

The BerraQuotes App Case Study: Server Structure & Functionality

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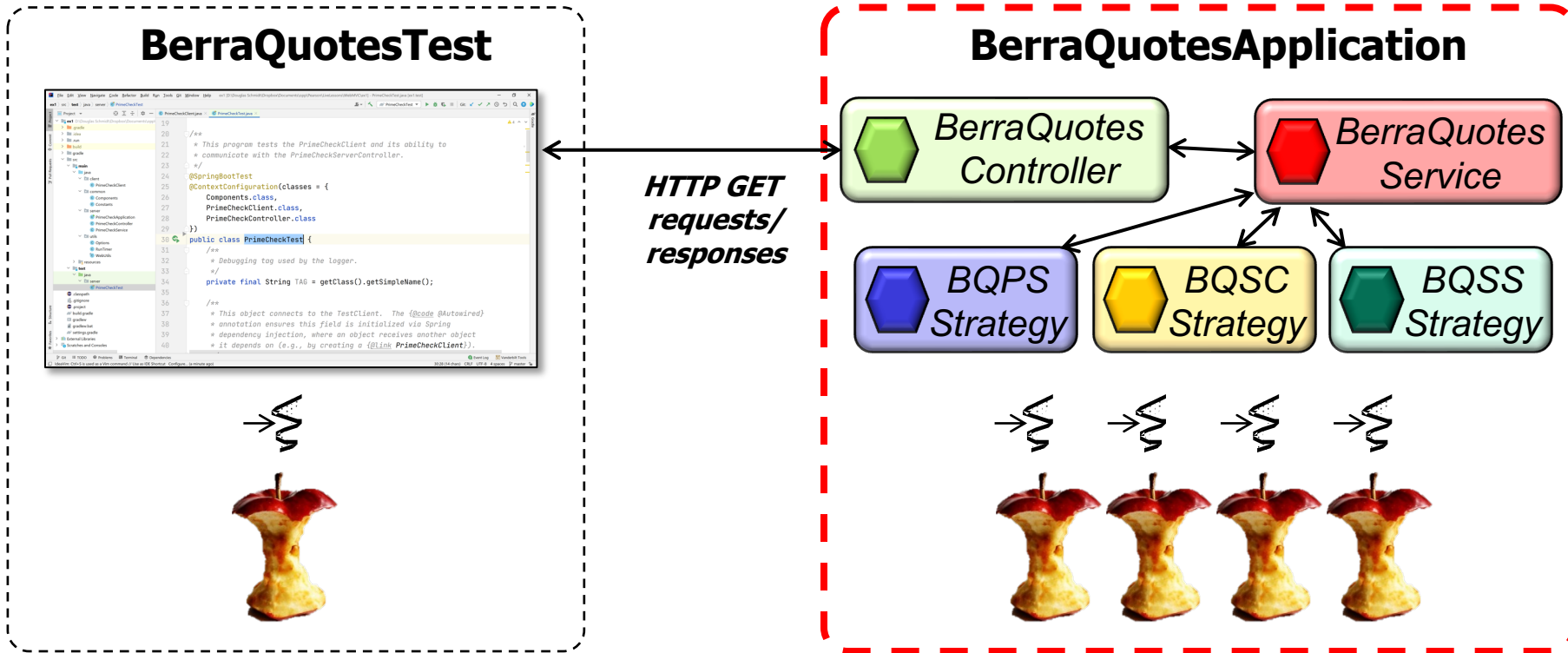
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Learning Objectives in this Part of the Lesson

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



Structure & Functionality of the BerraQuotesController

Structure & Functionality of the BerraQuotesController

- BerraQuotesController maps HTTP GET requests to endpoint handler methods

```
@RestController
```

```
public class BerraQuotesController {
```

```
    @Autowired
```

```
    BerraQuotesService mService;
```

```
    ...
```

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 {  
    @Autowired  
    BerraQuotesService mService;  
  
    ...  
}
```

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

Structure & Functionality of the BerraQuotesController

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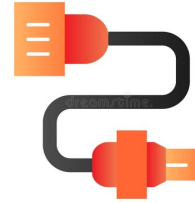
```
@RestController
```

```
public class BerraQuotesController {
```

```
    @Autowired
```

```
    BerraQuotesService mService;
```

```
    ...
```



This field is auto-wired by Spring's dependency injection framework

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) {...}
```

Structure & Functionality of the BerraQuotesController

- BerraQuotesController maps HTTP GET requests to endpoint handler methods

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@RestController
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public class BerraQuotesController {
```

