



CSE434 - Aspect & Service Oriented Programming

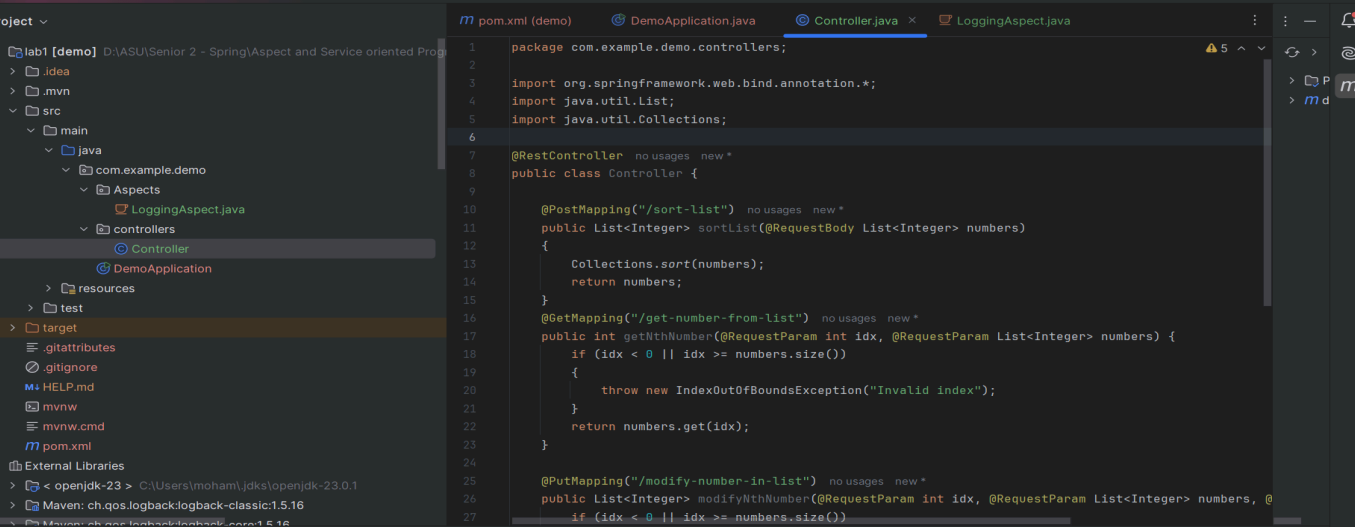
CESS

Spring 2025

Lab 1

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1. Code Screenshots:

