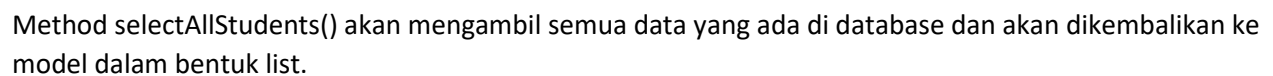


Membuat Web Service Menggunakan Spring Boot Framework

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"`. Contoh tampilan keluarannya:

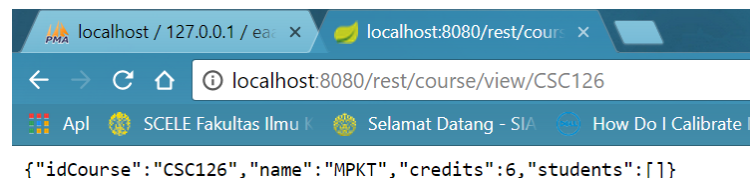
Berikut outputnya



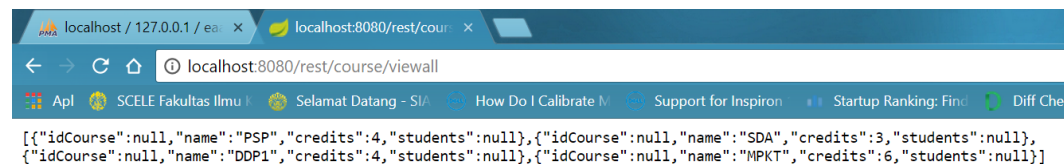
Latihan 2:

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).

```
CourseRestController.java
1 package com.example.rest;
2
3 import java.util.List;
4
13 @RestController
14 @RequestMapping("/rest")
15 public class CourseRestController {
16
17     @Autowired
18     CourseService courseService;
19
20
21     @RequestMapping("/course/view/{id_course}")
22     public CourseModel view (@PathVariable(value = "id_course") String id_course)
23     {
24         CourseModel course = courseService.selectCourse (id_course);
25         return course;
26     }
27
28     @RequestMapping("/course/viewall")
29     public List<CourseModel> viewall () {
30         List<CourseModel> courses = courseService.selectAllCourse();
31         return courses;
32     }
33 }
34
35
```



```
{ "idCourse": "CSC126", "name": "MPKT", "credits": 6, "students": [] }
```



```
[{"idCourse": null, "name": "PSP", "credits": 4, "students": null}, {"idCourse": null, "name": "SDA", "credits": 3, "students": null}, {"idCourse": null, "name": "DDP1", "credits": 4, "students": null}, {"idCourse": null, "name": "MPKT", "credits": 6, "students": null}]
```

Method selectCourse(id_course) akan mengambil data pada database sesuai id_course yang diinput oleh user. Sedangkan method selectAllCourses akan mengambil seluruh data pada database dan akan mengembalikan dalam bentuk list.

Latihan 3:

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

```
//nomor 3
@Override
public List<StudentModel> selectAllStudents() {
    log.info("REST - select all students");
    return studentDAO.selectAllStudents();
}
```

Berikut outputnya



No	NPM	Name	GPA	Cumlaude	Delete	Update
1	123456	lala	4.0	Cum Laude!	Delete	Update
2	12345678	Ali baba	3.0	Sangat Memuaskan	Delete	Update
3	124	atikah	4.0	Cum Laude!	Delete	Update
4	1529	lala	3.49	Cum Laude!	Delete	Update



Latihan 4:

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

```
CourseDAO.java CourseDAOImpl.java CourseMapper.java
1 package com.example.dao;
2
3 import java.util.List;
4
5
6
7 public interface CourseDAO {
8     CourseModel selectCourse(String id_course);
9     List<CourseModel> selectAllCourse();
10 }
11
```

