Consuming REST Services

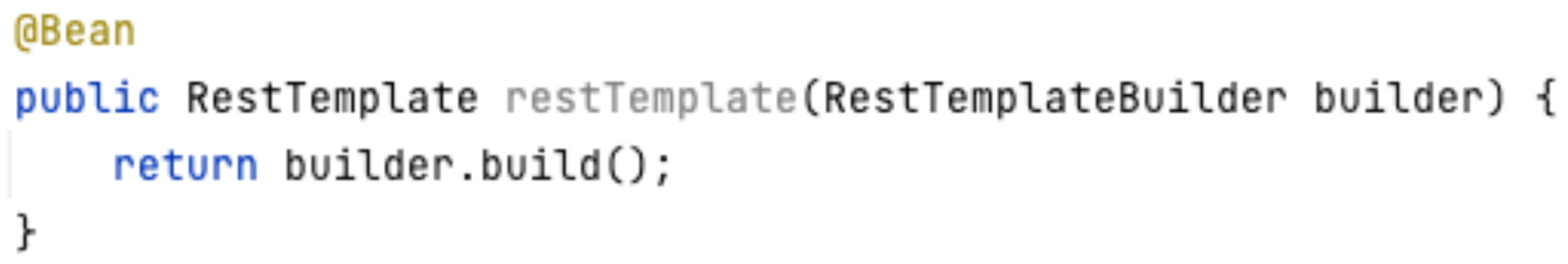
RestTemplate

Using the RestTemplate

- A RestTemplate can be used to consume a REST Service

- The RestTemplate has methods for sending HTTP requests with different HTTP methods and URLs

- A RestTemplate needs to be configured in a configuration class (like the Application class with the @SpringBootApplication annotation, like this:



```java
@Bean
public RestTemplate restTemplate(RestTemplateBuilder builder) {
    return builder.build();
}
```

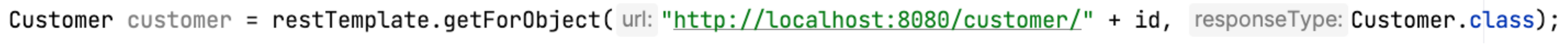
Using the RestTemplate

- When the RestTemplate Spring bean has been created, it can be used as input argument in Controller methods

- It can then be used in these methods to send requests to REST Services and receive information converted from JSON to Java object

RestTemplate example code

- Getting an object of type Customer.class by using the getForObject method in the restController to get a customer with a specific id from a REST Service running on localhost:8080 and with the URI /customer:



```
Customer customer = restTemplate.getForObject( url: "http://localhost:8080/customer/" + id,  responseType: Customer.class);
```

Method **URI** **Type of response**

RestTemplate example code

- Posting an object of type Customer.class by using the postForObject method in the restController to post a customer object to a REST Service running on localhost:8080 and with the URI /customer:

```
restTemplate.postForObject( url: "http://localhost:8080/customer", request: customer, responseType: Customer.class);
```

Method **URI** **Object** **Type of response**

HTTP methods

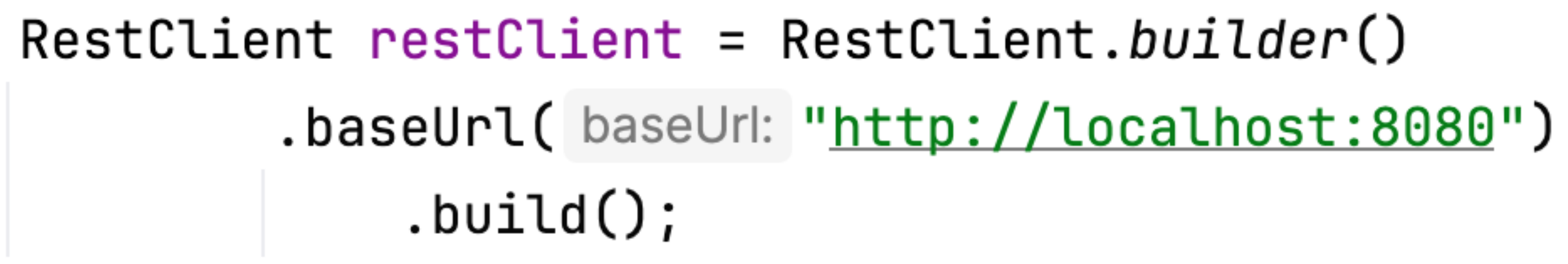
- RestTemplate methods for sending different HTTP methods:
- POST - to Create - restTemplate.postForObject
- GET - to Read - restTemplate.getForObject
- PUT - to Update - restTemplate.put
- DELETE - to Delete - restTemplate.delete