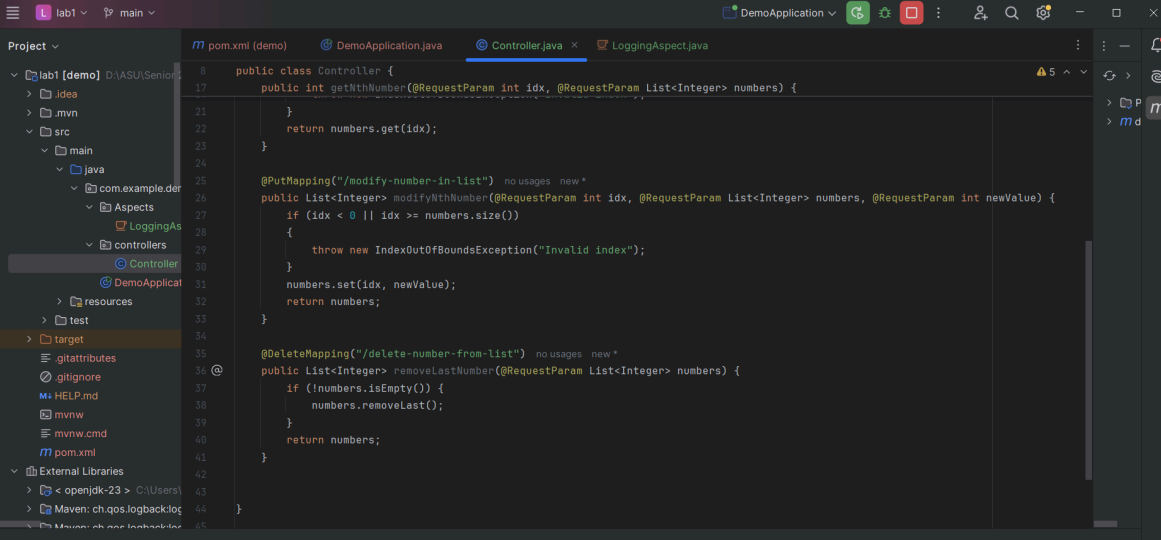


This screenshot shows the IntelliJ IDEA IDE with the `Controller.java` file open. The file is located in the package `com.example.demo.controllers`. It contains the following code:

```
1 package com.example.demo.controllers;
2
3 import org.springframework.web.bind.annotation.*;
4 import java.util.List;
5 import java.util.Collections;
6
7 @RestController
8 public class Controller {
9
10     @PostMapping("/sort-list")
11     public List<Integer> sortList(@RequestBody List<Integer> numbers)
12     {
13         Collections.sort(numbers);
14         return numbers;
15     }
16
17     @GetMapping("/get-number-from-list")
18     public int getNthNumber(@RequestParam int idx, @RequestParam List<Integer> numbers) {
19         if (idx < 0 || idx >= numbers.size())
20         {
21             throw new IndexOutOfBoundsException("Invalid index");
22         }
23         return numbers.get(idx);
24     }
25
26     @PutMapping("/modify-number-in-list")
27     public List<Integer> modifyNthNumber(@RequestParam int idx, @RequestParam List<Integer> numbers, @
```

The IDE interface shows the project structure on the left, with the `Controller` class selected. The bottom panel displays the 'Problems' tab, showing two warnings:

- Class 'Controller' is never used.
- Method 'sortList(java.util.List<java.lang.Integer>)' is never used.



This screenshot shows the IntelliJ IDEA IDE with the `Controller.java` file open, displaying the continuation of the code from the previous screenshot:

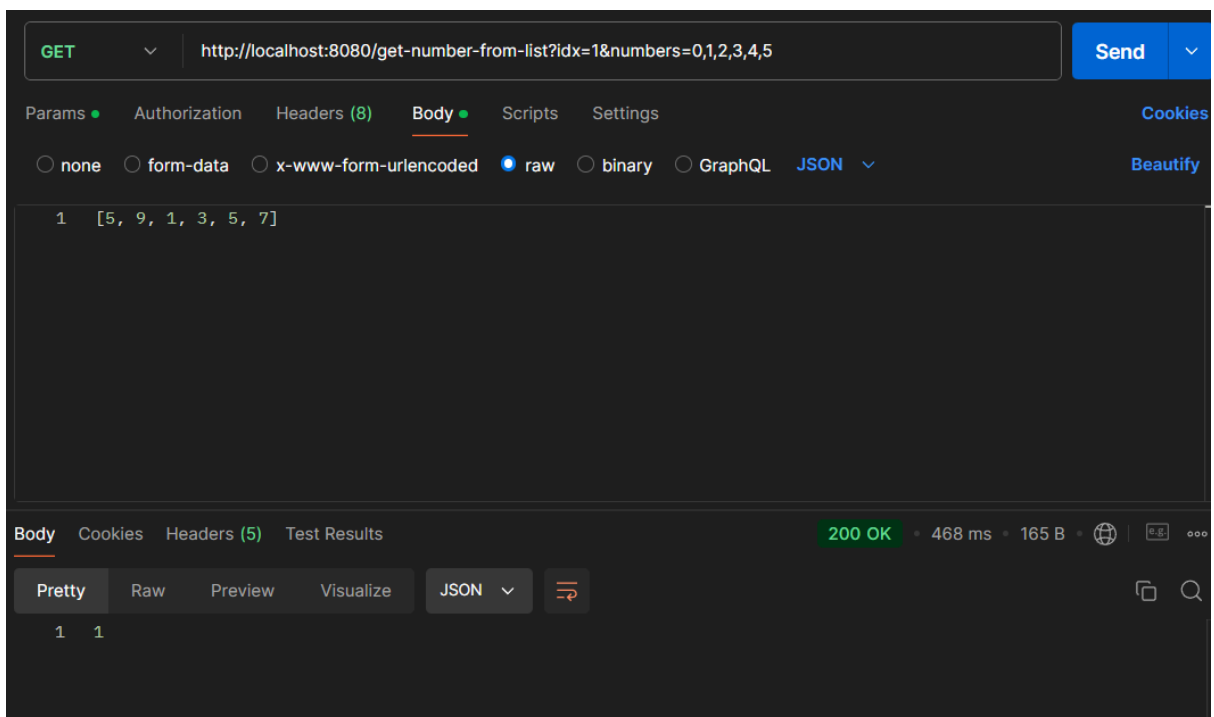
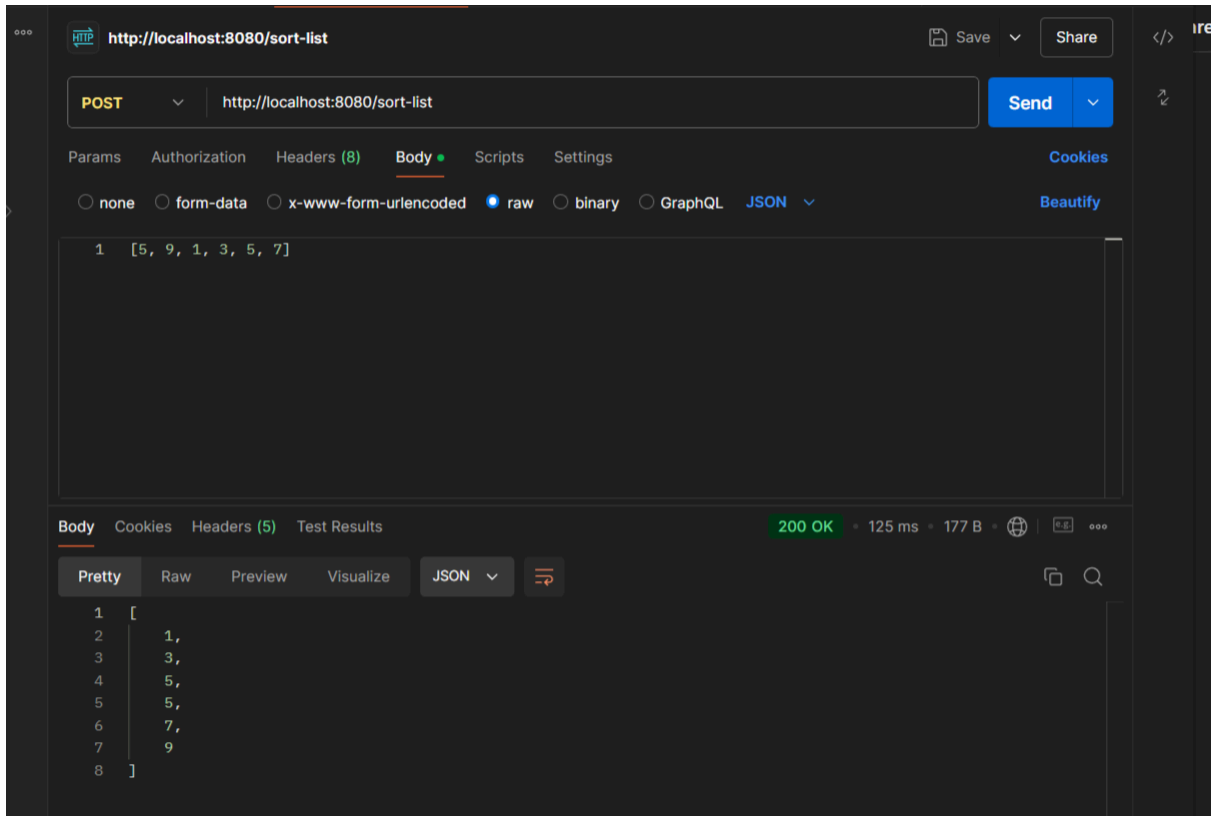
```
28     {
29         throw new IndexOutOfBoundsException("Invalid index");
30     }
31     numbers.set(idx, newValue);
32     return numbers;
33 }
34
35 @DeleteMapping("/delete-number-from-list")
36 public List<Integer> removeLastNumber(@RequestParam List<Integer> numbers) {
37     if (!numbers.isEmpty())
38     {
39         numbers.removeLast();
40     }
41     return numbers;
42 }
43
44 }
```

