The BerraQuotes App Case Study: Client Structure & Functionality

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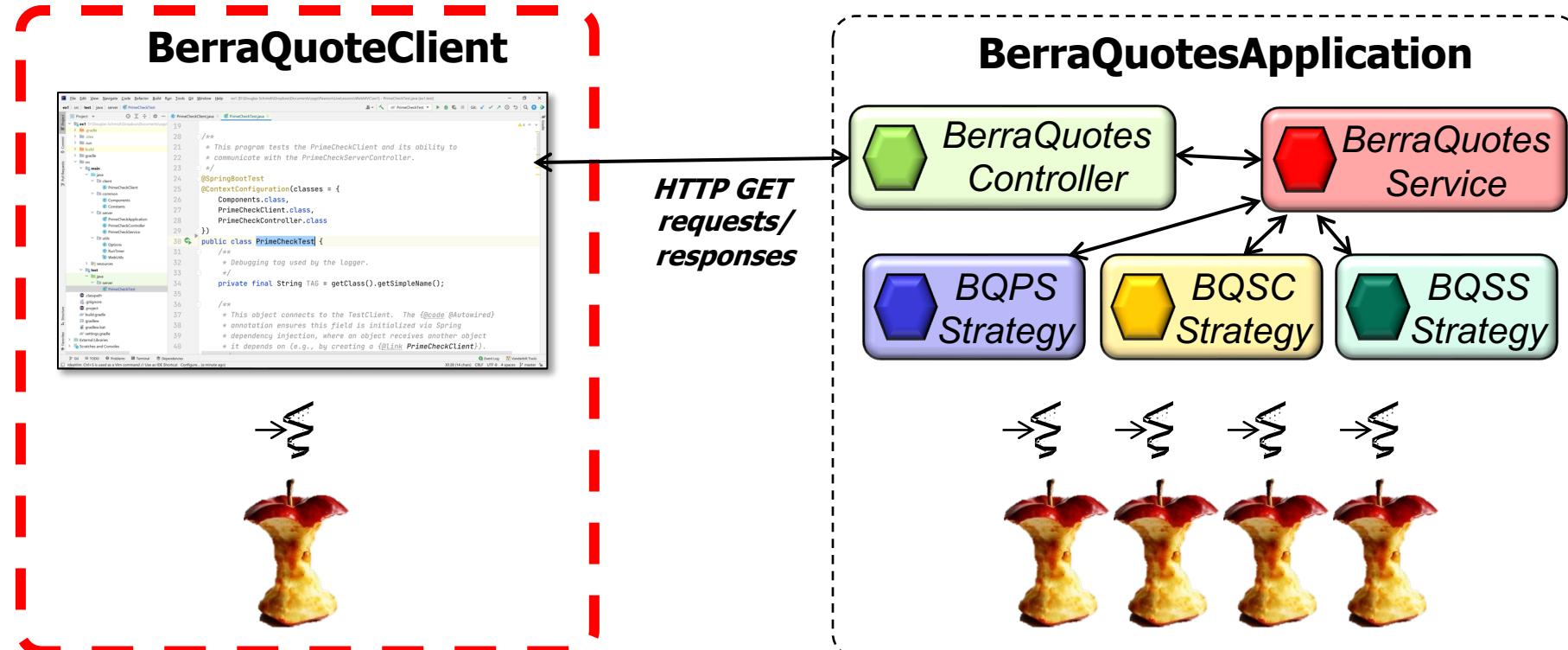
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Nashville, Tennessee, USA**

Learning Objectives in this Part of the Lesson

- Understand the structure & functionality of BerraQuoteClient & BerraQuoteProxy classes that send/receive HTTP GET requests/responses to/from the microservice

BerraQuoteClient

HTTP GET requests/ responses

BerraQuotesApplication

BerraQuotes Controller

BerraQuotes Service

BQPS Strategy

BQSC Strategy

BQSS Strategy

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

The Structure & Functionality of BerraQuoteClient Class

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- The BerraQuoteClient class performs synchronous remote method invocations on the BerraQuoteController microservice to request Yogi Berra quotes

```java
@Component
public class BerraQuotesClient
  @Autowired BerraQuotesProxy mQuotesProxy;


  ...
}
```

