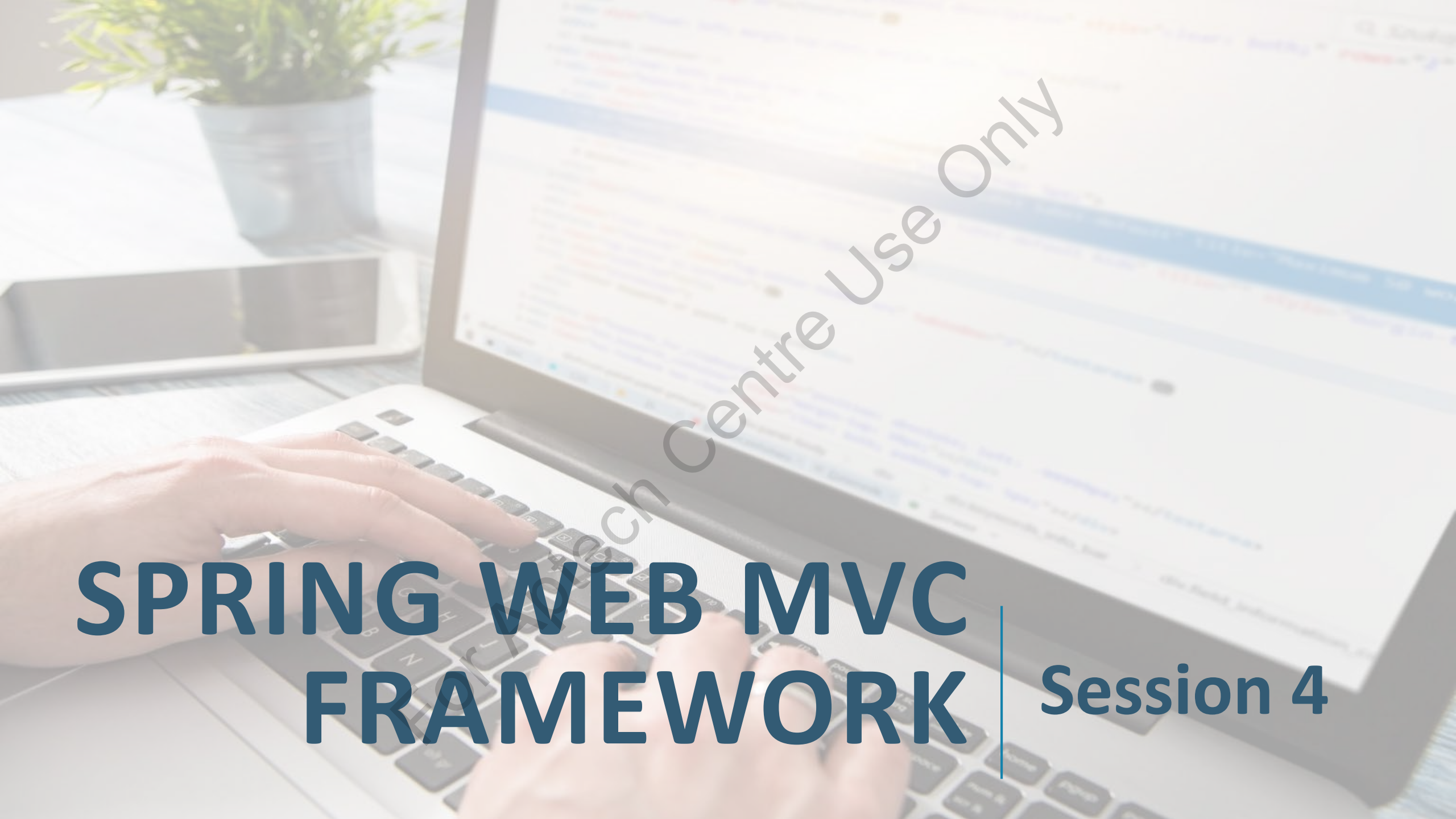


SPRING WEB MVC FRAMEWORK

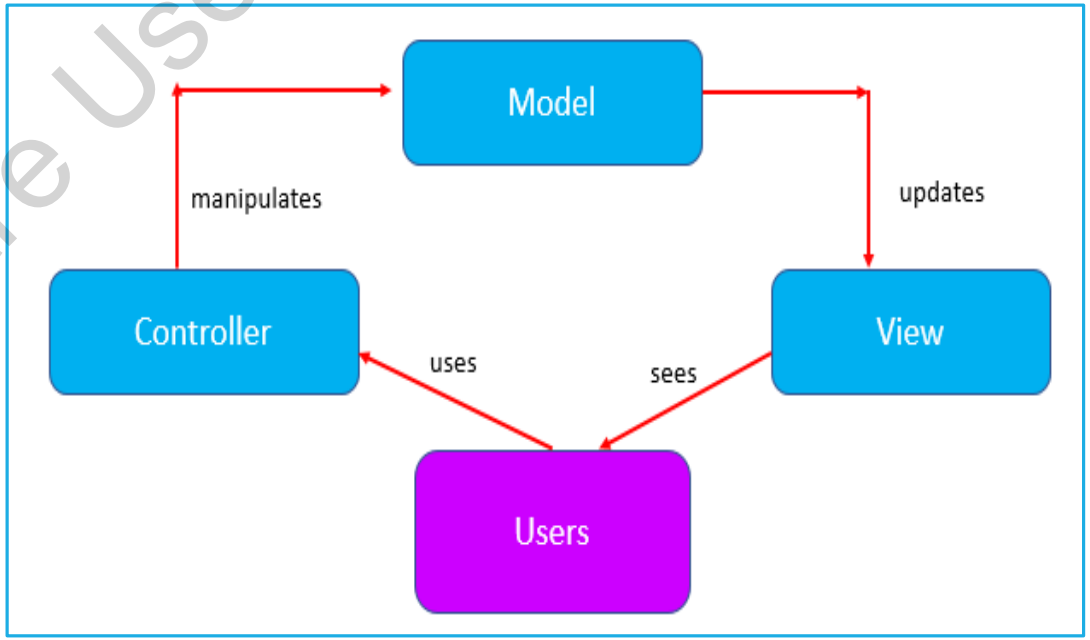
Session 4

OBJECTIVES

- Explain MVC architecture
- Explain how to use MVC architecture in Spring applications
- Describe the steps to develop a Spring MVC application
- Describe Bootstrap in Spring MVC programs

MVC ARCHITECTURE AND 'SEPARATION OF CONCERN' PATTERN (1-3)

- Model-View-Controller (MVC) is a software design pattern or technology framework.
- It organizes Web application code into following interconnected units:
  - Model
  - View
  - Controller



MVC Architecture

MVC ARCHITECTURE AND 'SEPARATION OF CONCERN' PATTERN (2-3)

Model

- is the central component of the MVC framework and manages the application's business logic, data, and rules.