```
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    @GetMapping("searches")
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    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

Structure & Functionality of the BerraQuotesController

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```

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public class BerraQuotesController {
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```
    ...
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```
    @GetMapping("allQuotes")
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```
    public List<Quote> getAllQuotes(Integer strategy) {...}
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```
    @GetMapping("quotes")
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```
    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 maps to query parameters, form data, & parts in multipart requests

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

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```
public class BerraQuotesController {
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    public List<Quote> getAllQuotes(Integer strategy) {...}
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    @GetMapping("quotes")
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    public List<Quote> getQuotes(Integer strategy,  
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```

A more common way to pass List params is in the body of an HTTP POST request

Structure & Functionality of the BerraQuotesController

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```

```
public class BerraQuotesController {
```

```
...
```

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@GetMapping("allQuotes")
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```
public List<Quote> getAllQuotes(Integer
```

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

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@RequestParam List<Integer> quoteIds) {...}
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@GetMapping("search" +("/{query}")
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public List<Quote> search(Integer strategy,
```

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

```
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```

```
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

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```
public class BerraQuotesController {
```

```
...
```

```
@GetMapping("allQuotes")
```

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

```
    mService.getAllQuotes(strategy);
```

```
}
```

```
...
```

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

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

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

```
    mService.getQuotes(strategy, quoteIds);
```

```
}
```

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

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) {
```

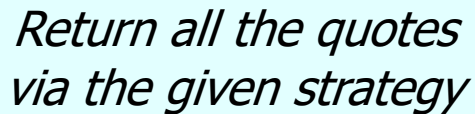
```
    return mStrategy[strategy]
```

```
        .getAllQuotes();
```

```
}
```

```
...
```

```
}
```

