

ToDo App using Spring MVC

1. Prerequisites

Make sure you have these installed:

- Java JDK (8 or above)
 - Eclipse IDE for Java EE Developers
 - Apache Tomcat (9 or above)
 - Maven (comes built-in with Eclipse)
 - Optional: MySQL if you want to persist data (can skip for in-memory app)
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2. Create a Spring MVC Maven Project

◊ Step 1: Create a New Maven Project

1. Open Eclipse → File → New → Maven Project
2. Use archetype: maven-archetype-webapp
3. Group ID: com.todoapp
4. Artifact ID: spring-mvc-todo

◊ Step 2: Project Structure

Eclipse will generate:

```
spring-mvc-todo/
|
└── src/main/java/    <-- Java code
└── src/main/webapp/   <-- Web files (JSP, CSS, JS)
    └── WEB-INF/
        └── web.xml    <-- Deployment descriptor
└── pom.xml           <-- Maven dependencies
```

Group Id	Artifact Id	Version
org.apache.maven.archetypes	maven-archetype-archetype	1.0
org.apache.maven.archetypes	maven-archetype-j2ee-simple	1.0
org.apache.maven.archetypes	maven-archetype-plugin	1.2
org.apache.maven.archetypes	maven-archetype-plugin-site	1.1
org.apache.maven.archetypes	maven-archetype-portlet	1.0.1
org.apache.maven.archetypes	maven-archetype-profiles	1.0-alpha-4
org.apache.maven.archetypes	maven-archetype-quickstart	1.1
org.apache.maven.archetypes	maven-archetype-site	1.1
org.apache.maven.archetypes	maven-archetype-site-simple	1.1
org.apache.maven.archetypes	maven-archetype-webapp	1.0

3. Add Dependencies in pom.xml

```
1. <project xmlns="http://maven.apache.org/POM/4.0.0" ...>
2.
3. <modelVersion>4.0.0</modelVersion>
4. <groupId>com.todoapp</groupId>
5. <artifactId>spring-mvc-todo</artifactId>
6. <version>1.0-SNAPSHOT</version>
7. <packaging>war</packaging>
8.
9. <dependencies>
10. <!-- Spring MVC -->
11. <dependency>
12.   <groupId>org.springframework</groupId>
13.   <artifactId>spring-webmvc</artifactId>
14.   <version>5.3.30</version>
15. </dependency>
16.
```

```

17. <!-- Servlet API (Provided by container) -->
18. <dependency>
19.   <groupId>javax.servlet</groupId>
20.   <artifactId>javax.servlet-api</artifactId>
21.   <version>4.0.1</version>
22.   <scope>provided</scope>
23. </dependency>
24.
25. <!-- JSTL -->
26. <dependency>
27.   <groupId>javax.servlet</groupId>
28.   <artifactId>jstl</artifactId>
29.   <version>1.2</version>
30. </dependency>
31. </dependencies>
32.
33.</project>
34.

```

4. Web.xml File:

```

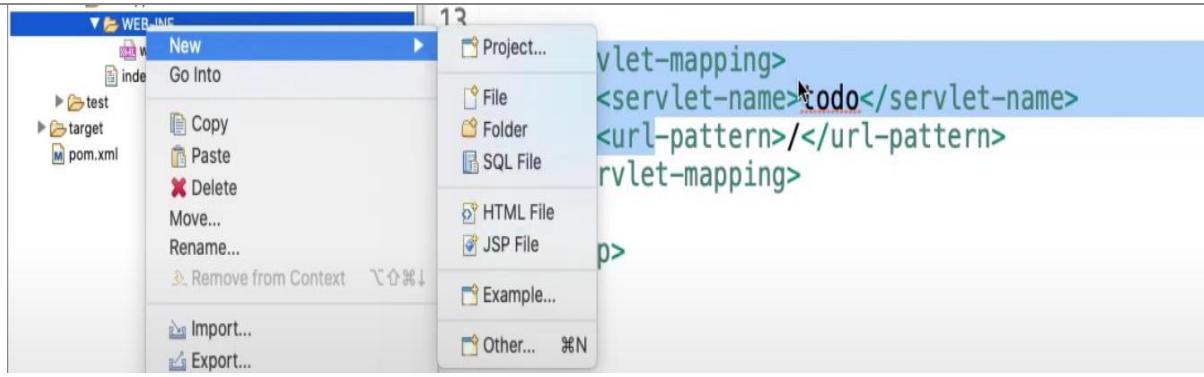
1. <web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
2.   version="3.1">
3.
4.   <servlet>
5.     <servlet-name>dispatcher</servlet-name>
6.     <servlet-
class>org.springframework.web.servlet.DispatcherServlet</servlet-
class>
7.     <init-param>
8.       <param-name>contextConfigLocation</param-name>
9.       <param-value>/WEB-INF/dispatcher-servlet.xml</param-value>
10.      </init-param>
11.      <load-on-startup>1</load-on-startup>
12.    </servlet>
13.
14.    <servlet-mapping>
15.      <servlet-name>dispatcher</servlet-name>
16.      <url-pattern>/</url-pattern>
17.    </servlet-mapping>
18.