View

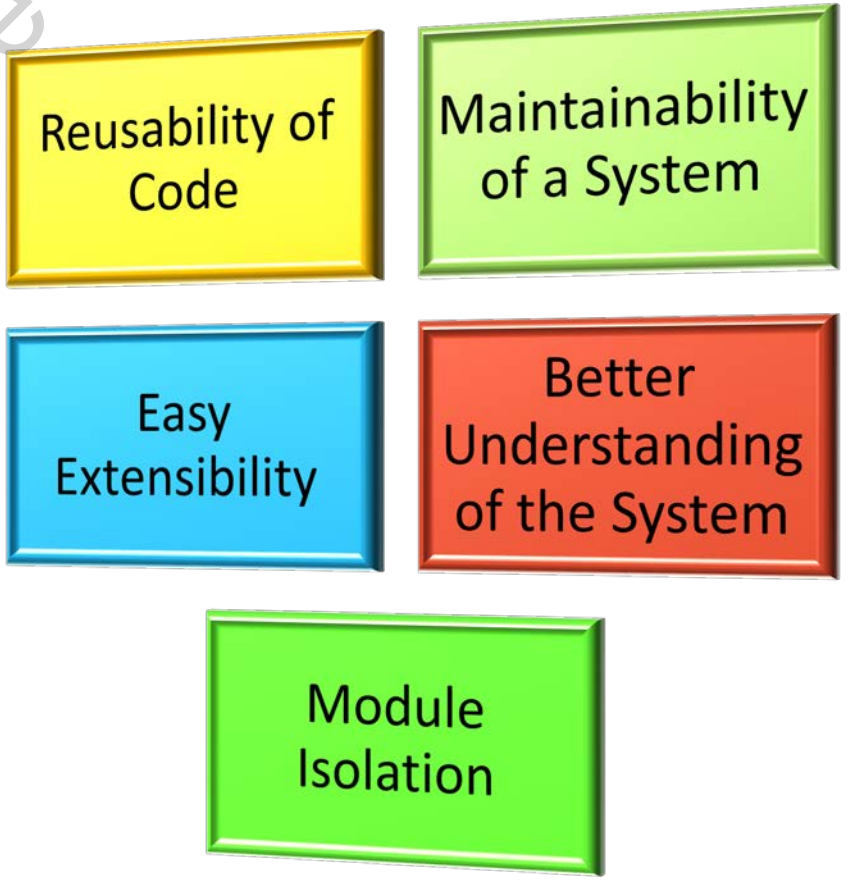
- is the interactive user interface to display the information from the Model component.

Controller

- is the software code that handles a request from a view and converts it to appropriate command for the model or the view component.

MVC ARCHITECTURE AND 'SEPARATION OF CONCERN' PATTERN (3-3)

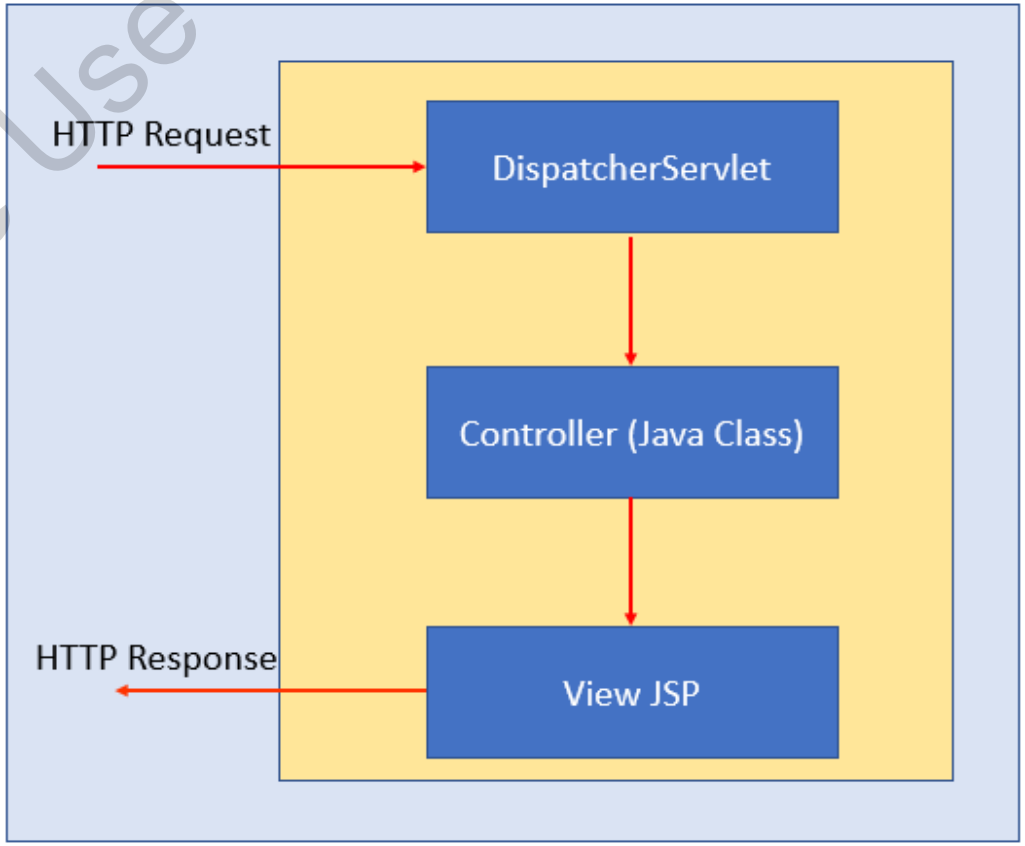
- MVC supports Separation of Concerns (SoC) design principle.
- As per SoC, a software system or a program must be decomposed into distinct sections with least overlap in functionality and each section addressed as a separate concern.