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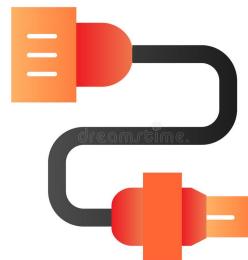
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@Component
public class BerraQuotesClient
    @Autowired BerraQuotesProxy mQuotesProxy;


    ...
}
```

This annotation enables the auto-detection & auto-wiring of dependent implementation classes via classpath scanning

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

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}
```

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

See www.baeldung.com/spring-autowire

- The BerraQuoteClient class performs synchronous remote method invocations on the BerraQuoteController microservice to request Yogi Berra quotes

```
@Component
public class BerraQuotesClient
  public List<Quote> getAllQuotes
    (Integer strategy)
  { return mQuoteProxy
      .getAllQuotes(strategy); }

  public List<Quote> getQuotes
              (Integer strategy,
               List<Integer> quoteIds){
    return mQuoteProxy.getQuotes
      (strategy, quoteIds);
  } ...
```

Get a List containing all Quote objects

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Get a List containing the requested Quote objects

The Structure & Functionality of BerraQuoteProxy Class

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- BerraQuotesProxy hides details of remote method invocations via HTTP

```
@Component
public class BerraQuotesProxy {
   @Autowired RestTemplate mRestTemplate;


   ...
}
```

The Structure & Functionality of the BerraQuoteProxy Class

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public class BerraQuotesProxy {
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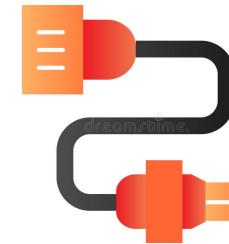
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public class BerraQuotesProxy {
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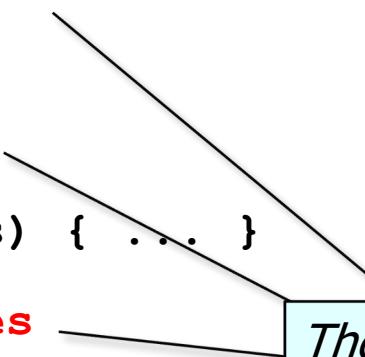
See javadoc-api/org/springframework/web/client/RestTemplate.html

The Structure & Functionality of the BerraQuoteProxy Class

- BerraQuotesProxy hides details of remote method invocations via HTTP

```
@Component
public class BerraQuotesProxy {

  ...
  public List<Quote> getAllQuotes(Integer strategy) {
... }

  public List<Quote> getQuotes
        (Integer strategy,
         List<Integer> quoteIds) { ... }

  public List<Quote> searchQuotes
        (Integer strategy,
         String query) { ... }
  ...
}
```

These proxy methods shield clients from low-level details of HTTP programming

The Structure & Functionality of the BerraQuoteProxy Class

- BerraQuotesProxy hides details of remote method invocations via HTTP

```
@Component
public class BerraQuotesProxy {

  ...

  public List<Quote> getAllQuotes(Integer strategy){
    var uri = UriComponentsBuilder
      .fromPath(GET_ALL_QUOTES)
      .query("strategy", strategy)
      .build().toUriString();


    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Indicate the strategy the server should use to provide all quotes

The Structure & Functionality of the BerraQuoteProxy Class

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```java
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public class BerraQuotesProxy {

  ...

  public List<Quote> getAllQuotes(Integer strategy){
    var uri = UriComponentsBuilder
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      .query("strategy", strategy)
      .build().toUriString();


    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Create a URI passed in an HTTP GET request to get all the Berra quotes

e.g., /all_quotes?strategy=0

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```java
@Component
public class BerraQuotesProxy {

  ...

  public List<Quote> getAllQuotes(Integer strategy){
    var uri = UriComponentsBuilder
      .fromPath(GET_ALL_QUOTES)
      .query("strategy", strategy)
      .build().toUriString();



    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Make an HTTP GET call to the server at the designed URL to get all the quotes

e.g., http://localhost:9102/all_quotes?strategy=0

The Structure & Functionality of the BerraQuoteProxy Class

- BerraQuotesProxy hides details of remote method invocations via HTTP