The IDE interface shows the project structure on the left, with the `Controller` class selected. The bottom panel displays the 'Problems' tab, showing two warnings:

- Class 'Controller' is never used.
- Method 'sortList(java.util.List<java.lang.Integer>)' is never used.

```
1 package com.example.demo.Aspects;
2
3 import org.aspectj.lang.annotation.*;
4 import org.aspectj.lang.JoinPoint;
5 import org.springframework.stereotype.Component;
6
7 @Aspect no usages new *
8 @Component
9 public class LoggingAspect {
10
11     @Before("execution(* com.example.demo.controllers.Controller.*(..))") no usages new *
12     @ public void logBefore(JoinPoint joinPoint) {
13         System.out.println("🔵 Starting execution of: " + joinPoint.getSignature().getName());
14     }
15 }
```

2. PostMan Screenshots:



PUT

http://localhost:8080/modify-number-in-list?idx=4&numbers=0,1,2,3,4,5&newValue=200

Send

Params Authorization Headers (8) Body Scripts Settings Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

```
1 [5, 9, 1, 3, 5, 7]
```

Body Cookies Headers (5) Test Results 200 OK • 29 ms • 179 B •

Pretty Raw Preview Visualize JSON

```
1 [
2   0,
3   1,
4   2,
5   3,
6   200,
7   5
8 ]
```