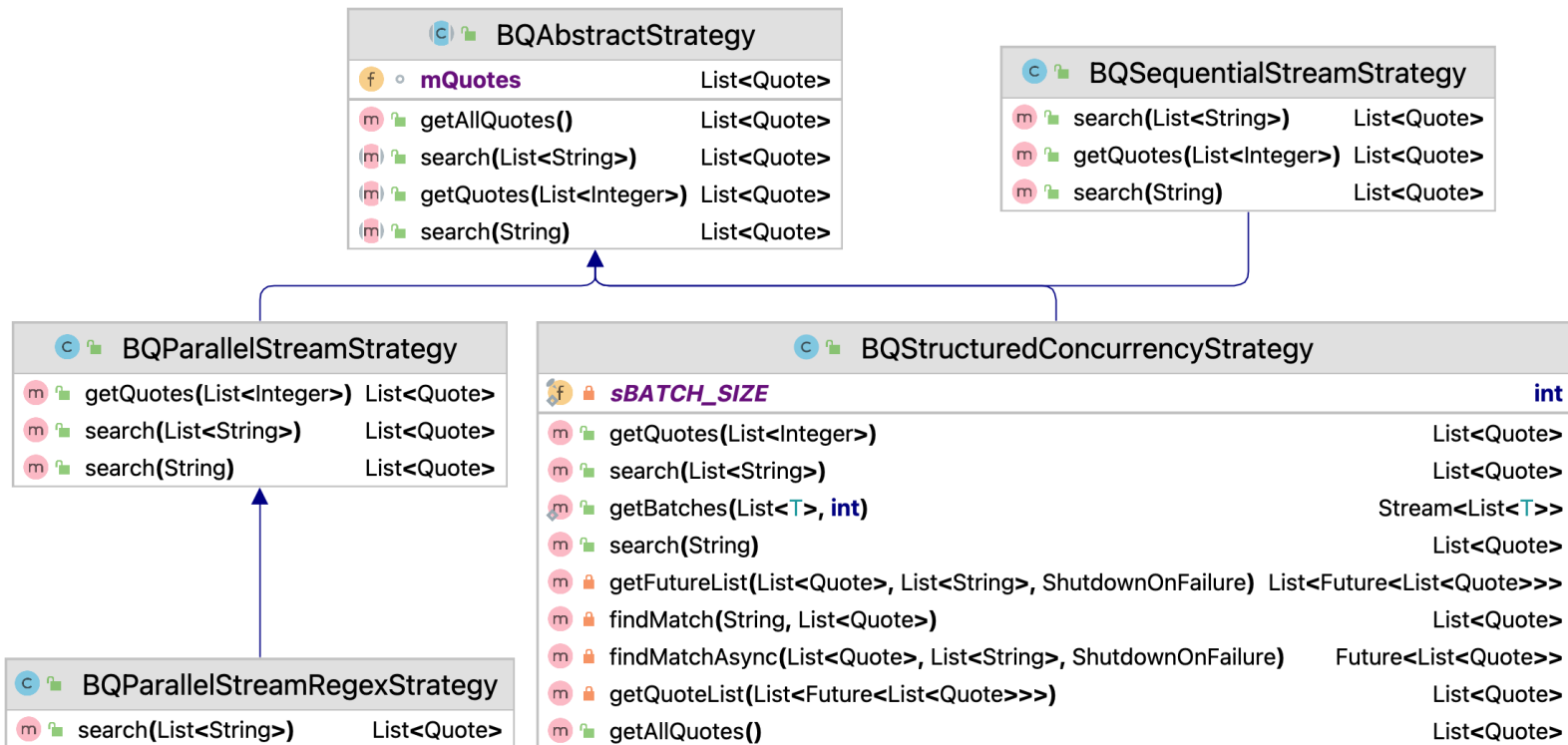


*Return all the quotes
via the given strategy*

Structure & Functionality of the BQAbstractStrategy Hierarchy

Structure & Functionality of the BQAbstractStrategy Hierarchy

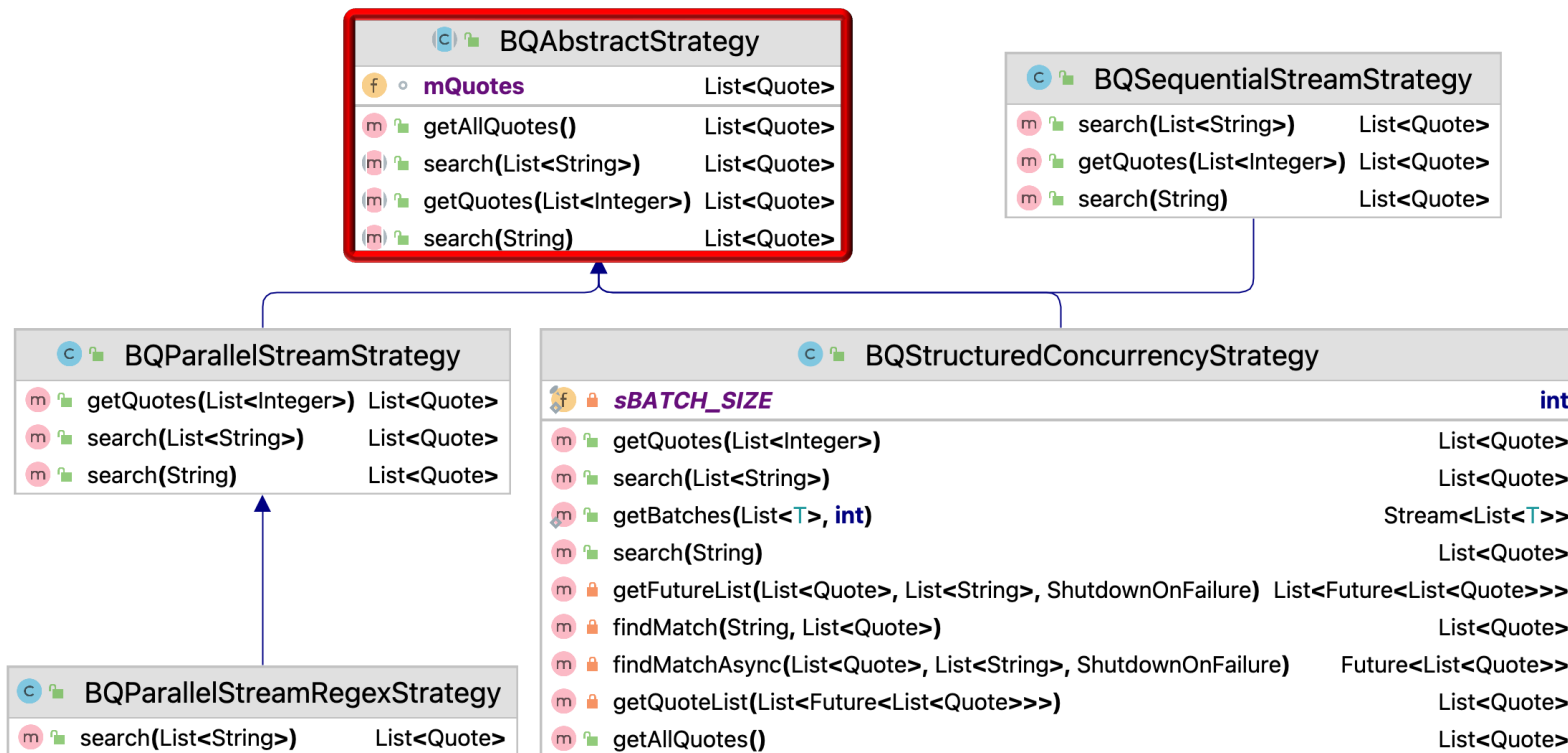
- The BQAbstractStrategy abstract super class defines methods used by various Berra quote implementation strategies that extend it



