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APAP – A

Write-up Tutorial 7

a. Ringkasan dari materi yang Anda telah pelajari pada tutorial kali ini

Saya mempelajari bagaimana menggunakan web service, dimana program dibagi menjadi producer yang mengolah database dan consumer yang menanggapi view dan controller.

b. Latihan

Latihan 1: Membuat service untuk mengembalikan seluruh student yang ada di basis data.
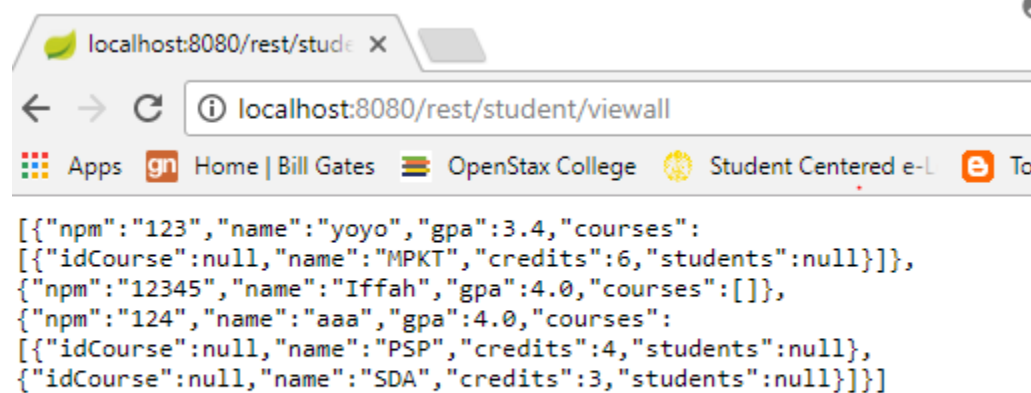
Project: Tutorial07Producer.

1. Membuat request mapping /student/viewall
2. Mencari list of students dengan method selectAllStudents dari interface studentService
3. Mereturn object students.

```java
@RequestMapping("/student/viewall")
public List<StudentModel> viewAll (Model model) {

    List<StudentModel> students = studentService.selectAllStudents ();
    model.addAttribute ("students", students);

    return students;
}
```

Hasil dari rest/student/viewall.


```
[{"npm":"123","name":"yoyo","gpa":3.4,"courses":
[{"idCourse":null,"name":"MPKT","credits":6,"students":null}]},
{"npm":"12345","name":"Iffah","gpa":4.0,"courses":[]},
{"npm":"124","name":"aaa","gpa":4.0,"courses":
[{"idCourse":null,"name":"PSP","credits":4,"students":null},
{"idCourse":null,"name":"SDA","credits":3,"students":null}]}]
```

May Iffah Rizki
1506757661
APAP – A

Hasil dari rest/student/viewall dengan JSON parse.

String parse

```
[
  {
    "npm":"123",
    "name":"yoyo",
    "gpa":3.4,
    "courses":[
      {
        "idCourse":null,
        "name":"MPKT",
        "credits":6,
        "students":null
      }
    ]
  },
  {
    "npm":"12345",
    "name":"Iffah",
    "gpa":4.0,
    "courses":[
    ]
  },

  {
    "npm":"124",
    "name":"aaa",
    "gpa":4.0,
    "courses":[
      {
        "idCourse":null,
        "name":"PSP",
        "credits":4,
        "students":null
      },
      {
        "idCourse":null,
        "name":"SDA",
        "credits":3,
        "students":null
      }
    ]
  }
]
```

May Iffah Rizki
1506757661
APAP – A
Latihan 2: Membuat service untuk Class Course yang terdapat service untuk melihat suatu course dengan memasukkan ID Course (view by ID) dan service untuk melihat semua course (view all).

Project: Tutorial07Producer.

1. Membuat method selectAllCourses()

```java
List<CourseModel> selectAllCourses();
@Select("select * from course")
@Results(value = {
        @Result(property="idCourse", column="id_course"),
        @Result(property="name", column="name"),
        @Result(property="credits", column="credits"),
        @Result(property="students", column="id_course",
            javaType = List.class,
            many=@Many(select="selectStudents"))
    })
List<CourseModel> selectAllCourses();

@Override
public List<CourseModel> selectAllCourses() {
    log.info ("select all courses");
    return studentMapper.selectAllCourses ();
}
```

2. Membuat /course/viewall pada StudentController.java

```java
@RequestMapping("/course/viewall")
public String courseview (Model model)
{
    List<CourseModel> courses = studentDAO.selectAllCourses ();
    model.addAttribute ("courses", courses);

    return "courseviewall";
}
```