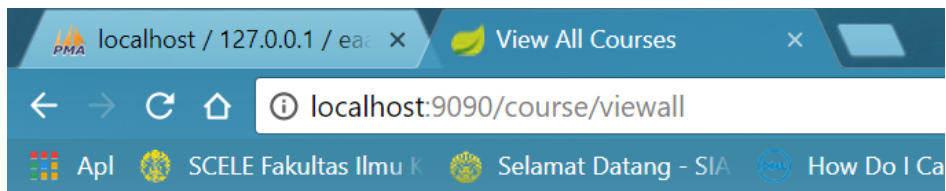
```
CourseDAO.java CourseDAOImpl.java CourseMapper.java
1 package com.example.dao;
2
3 import java.util.List;
4
5
6
7 @Service
8 public class CourseDAOImpl implements CourseDAO {
9
10     @Autowired
11     private RestTemplate restTemplate;
12
13     @Override
14     public CourseModel selectCourse(String id_course) {
15         CourseModel course = restTemplate.getForObject("http://localhost:8080/rest/course/view/" + id_course, CourseModel.class);
16         return course;
17     }
18
19     @Override
20     public List<CourseModel> selectAllCourse() {
21         List<CourseModel> courses = restTemplate.getForObject("http://localhost:8080/rest/course/viewall", List.class);
22         return courses;
23     }
24 }
25
```

```
CourseDAO.java CourseDAOImpl.java CourseMapper.java
1 package com.example.dao;
2
3 import java.util.List;
4
5
6
7 @Mapper
8 public interface CourseMapper {
9
10     @Select("select s.npm, s.name, s.gpa, from studentcourse sc, student s where sc.npm = s.npm AND sc.id_course = #{id_course}")
11     List<StudentModel> selectCourseStudent (@Param("id_course") String id_course);
12
13     @Select("select * from course")
14     List<CourseModel> selectAllCourse();
15
16     @Select("select id_course, name, credits from course where id_course = #{id_course}")
17     @Results(value = {
18         @Result(property="idCourse", column="id_course"),
19         @Result(property="name", column="name"),
20         @Result(property="credits", column="credits"),
21         @Result(property="students", column="id_course",
22             javaType = List.class,
23             many=@Many(select="selectCourseStudent"))
24     }) CourseModel selectCourse (@Param("id_course") String id_course);
25 }
26
```

```
CourseService.java CourseServiceDatabase.java CourseServiceRest.java
1 package com.example.service;
2
3 import java.util.List;
4
5
6
7 public interface CourseService {
8     CourseModel selectCourse(String id_course);
9     List<CourseModel> selectAllCourse();
10 }
11
```

```
CourseService.java CourseServiceDatabase.java CourseServiceRest.java
1 package com.example.service;
2
3 import java.util.List;
4
5
6
7
8
9
10
11
12
13 @Slf4j
14 @Service
15 public class CourseServiceDatabase implements CourseService{
16     @Autowired
17     private CourseMapper courseMapper;
18
19     @Override
20     public CourseModel selectCourse(String id_course) {
21         log.info ("select course with id course {}", id_course);
22         return courseMapper.selectCourse(id_course);
23     }
24
25     @Override
26     public List<CourseModel> selectAllCourse() {
27         return courseMapper.selectAllCourse();
28     }
29 }
30
```

```
CourseService.java  CourseServiceDatabase.java  CourseServiceRest.java x
1 package com.example.service;
2
3 import java.util.List;
13
14 @Slf4j
15 @Service
16 @Primary
17 public class CourseServiceRest implements CourseService {
18     @Autowired
19     private CourseDAO courseDAO;
20
21     @Override
22     public CourseModel selectCourse(String id_course) {
23         Log.info("REST - select course with id_course{}", id_course);
24         return courseDAO.selectCourse(id_course);
25     }
26
27     @Override
28     public List<CourseModel> selectAllCourse() {
29         Log.info("REST - select all course");
30         return courseDAO.selectAllCourse();
31     }
32 }
33
```



All Courses

No ID Nama SKS

1	PSP	4
2	SDA	3
3	DDP1	4
4	MPKT	6