

JavaAcademy

**Student Management System - Java
Spring Data JPA and MySQL**

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1 Introduction

This document explains the implementation of a basic **Student Management System** using Java Spring Boot and MySQL. The application manages students' information and provides REST APIs for creating, retrieving, updating, and deleting student records.

2 API Usage and Output

The following sections detail the API endpoints and their respective outputs obtained using Postman.

2.1 All Students

The endpoint `/rest/Student` was used to retrieve all students from the database. Below is a sample response:

```
[
  {
    "id": 1,
    "lastName": "Smith",
    "firstName": "John",
    "firstPeriod": 10.00,
    "secondPeriod": 90.00,
    "average": 50.00,
    "passStatus": "Fail"
  },
  {
    "id": 2,
    "lastName": "Johnson",
    "firstName": "Emily",
    "firstPeriod": 78.25,
    "secondPeriod": 82.50,
    "average": 80.375,
    "passStatus": "Pass"
  },
  {
    "id": 3,
    "lastName": "Williams",
    "firstName": "Michael",
    "firstPeriod": 91.00,
    "secondPeriod": 88.75,
    "average": 89.875,
    "passStatus": "Pass"
  },
  {

```

```

    "id": 4,
    "lastName": "Brown",
    "firstName": "Sarah",
    "firstPeriod": 70.00,
    "secondPeriod": 75.50,
    "average": 72.75,
    "passStatus": "Pass"
  },
  {
    "id": 5,
    "lastName": "Jones",
    "firstName": "David",
    "firstPeriod": 20.00,
    "secondPeriod": 85.25,
    "average": 52.625,
    "passStatus": "Fail"
  }
]

```

This response shows the complete list of students, along with their scores, average, and pass/fail status.

2.2 Adding a Student

A new student was added using the POST method to the `/rest/Student` endpoint with the following data:

```

{
  "lastName": "Pedro",
  "firstName": "Hinojosa",
  "firstPeriod": 98.10,
  "secondPeriod": 99.50
}

```

The response from the API confirms the successful addition of the student:

```

{
  "id": 6,
  "lastName": "Pedro",
  "firstName": "Hinojosa",
  "firstPeriod": 98.10,
  "secondPeriod": 99.50,
  "average": 98.80,
  "passStatus": "Pass"
}

```

2.3 Deleting a Student

The DELETE method was used to remove a student by their ID, `/rest/Student/3`. After deletion, the list of students is as follows:

```
[
  {
    "id": 1,
    "lastName": "Smith",
    "firstName": "John",
    "firstPeriod": 10.00,
    "secondPeriod": 90.00,
    "average": 50.00,
    "passStatus": "Fail"
  },
  {
    "id": 2,
    "lastName": "Johnson",
    "firstName": "Emily",
    "firstPeriod": 78.25,
    "secondPeriod": 82.50,
    "average": 80.375,
    "passStatus": "Pass"
  },
  {
    "id": 4,
    "lastName": "Brown",
    "firstName": "Sarah",
    "firstPeriod": 70.00,
    "secondPeriod": 75.50,
    "average": 72.75,
    "passStatus": "Pass"
  },
  {
    "id": 5,
    "lastName": "Jones",
    "firstName": "David",
    "firstPeriod": 20.00,
    "secondPeriod": 85.25,
    "average": 52.625,
    "passStatus": "Fail"
  },
  {
    "id": 6,
    "lastName": "Pedro",
    "firstName": "Hinojosa",
    "firstPeriod": 98.10,
```

```

        "secondPeriod": 99.50,
        "average": 98.80,
        "passStatus": "Pass"
    }
]

```

2.4 Passed Students

The following students passed based on their average scores (70 or above):

```

[
    {
        "id": 2,
        "lastName": "Johnson",
        "firstName": "Emily",
        "firstPeriod": 78.25,
        "secondPeriod": 82.50,
        "average": 80.375,
        "passStatus": "Pass"
    },
    {
        "id": 4,
        "lastName": "Brown",
        "firstName": "Sarah",
        "firstPeriod": 70.00,
        "secondPeriod": 75.50,
        "average": 72.75,
        "passStatus": "Pass"
    },
    {
        "id": 6,
        "lastName": "Pedro",
        "firstName": "Hinojosa",
        "firstPeriod": 98.10,
        "secondPeriod": 99.50,
        "average": 98.80,
        "passStatus": "Pass"
    }
]

```

2.5 Failed Students

The following students failed, as their average scores were below 70:

```

[
    {

```

```
    "id": 1,
    "lastName": "Smith",
    "firstName": "John",
    "firstPeriod": 10.00,
    "secondPeriod": 90.00,
    "average": 50.00,
    "passStatus": "Fail"
  },
  {
    "id": 5,
    "lastName": "Jones",
    "firstName": "David",
    "firstPeriod": 20.00,
    "secondPeriod": 85.25,
    "average": 52.625,
    "passStatus": "Fail"
  }
]
```

3 Conclusion

This document demonstrates the output of various operations in the Student Management System through Postman. The data provides clear insights into how students are managed, showing operations such as adding new students, filtering them by pass or fail status, and deleting entries.