

The BerraQuotes App Case Study: Server Structure & Functionality

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Learning Objectives in this Part of the Lesson

- Understand the structure & functionality of the BerraQuotesController & the BerraQuotesService used with Spring WebMVC to obtain Yogi Berra quotes

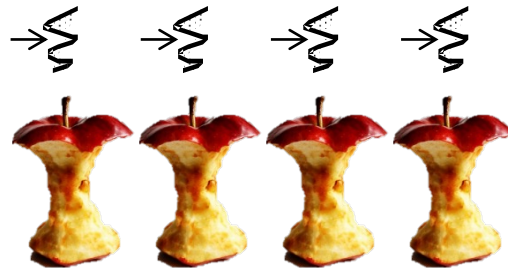
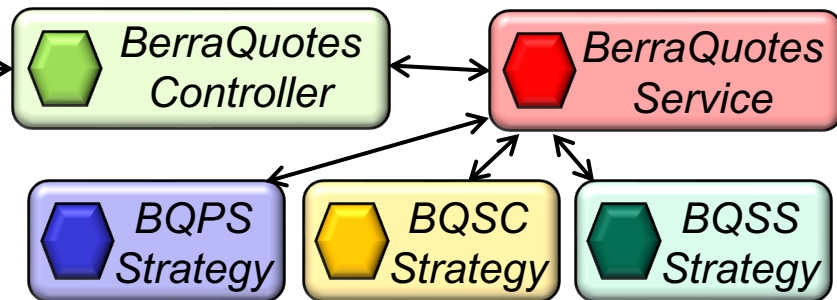
BerraQuotesTest

```
20 /**  
21  * This program tests the PrimeCheckClient and its ability to  
22  * communicate with the PrimeCheckServerController.  
23  */  
24 @SpringBootTest  
25 @ContextConfiguration(classes = {  
26     Components.class,  
27     PrimeCheckClient.class,  
28     PrimeCheckController.class  
29 })  
30 public class PrimeCheckTest {  
31     /**  
32      * Debugging tag used by the logger.  
33      */  
34     private final String TAG = getClass().getSimpleName();  
35 }  
36 /**  
37  * This object connects to the TestClient. The @code @Autowired  
38  * annotation ensures this field is initialized via Spring  
39  * dependency injection, where an object receives another object  
40  * it depends on (e.g., by creating a @code @Inject PrimeCheckClient).
```



*HTTP GET
requests/
responses*

BerraQuotesApplication



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

Structure & Functionality of the BerraQuotesController

Structure & Functionality of the BerraQuotesController

- BerraQuotesController maps HTTP GET requests to endpoint handler methods

@RestController

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

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

Structure & Functionality of the BerraQuotesController

- BerraQuotesController maps HTTP GET requests to endpoint handler methods

@RestController

```
public class BerraQuotesController {
```

```
    @GetMapping
```

```
    public List
```

```
    @GetMapping("quotes")
```

```
    public List<Quote> getQuotes(Integer strategy,
```

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

```
    @GetMapping("search" +("/{query}")
```

```
    public List<Quote> search(Integer strategy,
```

```
                                @PathVariable String query) {...}
```

```
    @GetMapping("searches")
```

```
    public List<Quote> search(Integer strategy,
```

```
                                @RequestParam List<String> queries) {...}
```

```
    ...
```

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> getQuotes(Integer strategy,  
                                   @RequestParam List<String> queries) {...}  
    @GetMapping("search" +("/{query}")  
    public List<Quote> search(Integer strategy,  
                              @PathVariable String query, ...) {...}  
    @GetMapping("searches")  
    public List<Quote> search(Integer strategy,  
                              @RequestParam List<String> queries) {...}  
    ...  
}
```

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

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                              @PathVariable String query) {...}  
    @GetMapping("searches")  
    public List<Quote> search(Integer strategy,  
                              @RequestParam List<String> queries) {...}  
    ...  
}
```

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

See www.baeldung.com/spring-new-requestmapping-shortcuts

Structure & Functionality of the BerraQuotesController

- BerraQuotesController maps HTTP GET requests to endpoint handler methods

@RestController

```
public class BerraQuotesController {  
    @GetMapping("allQuotes")  
    public List<Quote> getAllQuotes(Integer id)  
    @GetMapping("quotes")  
    public List<Quote> getQuotes(Integer id, @RequestParam List<String> queries) ...}  
    @GetMapping("search" +("/{query}")  
    public List<Quote> search(Integer strategy,  
                               @PathVariable String query) {...}  
    @GetMapping("searches")  
    public List<Quote> search(Integer strategy,  
                               @RequestParam List<String> queries) {...}  
    ...
```

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

See www.baeldung.com/spring-new-requestmapping-shortcuts

Structure & Functionality of the BerraQuotesController

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    @GetMapping("searches")  
    public List<Quote> search(Integer strategy,  
        @RequestParam List<String> queries) {...}  
  
    ...  
}
```

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

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

Structure & Functionality of the BerraQuotesController

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    public List<Quote> search(Integer strategy,  
        @PathVariable String query) {...}  
    @GetMapping("searches")  
    public List<Quote> search(Integer strategy,  
        @RequestParam List<String> queries) {...}  
    ...  
}
```

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

- BerraQuotesService defines methods called by BerraQuotesController, which simply forward to the designated implementation strategy