```
@Component
public class BerraQuotesProxy {

  ...
  public List<Quote> getQuotes(Integer strategy,
                               List<Integer> quoteIds){

    var uri = UriComponentsBuilder
      .fromPath(GET_QUOTES)
      .query("strategy", strategy)
      .queryParam("quoteIds", WebUtils
                  .list2String(quoteIds))
      .build().toUriString();
    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Indicate the strategy & the List of requested Quote IDs

The Structure & Functionality of the BerraQuoteProxy Class

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```java
@Component
public class BerraQuotesProxy {

   ...
   public List<Quote> getQuotes(Integer strategy,
                                List<Integer> quoteIds){
      var uri = UriComponentsBuilder
         .fromPath(GET_QUOTES)
         .query("strategy", strategy)
         .queryParam("quoteIds", WebUtils
                     .list2String(quoteIds))
         .build().toUriString();
      return WebUtils
         .makeGetRequestList(mRestTemplate, uri, Quote[].class);
   }
```

Create a URI passed in an HTTP GET request to get requested Berra quotes

e.g., /quotes?strategy=0&quoteIds=15,2,29,40,17

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@Component
public class BerraQuotesProxy {

  ...
    public List<Quote> getQuotes(Integer strategy,
                                   List<Integer> quoteIds){
      var uri = UriComponentsBuilder
         .fromPath(GET_QUOTES)
         .query("strategy", strategy)
         .queryParam("quoteIds", WebUtils
                     .list2String(quoteIds))
         .build().toUriString();
      return WebUtils
         .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Make an HTTP GET call to the server at the designed URL to get the requested quotes

e.g., http://localhost:9102/quotes?strategy=0&quoteIds=15,2,29,40,17

The Structure & Functionality of the BerraQuoteProxy Class

- BerraQuotesProxy hides details of remote method invocations via HTTP

```
@Component
public class BerraQuotesProxy {

  ...

  public List<Quote> searchQuotes(Integer strategy,
                                     String query){

    var uri = UriComponentsBuilder
      .fromPath(GET_SEARCH + query)
      .query("strategy", strategy)
      .build().toUriString();



    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Indicate the strategy & a single query string

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@Component
public class BerraQuotesProxy {

  ...
  public List<Quote> searchQuotes(Integer strategy,
                                  String query){

    var uri = UriComponentsBuilder
      .fromPath(GET_SEARCH + query)
      .query("strategy", strategy)
      .build().toUriString();


    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Create a URI passed in an HTTP GET request to match the requested query

e.g., /search_quote/Baseball?strategy=0

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@Component
public class BerraQuotesProxy {

  ...

  public List<Quote> searchQuotes(Integer strategy,
                                      String query){

    var uri = UriComponentsBuilder
        .fromPath(GET_SEARCH + query)
        .query("strategy", strategy)
        .build().toUriString();



    return WebUtils
        .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Make an HTTP GET call to the server at the designed URL to match the requested query

e.g., http://localhost:9102/search_quote/Baseball?strategy=0

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```java
@Component
public class BerraQuotesProxy {

  ...

  public List<Quote> searchQuotes(Integer strategy,
                                  List<String> queries){

    var uri = UriComponentsBuilder
      .fromPath(GET_SEARCHES)
      .query("strategy", strategy)
      .query("queries", list2String(queries))
      .build().toUriString();


    return WebUtils
      .makeGetRequestList(mRestTemplate, uri, Quote[].class);
  }
```

Indicate the strategy & a List of query strings

e.g., /search_quotes?strategy=0&queries=baseball,game

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```

Create a URI passed in an HTTP GET request to match the requested queries

e.g., /search_quotes?strategy=0&queries=baseball,game

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  }
```

Make an HTTP GET call to the server at the designed URL to match the requested query

e.g., http://localhost:9102/search_quotes?strategy=0&queries=baseball,game

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