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

Structure & Functionality of the BQAbstractStrategy Hierarchy

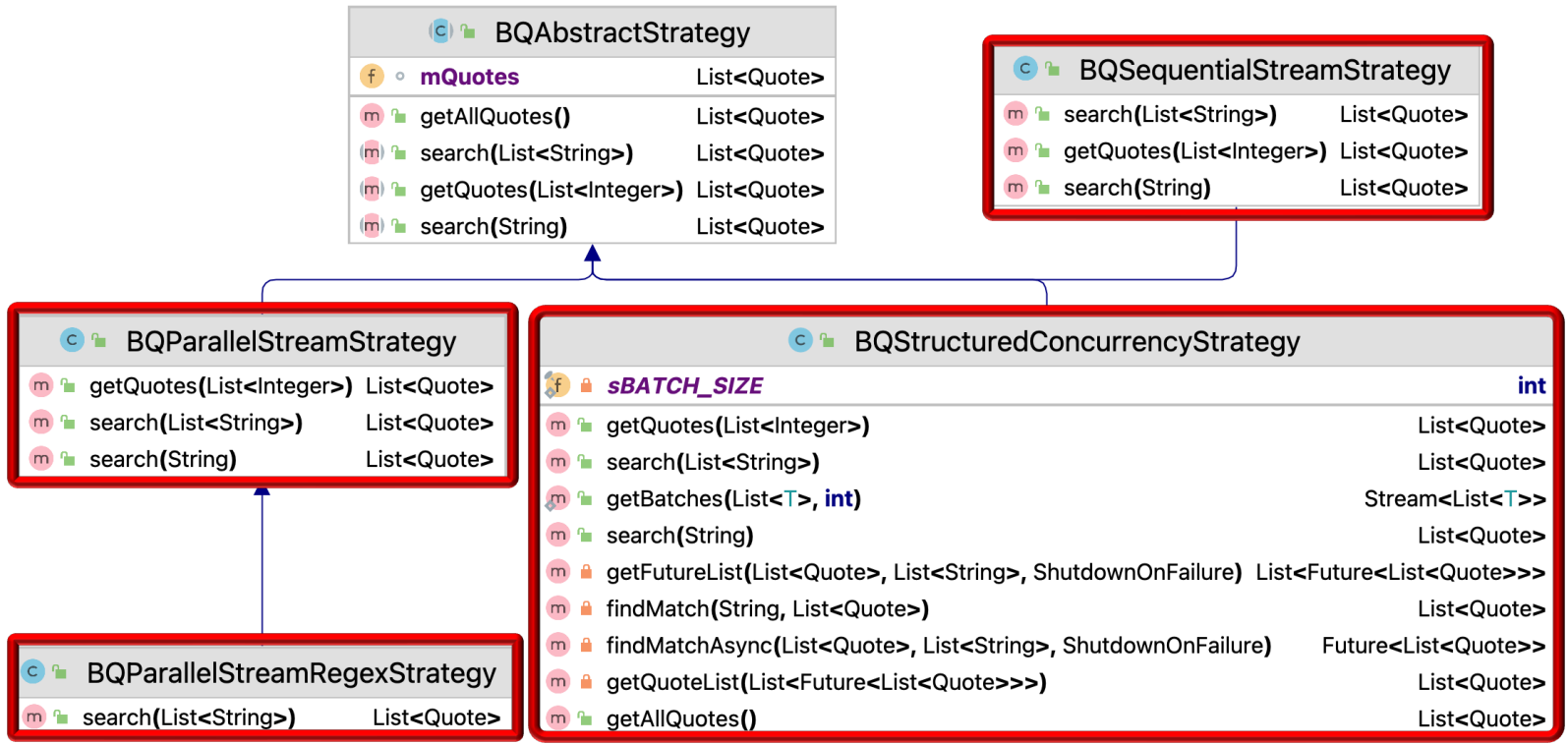
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See docs.oracle.com/javase/tutorial/java/IandI/abstract.html

Structure & Functionality of the BQAbstractStrategy Hierarchy

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Subclasses selectively override abstract methods in the super class

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