

Spring Web MVC

Maven dependency

```
<dependency>  
  <groupId>org.springframework.boot</groupId>  
  <artifactId>spring-boot-starter-web</artifactId>  
</dependency>
```

Overview

- Support for standard (@Controller) and REST (@RestController) style of controllers.
- Based on POJO classes; controllers don't implement a framework-specific interface or extend a base class.
- Automatic binding of request parameters or body to class objects.
- Direct output generation in XML/JSON/Atom or delegation to a view technology such as JSP, Thymeleaf, Velocity, etc.

Request mapping

- @RequestMapping is used to map requests to controller methods.
- Used to match the URL, HTTP method, request parameters, headers and media types.
- Can be used on class level or on method level.
- HTTP method specific shortcuts:
 - @GetMapping, @PostMapping, @PutMapping, @DeleteMapping, @PatchMapping

Controller example

```
@Controller
@RequestMapping("/hello")
public class HelloWebWorldController {

    @RequestMapping(method = {RequestMethod.GET, RequestMethod.POST})
    @ResponseBody
    public String sayHello(@RequestParam("name") String name) {
        return "Hello " + name;
    }
}
```

Controller example

```
@Controller
@RequestMapping("/hello")
public class HelloWebWorldController {

    @GetMapping
    @PostMapping
    @ResponseBody
    public String sayHello(@RequestParam("name") String name) {
        return "Hello " + name;
    }
}
```

Example: HelloSpringWebWorld

@RequestBody and @ResponseBody

- **@RequestBody**: The method parameter is bound to the web request body.
- **@ResponseBody**: The method return value is bound to the web response body.

URL patterns

- Declare URI variables and access their values with `@PathVariable`.

Example:

```
@GetMapping("/owners/{ownerId}/pets/{petId}")
@ResponseBody
public Pet findPet(@PathVariable Long ownerId, @PathVariable Long petId) { // ... }
```

- Declare them at the class and the method level.

Example:

```
@Controller
@ResponseBody
@RequestMapping("/owners/{ownerId}")
public class OwnerController {

    @GetMapping("/pets/{petId}")
    public Pet findPet(@PathVariable Long ownerId, @PathVariable Long petId) { // ... }
}
```

REST controllers

@RestController is a composed annotation which it self is annotated with @Controller and @ResponseBody.

Example:

```
@RestController
@RequestMapping("/owners")
public class OwnerController {

    @GetMapping("/{id}")
    public Owner getOwner(@PathVariable Long id) { // ... }

    @PostMapping
    public void createOwner(@RequestBody Owner owner) { // ... }
}
```

Demo: REST controllers

Exercises

Exercise: Library

Modify the Library application to expose all functionalities through RESTful web services.

Application

Application: Twitter

Modify the Twitter application to expose all functionalities through RESTful web services.