3. Membuat CourseRestController.java pada com.example.rest dan membuat request mapping /course/viewall dan /course/view{id} pada CourseRestController.java
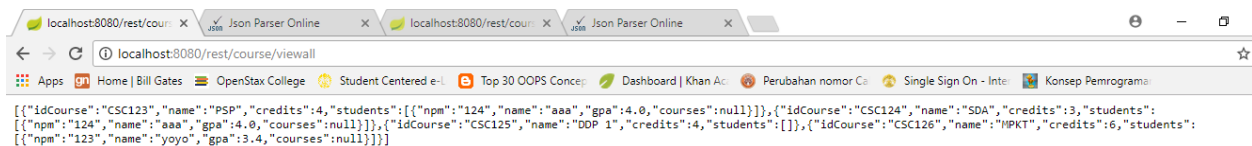
May Iffah Rizki
1506757661
APAP – A

```java
@RequestMapping("/course/view/{id}")
public CourseModel viewCoursePath (Model model,
        @PathVariable(value = "id") String id)
{
    CourseModel course = studentService.selectCourse (id);

    if (course != null) {
        model.addAttribute ("course", course);
        return course;
    } else {
        model.addAttribute ("id", id);
        return null;
    }
}

@RequestMapping("/course/viewall")
public List<CourseModel> viewall (Model model)
{

    List<CourseModel> courses = studentService.selectAllCourses ();
    model.addAttribute ("courses", courses);

    return courses;

}
```

Hasil dari rest/course/viewall.

[{"idCourse":"CSC123","name":"PSP","credits":4,"students":[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]},{"idCourse":"CSC124","name":"SDA","credits":3,"students":
[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]},{"idCourse":"CSC125","name":"DDP 1","credits":4,"students":[]},{"idCourse":"CSC126","name":"MPKT","credits":6,"students":
[{"npm":"123","name":"yoyo","gpa":3.4,"courses":null}]}]

Hasil dari rest/course/viewall dengan JSON parse.

May Iffah Rizki
1506757661
APAP – A

```json
[
    {
        "idCourse":"CSC123",
        "name":"PSP",
        "credits":4,
        "students": [
            {
                "npm":"124",
                "name":"aaa",
                "gpa":4.0,
                "courses":null
            }
        ]
    },
    {
        "idCourse":"CSC124",
        "name":"SDA",
        "credits":3,
        "students": [
            {
                "npm":"124",
                "name":"aaa",
                "gpa":4.0,
                "courses":null
            }
        ]
    },
    ..
    {
        "idCourse":"CSC126",
        "name":"MPKT",
        "credits":6,
        "students": [
            {
                "npm":"123",
                "name":"yoyo",
                "gpa":3.4,
                "courses":null
            }
        ]
    }
]
```
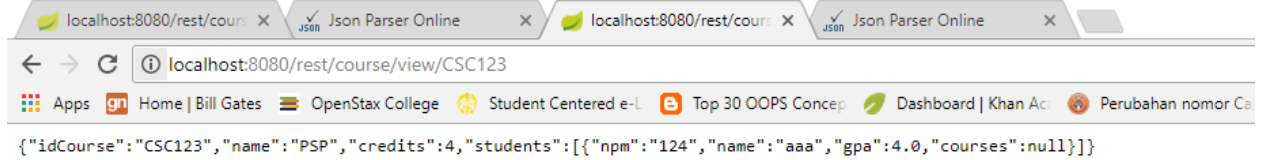
May Iffah Rizki
1506757661
APAP – A
Hasil dari rest/course/view/CSC123.

{"idCourse":"CSC123","name":"PSP","credits":4,"students":[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]}

Hasil dari rest/course/view/CSC123 dengan JSON parse.

String parse

{
    "idCourse":"CSC123",
    "name":"PSP",
    "credits":4,
    "students": [
        {
            "npm":"124",
            "name":"aaa",
            "gpa":4.0,
            "courses":null
        }
    ]
}

May Iffah Rizki
1506757661
APAP – A
Latihan 3: Implementasi service consumer untuk view all Students dengan melengkapi method selectAllStudents yang ada di kelas StudentServiceRest.
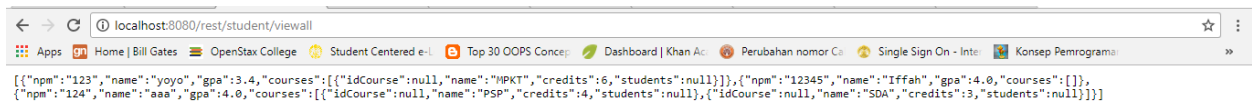
Project: Tutorial07Consumer.