```

```

19. <welcome-file-list>
20.   <welcome-file>index.jsp</welcome-file>
21. </welcome-file-list>
22. </web-app>
23.

```



5. Configure Spring in dispatcher-servlet.xml

Create dispatcher-servlet.xml in WEB-INF:

```

1. <?xml version="1.0" encoding="UTF-8"?>
2. <beans xmlns="http://www.springframework.org/schema/beans"
3.   xmlns:mvc="http://www.springframework.org/schema/mvc"
4.
5.   xmlns:context="http://www.springframework.org/schema/context"
6.   xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
7.   xsi:schemaLocation="
8.     http://www.springframework.org/schema/beans
9.     http://www.springframework.org/schema/beans/spring-
beans.xsd
10.    http://www.springframework.org/schema/mvc
11.    http://www.springframework.org/schema/mvc/spring-mvc.xsd
12.    http://www.springframework.org/schema/context
13.    http://www.springframework.org/schema/context/spring-
context.xsd">
14.    <!-- Enable component scanning -->
15.    <context:component-scan base-package="com.todoapp.controller"
/>
16.

```

```
17. <!-- Enable annotations -->
18. <mvc:annotation-driven />
19.
20. <!-- View Resolver -->
21. <bean
class="org.springframework.web.servlet.view.InternalResourceViewResol
ver">
22.   <property name="prefix" value="/WEB-INF/views/" />
23.   <property name="suffix" value=".jsp" />
24. </bean>
25.
26. </beans>
27.
```

💻 6. Create Controller, Model, and View

❖ Controller – ToDoController.java

```
1. package com.todoapp.controller;
2.
3. import java.util.ArrayList;
4. import java.util.List;
5.
6. import org.springframework.stereotype.Controller;
7. import org.springframework.ui.Model;
8. import org.springframework.web.bind.annotation.*;
9.
10. @Controller
11. public class ToDoController {
12.
13.   private List<String> tasks = new ArrayList<>();
14.
15.   @GetMapping("/")
16.   public String showForm(Model model) {
17.     model.addAttribute("tasks", tasks);
18.     return "index";
19.   }
20.
21.   @PostMapping("/add")
22.   public String addTask(@RequestParam("task") String task) {
```

```

23.     tasks.add(task);
24.     return "redirect:/";
25. }
26.
27. @GetMapping("/delete")
28. public String deleteTask(@RequestParam("index") int index) {
29.     tasks.remove(index);
30.     return "redirect:/";
31. }
32. }
33.

```

❖ View – index.jsp (inside WEB-INF/views/)

```

1. <%@ page contentType="text/html;charset=UTF-8" language="java"
%>
2. <html>
3. <head>
4.   <title>ToDo App</title>
5. </head>
6. <body>
7.   <h2>ToDo List</h2>
8.
9.   <form action="add" method="post">
10.    <input type="text" name="task" required />
11.    <button type="submit">Add Task</button>
12.   </form>
13.
14.   <ul>
15.     <c:forEach var="task" items="${tasks}" varStatus="status">
16.       <li>
17.         ${task}
18.         <a href="delete?index=${status.index}">X</a>
19.       </li>
20.     </c:forEach>
21.   </ul>
22. </body>
23. </html>
24.

```

Note: Add JSTL taglib at the top if using <c:forEach>:

```
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
```

► 7. Run Your App

1. Right-click project → Run As → Run on Server
2. Choose Apache Tomcat → Finish
3. App will run at: <http://localhost:8080/spring-mvc-todo/>