SHRI VILEPARLE KELAVANI MANDAL'S
DWARKADAS J. SANGHVI COLLEGE OF ENGINEERING
(Autonomous College Affiliated to the University of Mumbai)
NAAC ACCREDITED with "A" GRADE (CGPA : 3.18)

DEPARTMENT OF INFORMATION TECHNOLOGY

COURSE CODE: DJS22ITL306 **DATE: 11/12/2023**

COURSE NAME: Programing Laboratory 1 (Advanced Java)

CLASS: S.Y B. Tech IT

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EXPERIMENT NO. 8

CO/LO:
CO1- Modify the behaviour of methods, classes, and interfaces at runtime.

AIM / OBJECTIVE:

Set up a spring framework and create application using the same.

PROBLEM STATEMENTS:

Setup a spring framework in any IDE, and write a program to generate result of students from given marks.

Code :

1)Student class :

src/main/java/com/example/demo/model/Student.java

```
package com.example.demo.model;

public class Student {
    private String name;
    private int marks;

    // Constructors, getters, setters

    // Method to determine the result
    public String getResult() {
        return (marks >= 40) ? "Pass" : "Fail";
    }
}
```

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2) Controlller:

src/main/java/com/example/demo/controller/ResultController.java

```
package com.example.demo.controller;

import org.springframework.stereotype.Controller;
import org.springframework.ui.Model;
import org.springframework.web.bind.annotation.GetMapping;

import com.example.demo.model.Student;

@Controller
public class ResultController {

    @GetMapping("/generateResult")
    public String generateResult(Model model) {
        // Create a sample student
        Student student = new Student();
        student.setName("John Doe");
        student.setMarks(65);

        // Add student and result to the model
        model.addAttribute("student", student);
        model.addAttribute("result", student.getResult());

        // Return the Thymeleaf template name
        return "result";
    }
}
```

3) Thymeleaf Template:

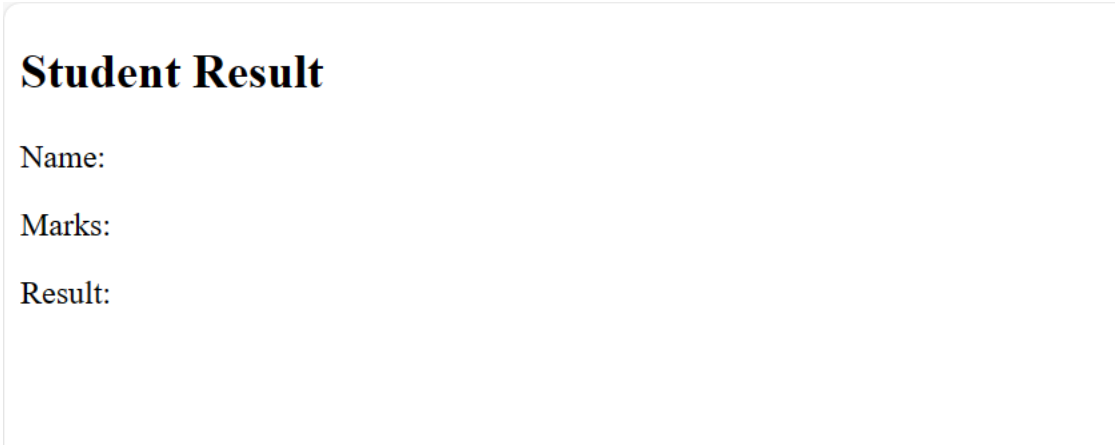
src/main/resources/templates/result.html

```
<!DOCTYPE html>
<html lang="en" xmlns:th="http://www.thymeleaf.org">
<head>
    <meta charset="UTF-8">
    <title>Student Result</title>
```

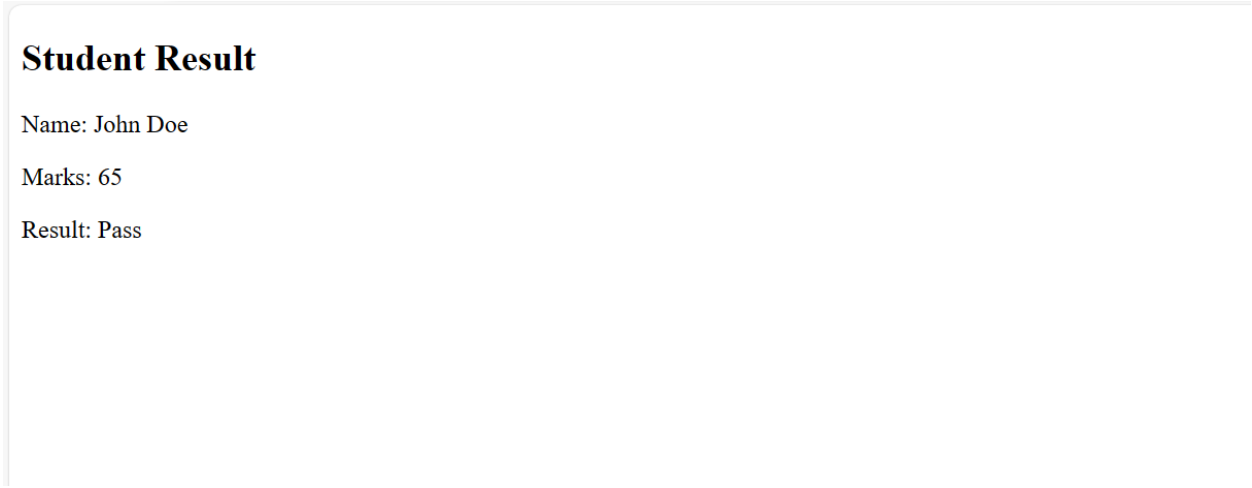
```
</head>
<body>

<h2>Student Result</h2>
<p>Name: <span th:text="${student.name}"></span></p>
<p>Marks: <span th:text="${student.marks}"></span></p>
<p>Result: <span th:text="${result}"></span></p>

</body>
</html>
```

Output:

Before execution:



After execution:



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OBSERVATION:

The Spring Framework is a comprehensive and widely used framework for Java development, offering a range of features and benefits that make it popular among developers. Here are some advantages of the Spring Framework:

Modularity:

Spring follows a modular design, allowing developers to use only the modules that are needed for their application. This modularity promotes a lightweight and flexible development approach.

Inversion of Control (IoC):

The IoC container in Spring manages the components of the application, reducing the coupling between classes. This inversion of control simplifies the integration of components and promotes a more maintainable and testable codebase.

Aspect-Oriented Programming (AOP):

Spring provides support for AOP, allowing developers to separate cross-cutting concerns such as logging, security, and transactions. AOP helps in achieving cleaner and more maintainable code by modularizing cross-cutting concerns.

Dependency Injection (DI):

Spring's DI container simplifies the process of injecting dependencies into components, making the code more modular and easier to test. It promotes loose coupling between components and enhances code readability.

Abstraction over Low-Level APIs:

Spring provides abstractions over low-level APIs like JDBC, JMS, and JTA. This abstraction simplifies the development process and promotes consistency across different technologies.

Data Access:

Spring's JDBC and ORM (Object-Relational Mapping) modules simplify data access operations. Spring provides support for various data sources, transaction management, and declarative transactions, making database interactions more efficient.

CONCLUSION:

We learned and implemented an application with spring framework of java in this experiment and understood the benefits of this framework through the observation.