DELETE

http://localhost:8080/delete-number-from-list?numbers=0,1,2,3,4,5

Send

Params Authorization Headers (8) Body Scripts Settings Cookies

none

form-data

x-www-form-urlencoded

raw

binary

GraphQL

JSON

Beautify

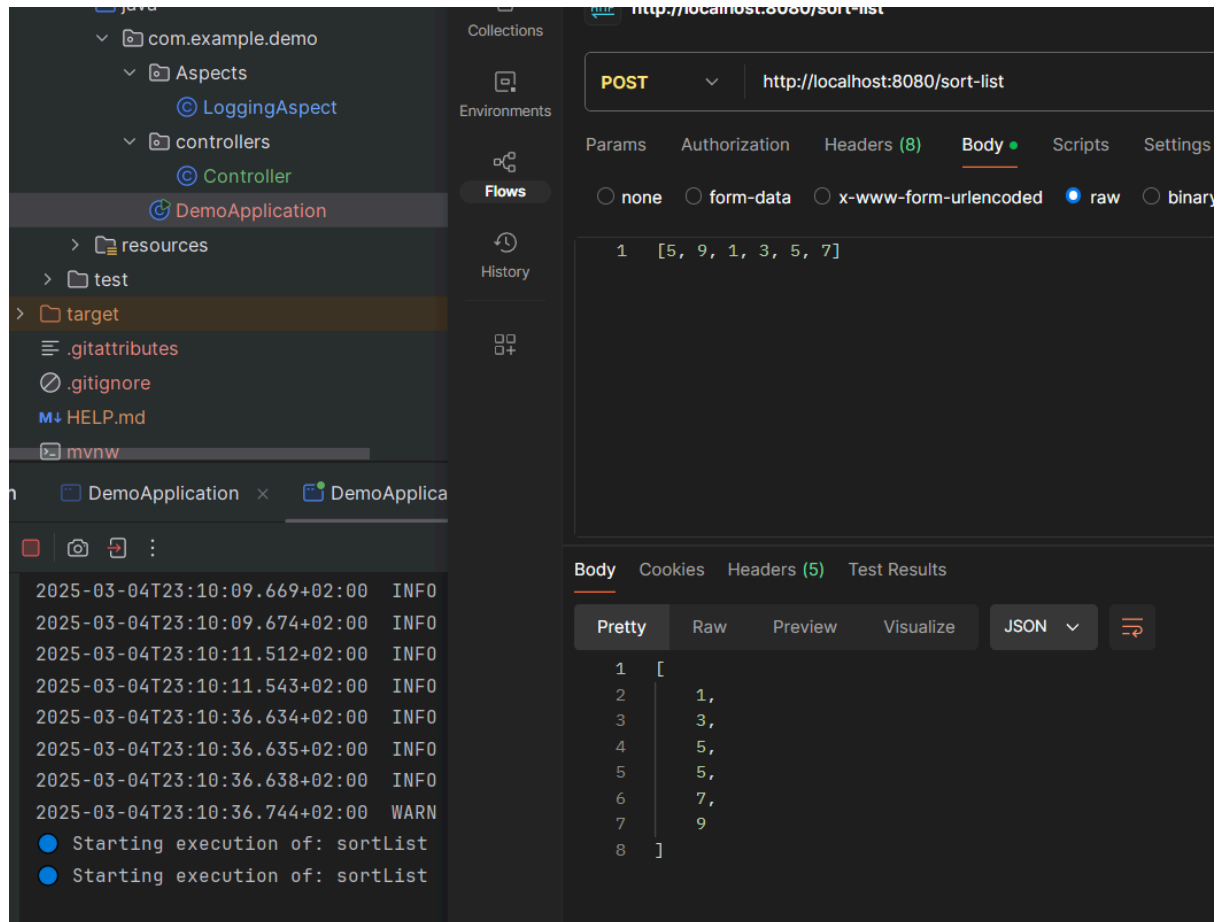
```
1 [5, 9, 1, 3, 5, 7]
```

Body Cookies Headers (5) Test Results 200 OK • 16 ms • 175 B •

Pretty Raw Preview Visualize JSON

```
1 [
2   0,
3   1,
4   2,
5   3,
6   4
7 ]
```

3. Aspect output example when using an endpoint:



The screenshot displays an IDE on the left and a REST client on the right. The IDE's project explorer shows a package structure: `com.example.demo` containing `Aspects` (with `LoggingAspect`), `controllers` (with `Controller`), and `DemoApplication`. Below this, there are folders for `resources`, `test`, and `target`, along with files like `.gitattributes`, `.gitignore`, `HELP.md`, and `mvnw`. The IDE's console at the bottom shows a series of log messages with timestamps and log levels (INFO, WARN). The last two messages are: `Starting execution of: sortList` and `Starting execution of: sortList`, each preceded by a blue dot icon.

The REST client on the right shows a `POST` request to `http://localhost:8080/sort-list`. The request body is set to `raw` and contains the text: `1 [5, 9, 1, 3, 5, 7]`. The response body is shown in the `Body` tab, formatted as `JSON` and displaying a list: `[1, 3, 5, 5, 7, 9]`.

* We can see that “Starting execution of: sortList” was printed after using the sort list endpoint.

Github repo link:

<https://github.com/MohamedMaghrabyyy/Aspect-and-Service-Oriented-Programming-Labs>