1. Melengkapi method selectAllStudents pada StudentDAOImpl.java

```java
@Override
    public List<StudentModel> selectAllStudents() {
            // TODO Auto-generated method stub
            ResponseEntity<List<StudentModel>> rateResponse =
restTemplate.exchange("http://localhost:8080/rest/student/viewall/",
HttpMethod.GET, null,new ParameterizedTypeReference<List<StudentModel>>() {});
            List<StudentModel> students = rateResponse.getBody();
            return students;
        }
```

2. Melengkapi method selectAllStudents pada StudentServiceRest.java

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

Hasil dari localhost:8080/rest/student/viewall.

[{"npm":"123","name":"yoyo","gpa":3.4,"courses":[{"idCourse":null,"name":"MPKT","credits":6,"students":null}]},{"npm":"12345","name":"Iffah","gpa":4.0,"courses":[]},
{"npm":"124","name":"aaa","gpa":4.0,"courses":[{"idCourse":null,"name":"PSP","credits":4,"students":null},{"idCourse":null,"name":"SDA","credits":3,"students":null}]}]

May Iffah Rizki
1506757661
APAP – A
Hasil dari localhost:8080/rest/student/viewall dengan JSON parse.

String parse

```
[
    {
        "npm":"123",
        "name":"yoyo",
        "gpa":3.4,
        "courses":[
            {
                "idCourse":null,
                "name":"MPKT",
                "credits":6,
                "students":null
            }
        ]
    },
    {
        "npm":"12345",
        "name":"Iffah",
        "gpa":4.0,
        "courses":[
        ]
    },
```

May Iffah Rizki
1506757661
APAP – A

```
{
    "npm":"124",
    "name":"aaa",
    "gpa":4.0,
    "courses":[
        {
            "idCourse":null,
            "name":"PSP",
            "credits":4,
            "students":null
        },
        {
            "idCourse":null,
            "name":"SDA",
            "credits":3,
            "students":null
        }
    ]
}
]
```

Hasil dari localhost:9090/student/viewall.

All Students

Show 10 ▼ entries   Search: [   ]

No	NPM	Name	GPA	Predicate	Delete	Update
1	123	yoyo	3.4	Sangat Memuaskan	Delete Data	Update Data
2	12345	Iffah	4.0	Cum Laude!	Delete Data	Update Data
3	124	aaa	4.0	Cum Laude!	Delete Data	Update Data

Showing 1 to 1 of 1 entries   Previous 1 Next

May Iffah Rizki
1506757661
APAP – A
Latihan 4: Implementasi service consumer untuk class CourseModel dengan membuat class-class DAO dan service baru.

Project: Tutorial07Consumer.

1. Membuat CourseDAO.java di package DAO

```java
1 package com.example.dao;
2
3 import java.util.List;
4
5 import com.example.model.CourseModel;
6
7 public interface CourseDAO {
8
9     CourseModel selectCourse(String id);
10    List<CourseModel> selectAllCourses();
11
12 }
13
```

2. Membuat CourseDAOImpl.java di package Service

```java
package com.example.service;

import java.util.List;

public class CourseDAOImpl implements CourseDAO{

    @Autowired
    private RestTemplate restTemplate;

    @Override
    public CourseModel selectCourse(String id) {

        CourseModel course = restTemplate.getForObject("http://localhost:8080/rest/course/view/"+id, CourseModel.class);
        return course;

    }

    @Override
    public List<CourseModel> selectAllCourses() {

        ResponseEntity<List<CourseModel>> rateResponse =
    restTemplate.exchange("http://localhost:8080/rest/course/viewall/",
    HttpMethod.GET, null,new ParameterizedTypeReference<List<CourseModel>>() {});
        List<CourseModel> courses = rateResponse.getBody();
        return courses;
    }
```

3. Menambahkan method selectCourse dan selectAllCourses pada StudentServiceRest.java.

```java
@Override
public CourseModel selectCourse(String id_course) {
    log.info ("REST - select course with id {}", id_course);
    return courseDAO.selectCourse(id_course);
}

@Override
public List<CourseModel> selectAllCourses() {
    // TODO Auto-generated method stub
    log.info("REST - select all courses");
    return courseDAO.selectAllCourses();
}

}
```

