

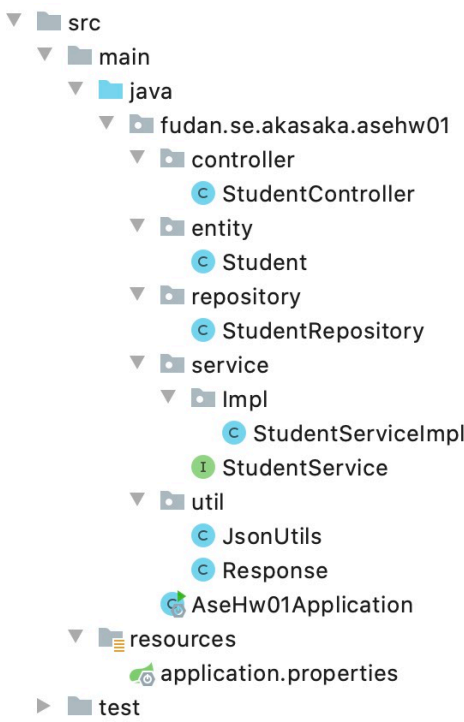
高级软件工程课程实践02实验报告

<http://10.176.122.1:12138/api/v1/student>

1 项目实施

本次项目实施使用JAVA，构建工具使用Maven，框架使用Spring Boot。

1.1 项目结构



1.2 项目具体实现

项目不涉及持久层，使用内存缓存数据：

```

private List<Student> students = new ArrayList<>();

public StudentRepository() {
    initStudents();
}

private void initStudents() {
    students.add(new Student("01", "test01", "testDep01", "testMaj01"));
    students.add(new Student("02", "test02", "testDep02", "testMaj02"));
    students.add(new Student("03", "test03", "testDep03", "testMaj03"));
    students.add(new Student("04", "test04", "testDep04", "testMaj04"));
}

```

以API添加学生为例演示项目各API的具体实现。

Controller

```

@Resource
private StudentService studentService;

@PostMapping("/api/v1/student")
@ResponseBody
public String createStudent(@RequestBody Student student) {
    Response response = studentService.createStudent(student);
    int status = response.getStatus();
    if (status == 0)
        return response.getMsg();
    else if (status == 1)
        return response.getMsg();
    else return "Unknown error";
}

```

Service

```

private StudentRepository studentRepository=new StudentRepository();

@Override
public Response createStudent(Student student) {
    if (studentRepository.save(student) == null)
        return new Response<Student>(0, "Student already exist", student);
    return new Response<Student>(1, success, student);
}

```

Repository

```
/**
 * 添加学生
 *
 * @param student
 */
public Student save(Student student) {
    for (Student tempStudent : students) {
        if (tempStudent.getStudentId().equals(student.getStudentId())) {
            return null;
        }
    }
    students.add(student);
    return student;
}
```

1.3 项目部署

项目使用docker部署在远程服务器，服务器IP为 10.176.122.1，访问容器的12138端口即可访问项目。下面是构建镜像时所用的Dockerfile，父镜像是JAVA8镜像。

```
FROM java:8-jre

RUN /bin/cp /usr/share/zoneinfo/Asia/Shanghai /etc/localtime && echo
'Asia/Shanghai' >/etc/timezone

ADD ./target/ase-hw01-0.0.1-SNAPSHOT.jar /app/
CMD ["java", "-Xmx200m", "-jar", "/app/ase-hw01-0.0.1-SNAPSHOT.jar"]

EXPOSE 12138
```

运行容器时，docker run命令将服务器的12138端口对应容器的12138端口，访问服务器的12138端口 10.176.122.1:12138 即可访问项目。

2 实验结果

项目被部署服务器 10.176.122.1，用不同http方法访问 <http://10.176.122.1:12138/api/v1/student> 即可访问CRUD 四个API。

测试工具使用Postman。

2.1 查询所有学生

GET http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body ● Pre-req. Tests Settings Cookies Co

