

The BerraQuotes App Case Study: Server Structure & Functionality

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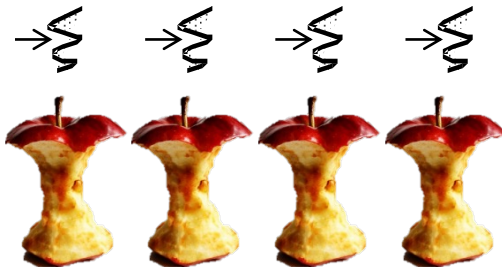
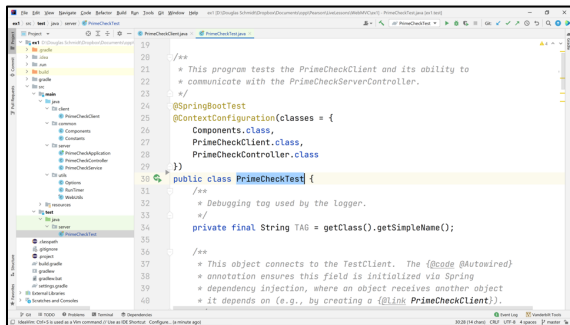
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Learning Objectives in this Part of the Lesson

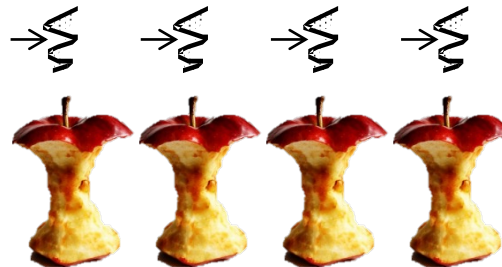
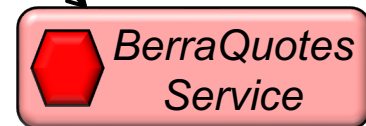
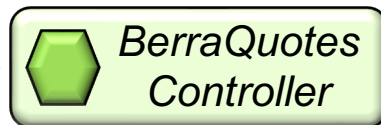
- Understand how functional programming & various Java frameworks are applied in a case study using Spring WebMVC to obtain Yogi Berra quotes

BerraQuotesTest



*HTTP GET
requests/
responses*

BerraQuotesApplication



See github.com/douglasraigschmidt/LiveLessons/tree/master/WebMVC/ex2

Structure & Functionality of the BerraQuotesController

Structure & Functionality of the BerraQuotesController

- Client HTTP GET requests are mapped to endpoint handler methods via the BerraQuotesController class

```
@RestController
public class BerraQuotesController {
    @GetMapping("/all-quotes")
    public List<Quote> getAllQuotes()
        {...}

    @GetMapping("/quotes")
    public List<Quote> getQuotes
        (@RequestParam List<Integer>
         quoteIds) {...}

    @GetMapping("search" +("/{query}")")
    public List<Quote> search
        (@PathVariable String query)
        { ... } ...
}
```

See WebMVC/ex2/src/main/java/berraquotes/BerraQuotesController.java

Structure & Functionality of the BerraQuotesController

- Client HTTP GET requests are mapped to endpoint handler methods via the BerraQuotesController class

@RestController

```
public class BerraQuotesController {  
    @GetMapping("/all-quotes")  
    public List<Quote> getAllQuotes()  
    {...}  
  
    @GetMapping("/quotes")  
    public List<Quote> getQuotes  
        (@RequestParam List<Integer>  
         quoteIds) {...}  
  
    @GetMapping("search" +("/{query}")  
    public List<Quote> search  
        (@PathVariable String query)  
        { ... } ...  
}
```

This annotation ensures request handling methods in the controller class automatically serialize return objects into HttpResponse objects

See www.baeldung.com/spring-controller-vs-restcontroller

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    public List<Quote> search
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    { ... } ...
}
```

These endpoint handler methods forward to the BerraQuoteService methods that fulfill the requests

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    public List<Quote> search
        (@PathVariable String query)
    { ... } ...
}
```

*This annotation maps
HTTP GET requests onto
endpoint handler methods*

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    public List<Quote> getQuotes
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         quoteIds) {...}

    @GetMapping("search" +("/{query}")")
    public List<Quote> search
        (@PathVariable String query)
    { ... } ...
}
```

These strings are used to automatically identify & route to endpoint handler methods from incoming GET requests

Structure & Functionality of the BerraQuotesController

- Client HTTP GET requests are mapped to endpoint handler methods via the BerraQuotesController class

This annotation maps to query parameters, form data, & parts in multipart requests

```
@RestController
public class BerraQuotesController {
    @GetMapping("/all-quotes")
    public List<Quote> getAllQuotes()
    { ... }

    @GetMapping("/quotes")
    public List<Quote> getQuotes
    (@RequestParam List<Integer>
     quoteIds) { ... }

    @GetMapping("search" +("/{query}")")
    public List<Quote> search
    (@PathVariable String query)
    { ... } ...
}
```

See www.baeldung.com/spring-request-param

Structure & Functionality of the BerraQuotesController

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        (@RequestParam List<Integer>
         quoteIds) { ... }

    @GetMapping("search" + "/" + "{query}")
    public List<Quote> search
        (@PathVariable String query)
    { ... } ...
}
```

This annotation can be used to handle template variables in the request URI mapping, & set them as method params

See www.baeldung.com/spring-pathvariable

Structure & Functionality of the BerraQuotesService

Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
    @Autowired
    List<Quote> mQuotes;
    ...
}
```

See <WebMVC/ex2/src/main/java/berraquotes/BerraQuotesService.java>

Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
    @Autowired
    List<Quote> mQuotes;
    ...
}
```

This annotation indicates the class implements "business logic" & enables auto-detection & wiring of dependent classes via classpath scanning

Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
    @Autowired
    List<Quote> mQuotes;
    ...
}
```

This annotation allows Spring to resolve & inject collaborating beans into our bean

Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
{
    ...
    List<Quote> getAllQuotes () {
        return mQuotes;
    }
    ...
}
```

Return all the quotes



Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
...
    public List<Quote> getQuotes
        (List<Integer> quoteIds) {
        return quoteIds
            .stream()

            .map(quoteId ->
                mQuotes.get(quoteId - 1))

            .toList();
        } ...
```

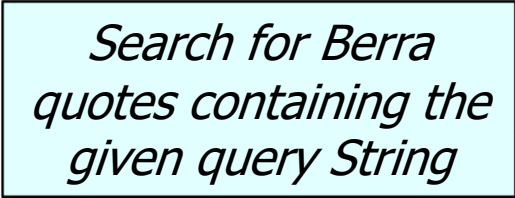
*Get a List that contains
the requested quotes*

Structure & Functionality of the BerraQuotesService

- The BerraQuotesService class defines implementation methods called by the BerraQuotesController

```
@Service
public class BerraQuotesService
...
    public List<Quote> search(String query) {
        return mQuotes
            .stream()
            .filter(quote -> quote
                .quote().toLowerCase()
                .contains(query
                    .toLowerCase()))
            .toList();
    } ...
```

*Search for Berra
quotes containing the
given query String*



End of the BerraQuotes App Case Study: Server Structure & Functionality