4. Membuat page html courseviewall.html.

```html
1  <!DOCTYPE html>
2  <html xmlns:th="http://www.thymeleaf.org">
3      <head th:replace="fragments/fragment :: header">
4
5      </head>
6      <body>
7          <h1>All Courses</h1>
8
9          <table id = "tableview" class="display" cellspacing="0" width="100%">
10             <thead>
11                 <tr>
12                     <th>No</th>
13                     <th>ID</th>
14                     <th>Name</th>
15                     <th>Credit</th>
16                 </tr>
17             </thead>
18             <tbody th:each="course, iterationStatus: ${courses}" th:class="${iterationStatus.odd}? 'odd'">
19                 <tr>
20                     <td th:text="${iterationStatus.count}">No. 1</td>
21                     <td th:text="${course.idCourse}">ID</td>
22                     <td th:text="${course.name}">Name</td>
23                     <td th:text="${course.credits}">Credits</td>
24                 </tr>
25             </tbody>
26         </table>
27
28     </body>
29 </html>
30
```
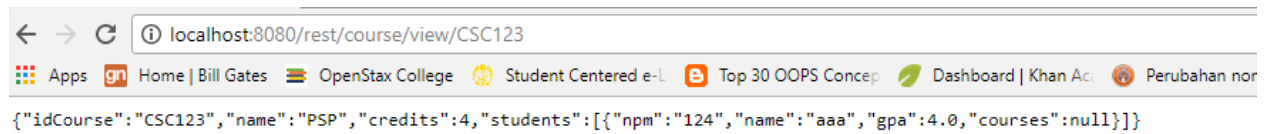
5. Menambah request parameter /course/viewall di StudentController.java.

```java
@RequestMapping("/course/viewall")
public String courseview (Model model)
{
    List<CourseModel> courses = studentDAO.selectAllCourses ();
    model.addAttribute ("courses", courses);
    return "courseviewall";
}
```

Hasil dari localhost:8080/rest/course/view/CSC123.

{"idCourse":"CSC123","name":"PSP","credits":4,"students":[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]}

Hasil dari localhost:8080/rest/course/view/CSC123 dengan JSON parse.

String parse

{
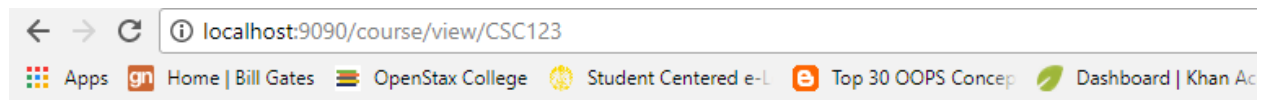   "idCourse":"CSC123",
    "name":"PSP",
    "credits":4,
    "students":[
        {
            "npm":"124",
            "name":"aaa",
            "gpa":4.0,
            "courses":null
        }
    ]
}

May Iffah Rizki
1506757661
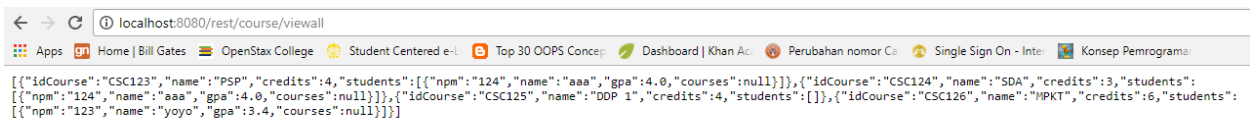APAP – A

Hasil dari localhost:9090/course/view/CSC123.

Hasil dari localhost:8080/rest/course/viewall.

[{"idCourse":"CSC123","name":"PSP","credits":4,"students":[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]},{"idCourse":"CSC124","name":"SDA","credits":3,"students":
[{"npm":"124","name":"aaa","gpa":4.0,"courses":null}]},{"idCourse":"CSC125","name":"DDP 1","credits":4,"students":[]},{"idCourse":"CSC126","name":"MPKT","credits":6,"students":
[{"npm":"123","name":"yoyo","gpa":3.4,"courses":null}]}]

May Iffah Rizki
1506757661
APAP – A

Hasil dari localhost:8080/rest/course/viewall dengan JSON parse.

String parse

```
[
    {
        "idCourse":"CSC123",
        "name":"PSP",
        "credits":4,
        "students":[
            {
                "npm":"124",
                "name":"aaa",
                "gpa":4.0,
                "courses":null
            }
        ]
    },
    {
        "idCourse":"CSC124",
        "name":"SDA",
        "credits":3,
        "students":[
            {
                "npm":"124",
                "name":"aaa",
                "gpa":4.0,
                "courses":null
            }
        ]
    },
    {
```

May Iffah Rizki
1506757661
APAP – A

```
{
    "idCourse":"CSC125",
    "name":"DDP 1",
    "credits":4,
    "students":[
    ]
},
{
    "idCourse":"CSC126",
    "name":"MPKT",
    "credits":6,
    "students":[
        {
            "npm":"123",
            "name":"yoyo",
            "gpa":3.4,
            "courses":null
        }
    ]
}
]
```

Hasil dari localhost:9090/course/viewall.

All Courses

Show 10 entries   Search:

No	ID	Name	Credit
1	CSC123	PSP	4
2	CSC124	SDA	3
3	CSC125	DDP 1	4
4	CSC126	MPKT	6

Showing 1 to 1 of 1 entries   Previous   1   Next