Benefits of SoC

UNDERSTANDING SPRING MVC - DISPATCHERSERVLET

- The Spring MVC Framework provides ready components that can be used to develop flexible and loosely-coupled Web applications.
- A Spring MVC controller is also known as front controller and generally referred to a single servlet titled **DispatcherServlet**.



Spring Web MVC DispatcherServlet – Request Processing Workflow

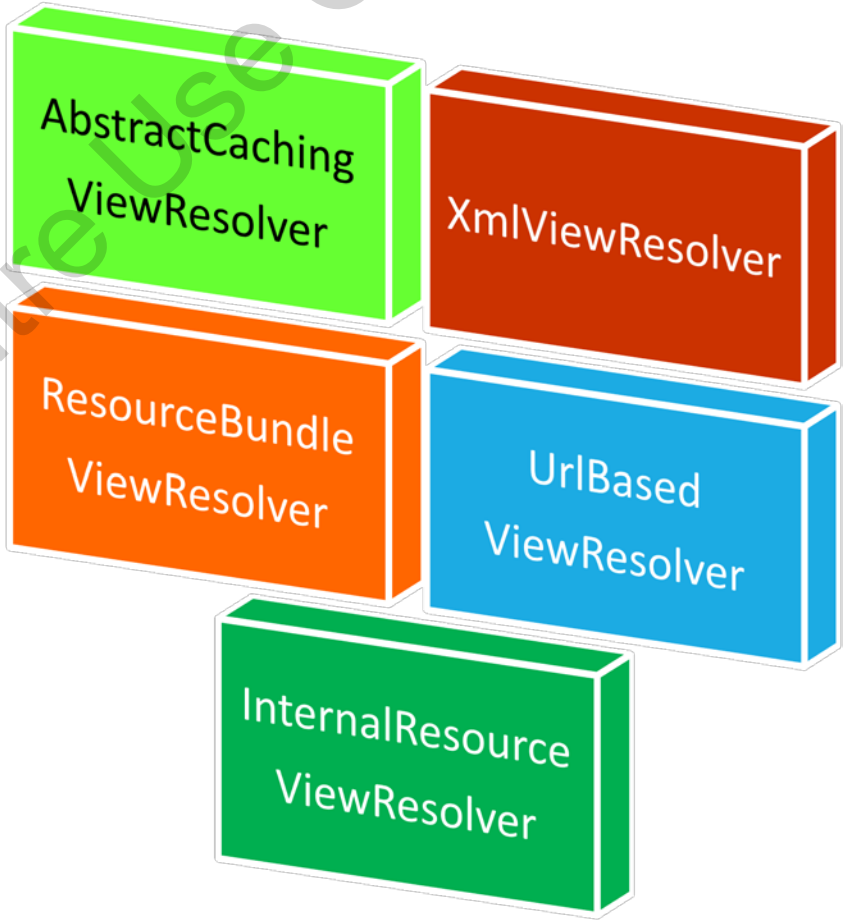
CONTROLLERS IN SPRING MVC

- Controllers are implemented using the controller class.
- The controller class is created using the @Controller annotation to handle one or multiple requests. Following Code snippet defines the controller class:

```
@Controller
@RequestMapping("/welcome")
public class WelcomeController {
   @RequestMapping(method = RequestMethod.GET)
   public String printWelcome(ModelMap model) {
      model.addAttribute("message", "Welcome to Spring MVC
     Framework!");
     return "Welcome";    } }
```

