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Kelas : APAP – A

Write-Up Tutorial 7

Dalam tutorial ini, saya mempelajari konsep web service dan REST dalam Spring Boot, serta implementasinya. Selain itu, saya juga mempelajari bagaimana sebuah web dapat memanggil web service yang berada di tempat lainnya.

Jawaban Latihan

1. Buatlah service untuk mengembalikan seluruh student yang ada di basis data. Service ini mirip seperti method `viewAll` di Web Controller. Service tersebut di-mapping ke `"/rest/student/viewall"`.

Berikut adalah implementasi dari `viewall` pada `RestStudentController`:

```
@RequestMapping("/student/viewall")
public List<StudentModel> viewall() {
    List<StudentModel> students = studentService.selectAllStudents();
    return students;
}
```

Hasilnya adalah sebagai berikut:

```
[{"npm":"123","name":"Dango","gpa":3.45,"courses":[{"idCourse":"CSC126","name":"MPKT","credits":6,"students":null}]},
{"npm":"124","name":"Kaz","gpa":3.64,"courses":[{"idCourse":"CSC123","name":"PSP","credits":4,"students":null},
{"idCourse":"CSC124","name":"SDA","credits":3,"students":null}]}, {"npm":"131311","name":"wasabi-chan","gpa":3.69,"courses":[]}]
```

2. Buatlah service untuk class `Course`. Buatlah controller baru yang terdapat service untuk melihat suatu course dengan masukan ID Course (view by ID) dan service untuk melihat semua course (view all).

Berikut adalah implementasi dari `getCourse` dan `getAllCourse` pada `RestCourseController`:

```
@RequestMapping("/course/view/{id}")
public CourseModel viewCourse(@PathVariable("id") String id) {
    CourseModel course = courseService.selectCourse(id);
    return course;
}

@RequestMapping("/course/viewall")
public List<CourseModel> viewAllCourses() {
    List<CourseModel> courses = courseService.selectAllCourse();
    return courses;
}
```

Hasilnya berturut-turut adalah sebagai berikut:

```
{"idCourse":"CSC123","name":"PSP","credits":4,"students":[{"npm":"124","name":"Kaz","gpa":0.0,"courses":null}]}
```

```
[{"idCourse": "CSC123", "name": "PSP", "credits": 4, "students": [{"npm": "124", "name": "Kaz", "gpa": 0.0, "courses": null}]}, {"idCourse": "CSC124", "name": "SDA", "credits": 3, "students": [{"npm": "124", "name": "Kaz", "gpa": 0.0, "courses": null}]}, {"idCourse": "CSC125", "name": "DDP 1", "credits": 4, "students": []}, {"idCourse": "CSC126", "name": "MPKT", "credits": 6, "students": [{"npm": "123", "name": "Dango", "gpa": 0.0, "courses": null}]}]
```

- Implementasikan service consumer untuk view all Students dengan melengkapi method `selectAllStudents` yang ada di kelas `StudentServiceRest`.

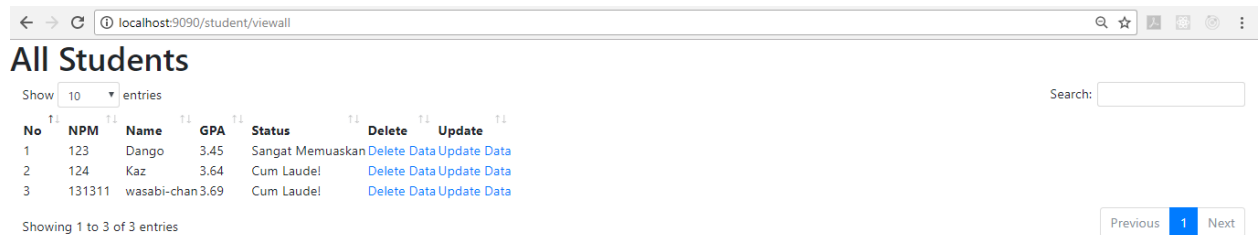
StudentDAOImpl:

```
@Override
public List<StudentModel> selectAllStudents() {
    List<StudentModel> students = restTemplate().getForObject("http://localhost:8080/rest/student/viewall", List.class);
    return students;
}
```

StudentServiceRest:

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

Keluaran:



No	NPM	Name	GPA	Status	Delete	Update
1	123	Dango	3.45	Sangat Memuaskan	Delete Data	Update Data
2	124	Kaz	3.64	Cum Laude!	Delete Data	Update Data
3	131311	wasabi-chan	3.69	Cum Laude!	Delete Data	Update Data

- Implementasikan service consumer untuk class `CourseModel` dengan membuat class-class DAO dan service baru.

Implementasi ini melibatkan class-class berikut.

CourseDAO:

```
public interface CourseDAO {
    CourseModel getCourse(String id);
}
```

CourseDAOImpl:

```
@Service
public class CourseDAOImpl implements CourseDAO {

    @Bean
    public RestTemplate restTemplate() {
        return new RestTemplate();
    }

    @Override
    public CourseModel getCourse(String id) {
        CourseModel course = restTemplate().getForObject("http://localhost:8080/rest/course/view/"+id, CourseModel.class);
        return course;
    }
}
```

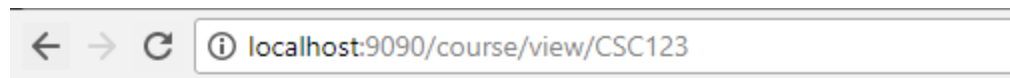
CourseServiceRest:

```
@Slf4j
@Service
@Primary
public class CourseServiceRest {

    @Autowired
    private CourseDAO courseDAO;

    public CourseModel getCourse(String id) {
        log.info("REST - select course with id {}", id);
        return courseDAO.getCourse(id);
    }
}
```

Keluaran:



ID = CSC123

Nama = PSP

SKS = 4

Mahasiswa yang Mengambil :

- 124 - Kaz