@Service

```
public class BerraQuotesService
{
    BQAbstractStrategy[] mStrategy = {
        new BQStructuredConcurrencyStrategy(),
        new BQParallelStreamStrategy(),
        new BQParallelStreamRegexStrategy(),
        new BQSequentialStreamsStrategy()
    };
    ...
}
```

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

Structure & Functionality of the BerraQuotesService

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    };
    ...
}
```

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

See www.baeldung.com/spring-component-repository-service

Structure & Functionality of the BerraQuotesService

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    };
    ...
}
```

This array contains strategies whose methods are implemented to provide Berra quotes (the order of these strategies matter)

Structure & Functionality of the BerraQuotesService

- BerraQuotesService defines methods called by BerraQuotesController, which simply forward to the designated implementation strategy

@Service

```
public class BerraQuotesService
```

```
...
```

```
List<Quote> getAllQuotes(Integer strategy) {
```

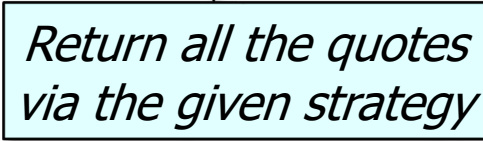
```
    return mStrategy[strategy]
```

```
        .getAllQuotes();
```

```
}
```

```
...
```

```
}
```

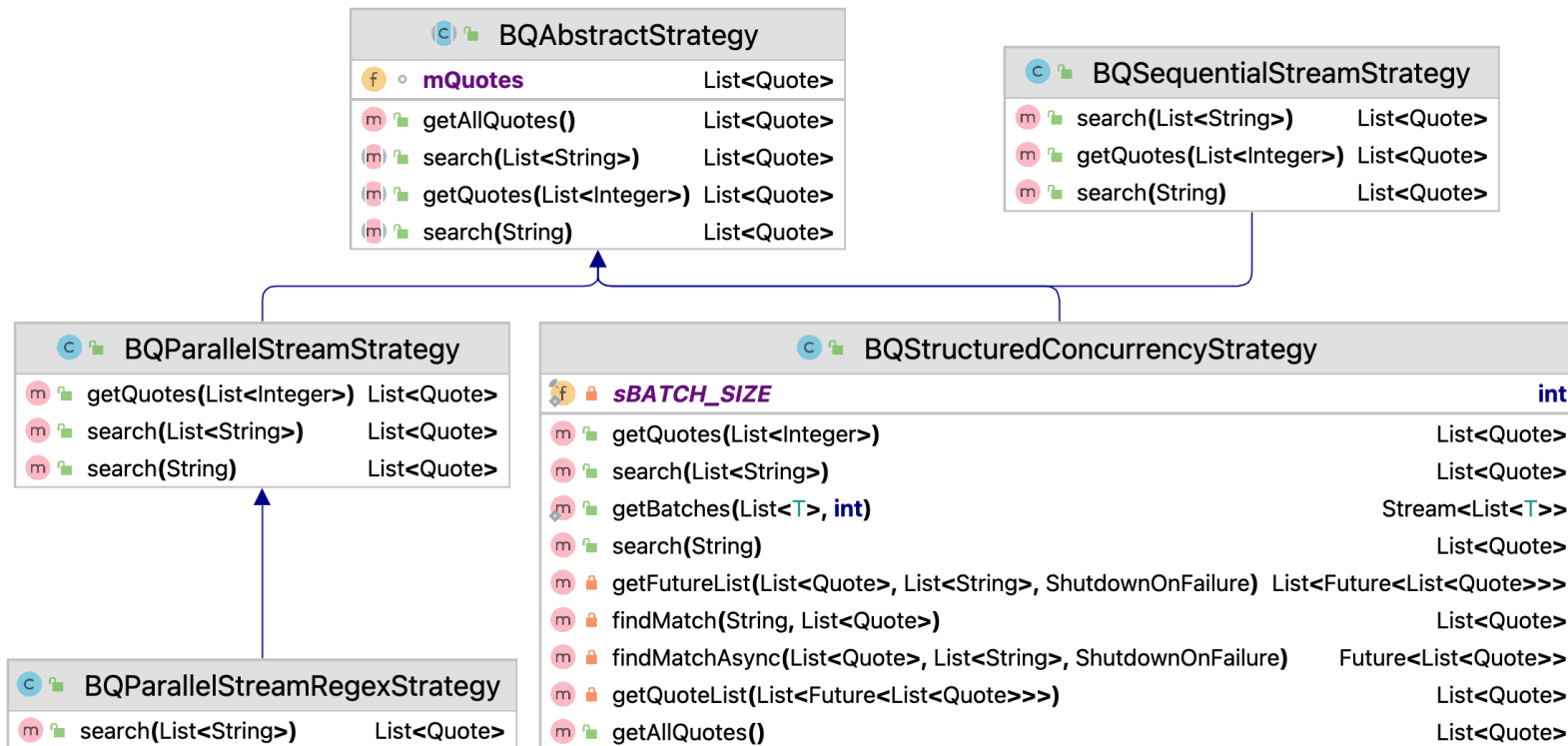


*Return all the quotes
via the given strategy*

Structure & Functionality of the BQAbstractStrategy Hierarchy

Structure & Functionality of the BQAbstractStrategy Hierarchy

- The BQAbstractStrategy abstract class defines methods used by various Berra quote implementation strategies that extend it



See WebMVC/ex2/src/main/java/berraquotes/server/strategies

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