Query Params

KEY	VALUE	DESCRIPTION	...	Bulk Ed
Key	Value	Description		

Body Cookies Headers (5) Test Results 200 OK 42 ms 486 B Save Response

Pretty Raw Preview Visualize Text ↕

```
1 [{"studentId":"01","name":"test01","department":"testDep01","major":"testMaj01"},
  {"studentId":"02","name":"test02","department":"testDep02","major":"testMaj02"},
  {"studentId":"03","name":"test03","department":"testDep03","major":"testMaj03"},
  {"studentId":"04","name":"test04","department":"testDep04","major":"testMaj04"}]
```

2.2 添加学生

POST http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body ● Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId":"05",
3   "name":"akasakaisami",
4   "department":"testDep05",
5   "major":"testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 75 ms 170 B Save Response

Pretty Raw Preview Visualize Text ↕

```
1 Success
```

添加后查询结果

GET http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body ● Pre-req. Tests Settings Cookies C

raw JSON Beautif

```
1 {
2   "studentId": "05",
3   "name": "akasakaisami",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 36 ms 572 B Save Response

Pretty Raw Preview Visualize Text ↗

```
1 [{"studentId": "01", "name": "test01", "department": "testDep01", "major": "testMaj01"},
  {"studentId": "02", "name": "test02", "department": "testDep02", "major": "testMaj02"},
  {"studentId": "03", "name": "test03", "department": "testDep03", "major": "testMaj03"},
  {"studentId": "04", "name": "test04", "department": "testDep04", "major": "testMaj04"},
  {"studentId": "05", "name": "akasakaisami", "department": "testDep05",
  "major": "testMaj05"}]
```

添加已经存在的学生

POST http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body ● Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "01",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 21 ms 184 B Save Response

Pretty Raw Preview Visualize Text ↗

```
1 Student already exit
```

2.3 更新学生信息

PUT http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "05",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 50 ms 170 B Save Response

Pretty Raw Preview Visualize Text

1 Success

更新后查询结果

GET http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies C

raw JSON Beautify

```
1 {
2   "studentId": "05",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 14 ms 568 B Save Response

Pretty Raw Preview Visualize Text

```
1 [{"studentId": "01", "name": "test01", "department": "testDep01", "major": "testMaj01"},
  {"studentId": "02", "name": "test02", "department": "testDep02", "major": "testMaj02"},
  {"studentId": "03", "name": "test03", "department": "testDep03", "major": "testMaj03"},
  {"studentId": "04", "name": "test04", "department": "testDep04", "major": "testMaj04"},
  {"studentId": "05", "name": "tester05", "department": "testDep05", "major": "testMaj05"}]
```

更新不存在的学生

PUT http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "100",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 36 ms 186 B Save Response

Pretty Raw Preview Visualize Text

```
1 Student doesn't exist.
```

2.4 删除学生

DELETE http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "05",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 14 ms 170 B Save Response

Pretty Raw Preview Visualize Text

```
1 Success
```

删除后查询结果

GET http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "05",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 14 ms 486 B Save Response

Pretty Raw Preview Visualize Text

```
1 [{"studentId": "01", "name": "test01", "department": "testDep01", "major": "testMaj01"},
   {"studentId": "02", "name": "test02", "department": "testDep02", "major": "testMaj02"},
   {"studentId": "03", "name": "test03", "department": "testDep03", "major": "testMaj03"},
   {"studentId": "04", "name": "test04", "department": "testDep04", "major": "testMaj04"}]
```

删除不存在的学生

DELETE http://10.176.122.1:12138/api/v1/student Send Save

Params Auth Headers (9) Body Pre-req. Tests Settings Cookies Code

raw JSON Beautify

```
1 {
2   "studentId": "100",
3   "name": "tester05",
4   "department": "testDep05",
5   "major": "testMaj05"
6 }
```

Body Cookies Headers (5) Test Results 200 OK 28 ms 186 B Save Response

Pretty Raw Preview Visualize Text

```
1 Student doesn't exist.
```