "name": "Kelley", "gpa": 3.27,
  "npm": "1506737837", "name": "Morey", "gpa": 3.95,
  "npm": "1506737838", "name": "Ronda", "gpa": 2.23,
  "npm": "1506737839", "name": "Corblin", "gpa": 3.93,
  "npm": "1506737840", "name": "Jeanie", "gpa": 2.5,
  "npm": "1506737841", "name": "Berri", "gpa": 3.8,
  "npm": "1506737842", "name": "Lesley", "gpa": 3.0,
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  "npm": "1506737849", "name": "Zacherie", "gpa": 3.12,
  "npm": "1506737850", "name": "Betsey", "gpa": 2.24,
  "npm": "1506737851", "name": "Avery", "gpa": 3.38,
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  "npm": "1506737858", "name": "Bird", "gpa": 3.15,
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  "npm": "1506737878", "name": "Max", "gpa": 2.53,
  "npm": "1506737879", "name": "Chester", "gpa": 2.77,
  "npm": "1506737880", "name": "Carl", "gpa": 3.01,
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  "npm": "1506737882", "name": "Eugene", "gpa": 3.74,
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  "npm": "1506737890", "name": "Lucho", "gpa": 3.27,
  "npm": "1506737891", "name": "Giorgia", "gpa": 2.05,
  "npm": "1506737892", "name": "Taber", "gpa": 3.61,
  "npm": "1506737893", "name": "Carlen", "gpa": 2.81,
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  "npm": "1506737895", "name": "Natanial", "gpa": 2.21,
  "npm": "1506737896", "name": "Dannie", "gpa": 3.43,
  "npm": "1506737897", "name": "Cassandry", "gpa": 2.74,
  "npm": "1506737898", "name": "Madeline", "gpa": 3.72,
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  "npm": "1506737900", "name": "Cori", "gpa": 2.39,
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  "npm": "1506737903", "name": "Mervin", "gpa": 3.06,
  "npm": "1506737904", "name": "Gannie", "gpa": 2.93,
}
```

<pre> [   {     "npm": "1406623083",     "name": "Dwi Arfi Faradina Mawardi",     "gpa": 2.75   },   {     "npm": "1506737823",     "name": "Kermie",     "gpa": 3.32   },   {     "npm": "1506737824",     "name": "Ellene",     "gpa": 2.89   },   {     "npm": "1506737825",     "name": "Delmer",     "gpa": 2.58   },   {     "npm": "1506737826",     "name": "Kristian",     "gpa": 2.33   },   {     "npm": "1506737827",     "name": "Marilyn",     "gpa": 3.49   },   {     "npm": "1506737828",     "name": "Katti",     "gpa": 3.73   },   {     "npm": "1506737829",     "name": "Titus",     "gpa": 3.11   },   {     "npm": "1506737830",     "name": "Glenden",     "gpa": 3.38   } ] </pre>	<pre> [   {     "npm": "1406623083",     "name": "Dwi Arfi Faradina Mawardi",     "gpa": 2.75   },   {     "npm": "1506737823",     "name": "Kermie",     "gpa": 3.32   },   {     "npm": "1506737824",     "name": "Ellene",     "gpa": 2.89   },   {     "npm": "1506737825",     "name": "Delmer",     "gpa": 2.58   },   {     "npm": "1506737826",     "name": "Kristian",     "gpa": 2.33   },   {     "npm": "1506737827",     "name": "Marilyn",     "gpa": 3.49   },   {     "npm": "1506737828",     "name": "Katti",     "gpa": 3.73   },   {     "npm": "1506737829",     "name": "Titus",     "gpa": 3.11   },   {     "npm": "1506737830",     "name": "Glenden",     "gpa": 3.38   } ] </pre>
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- B. Mengimplementasikan service consumer untuk menampilkan data seluruh student, pertama dengan membuat method `selectAllStudents()` pada `StudentServiceRest.java`. pada method ini akan mengembalikan semua data student.

```

@Override
public List<StudentModel> selectAllStudents() {
    log.info ("REST - select all students");
    return studentDAO.selectAllStudents();
}

```

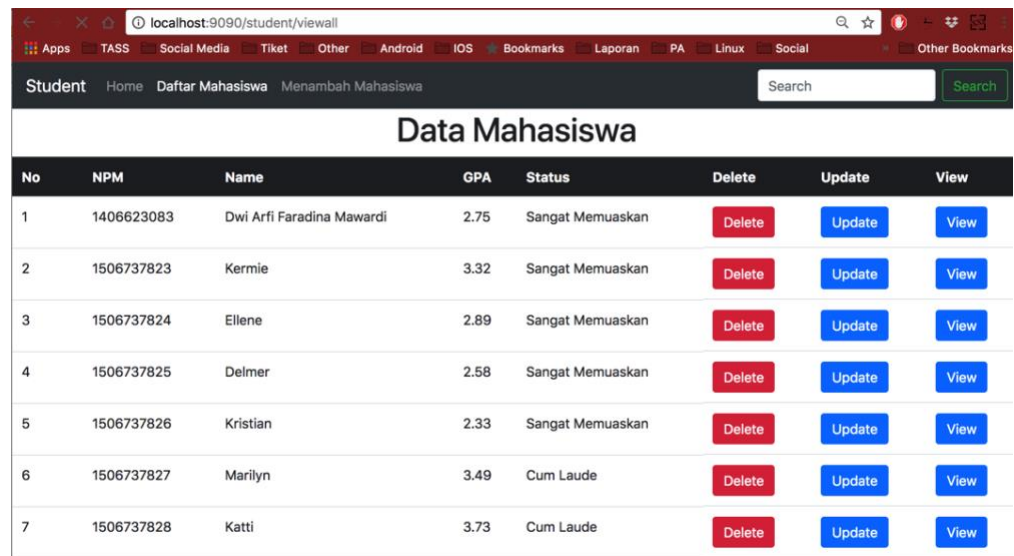
Kemudian membuat method pada `StudentDAOImpl.java`, pada method ini menggunakan `ResponseEntity` untuk mengambil nilai objek dalam bentuk list yang dihasilkan oleh service provider, dan akan juga mengembalikan nilai dalam bentuk list.

```

@Override
public List<StudentModel> selectAllStudents ()
{
    ResponseEntity<StudentModel[]> students = restTemplate.getForEntity("http://localhost:8080/rest/student/viewall", StudentModel[].class);
    return Arrays.asList(students.getBody());
}

```

Berikut merupakan tampilan data student yang diakses melalui service consumer:



Data Mahasiswa							
No	NPM	Name	GPA	Status	Delete	Update	View
1	1406623083	Dwi Arfi Faradina Mawardi	2.75	Sangat Memuaskan	Delete	Update	View
2	1506737823	Kermie	3.32	Sangat Memuaskan	Delete	Update	View
3	1506737824	Ellene	2.89	Sangat Memuaskan	Delete	Update	View
4	1506737825	Delmer	2.58	Sangat Memuaskan	Delete	Update	View
5	1506737826	Kristian	2.33	Sangat Memuaskan	Delete	Update	View
6	1506737827	Marilyn	3.49	Cum Laude	Delete	Update	View
7	1506737828	Katti	3.73	Cum Laude	Delete	Update	View