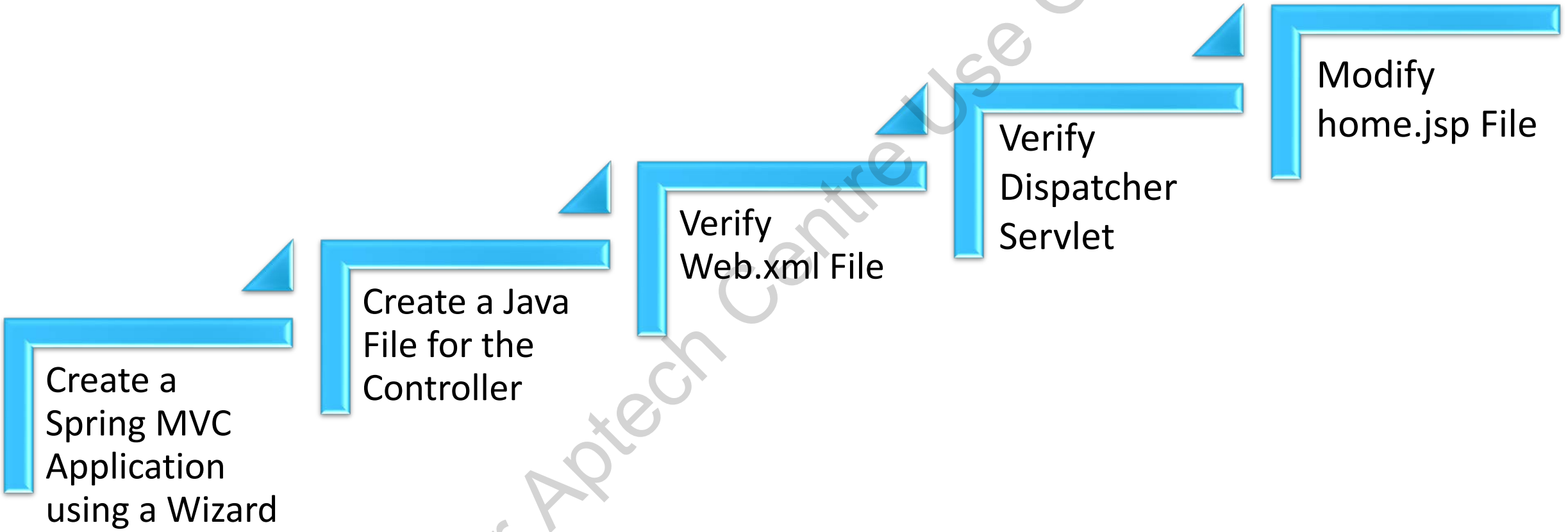
VIEW, VIEW RESOLVERS, AND MODELS IN SPRING MVC

- The most common type of view used by Spring MVC is JSP templates written with JSTL.
- The DispatcherServlet takes help from ViewResolver interface to pick up the defined view for the request.
- A model is typically a JavaBean or a POJO that has getters and setters to manipulate its contents.



Types of ViewResolvers

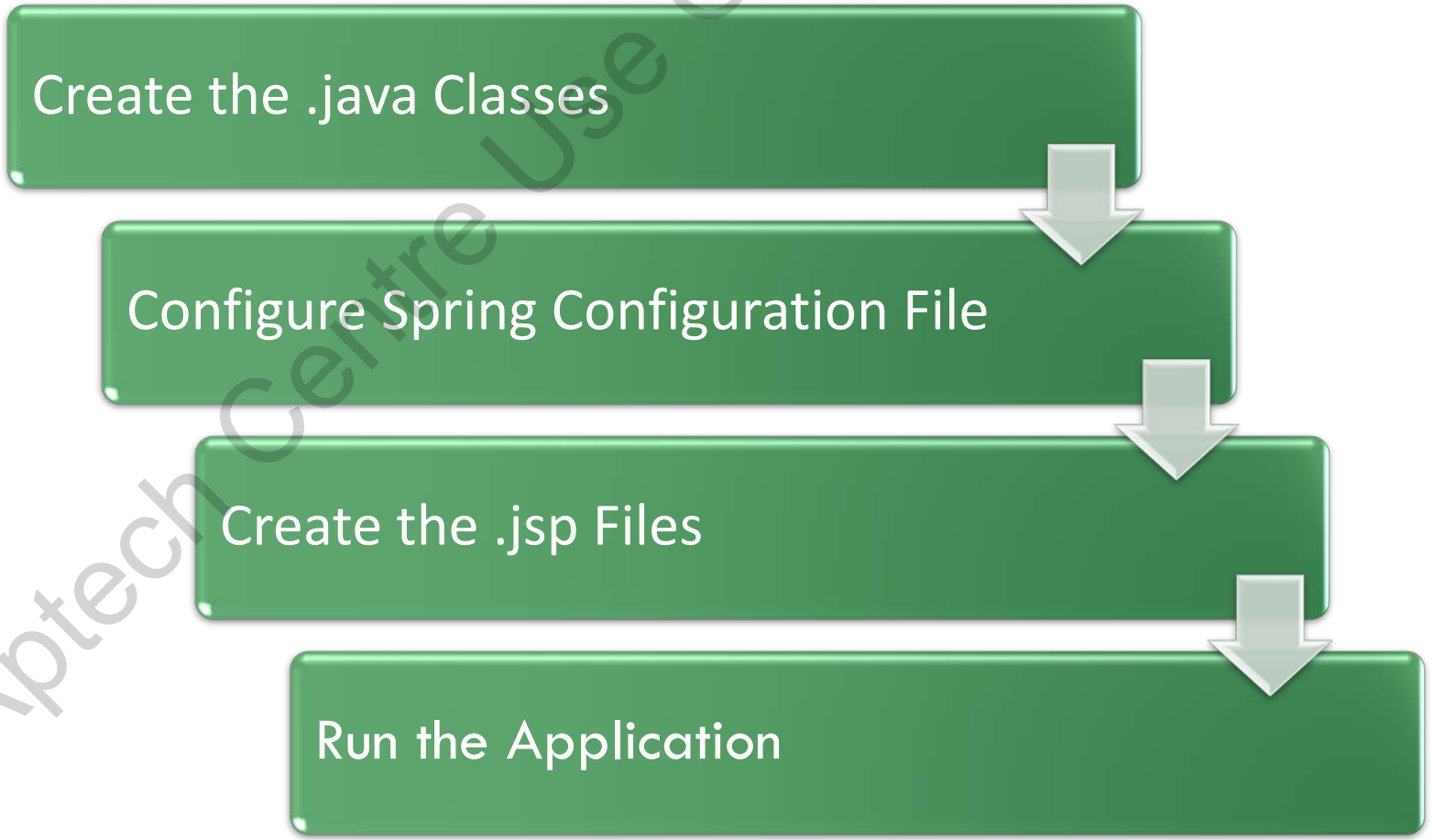
DEVELOPING A SPRING MVC APPLICATION



Steps to Develop a Simple Spring MVC Application

VALIDATING FORMS

- Spring MVC provides support to validate the data that is specified in the HTML form.



Steps to Validate Forms using Spring MVC

SUMMARY

- MVC is a software design pattern, used to develop user interfaces of Web applications.
- MVC Framework divides an application into interconnected components: Model, View, and Controller.
- Separation of Concern (SoC) is a design principle as per which the software system or a program is divided into distinct sections with minimum functionality overlap.
- A concern is a set of information that affects the code of a computer program.
- DispatcherServlet handles all the HTTP requests and responses in a Spring MVC application.
- Spring MVC provides support for HTML form validation.