Demo/Exercise 1 - RestTemplate

- Download and open the ConsumingRESTStarter project
- It’s a working application. Try it out and look at the code and comments
- All calls to the DogRepository should be replaced by calls made by a RestTemplate to the REST Service created in the exercise for Creating REST Services
- There is already a bean declaration in the Application class. Run the REST Service in another IntelliJ window on port 8080, this application will run on port 8081. Try it out when you have switched from repository to REST!

Using the RestClient

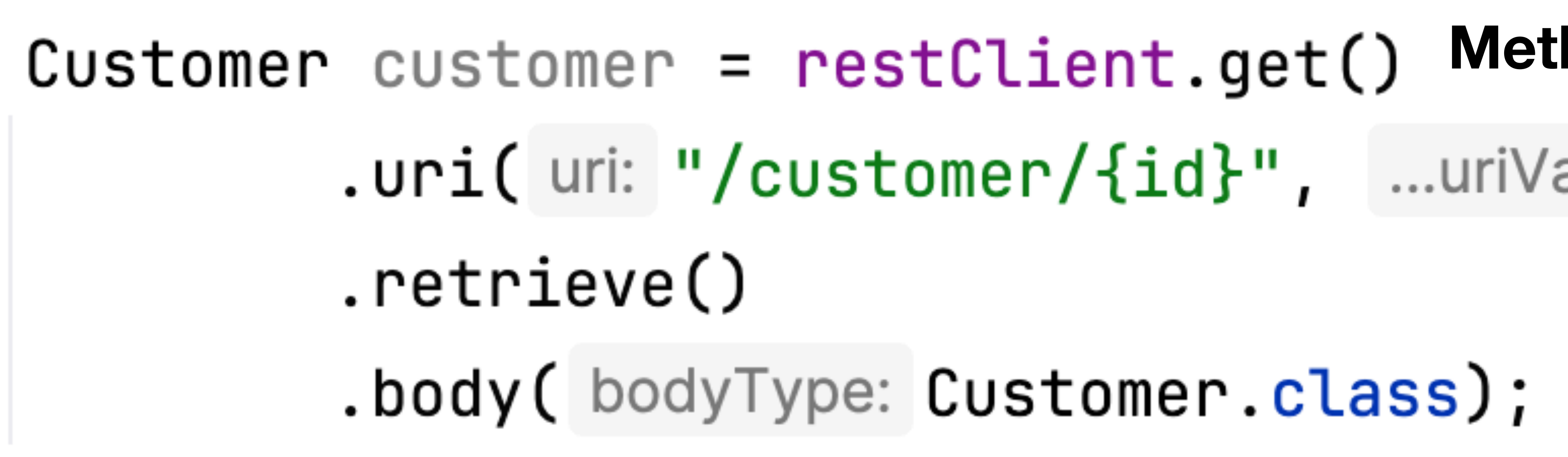
- RestClient was introduced in Spring 6.1
- RestClient is a new synchronous HTTP client
- Offers a fluent API, allows method chaining
- Can be created like this:



```
RestClient restClient = RestClient.builder()
            .baseUrl( baseUrl: "http://localhost:8080")
                  .build();
```

RestClient example code

- Getting an object of type Customer.class by using the get method of the restClient to get a customer with a specific id from a REST Service with the URI /customer (compared to the RestTemplate below):

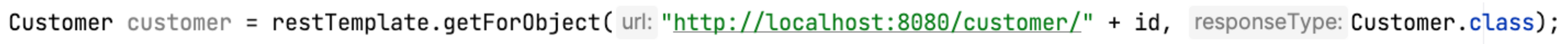


```
Customer customer = restClient.get()
        .uri( uri: "/customer/{id}", ...uriVariables: id)
        .retrieve()
        .body( bodyType: Customer.class);
```

Method

URI

Type of response

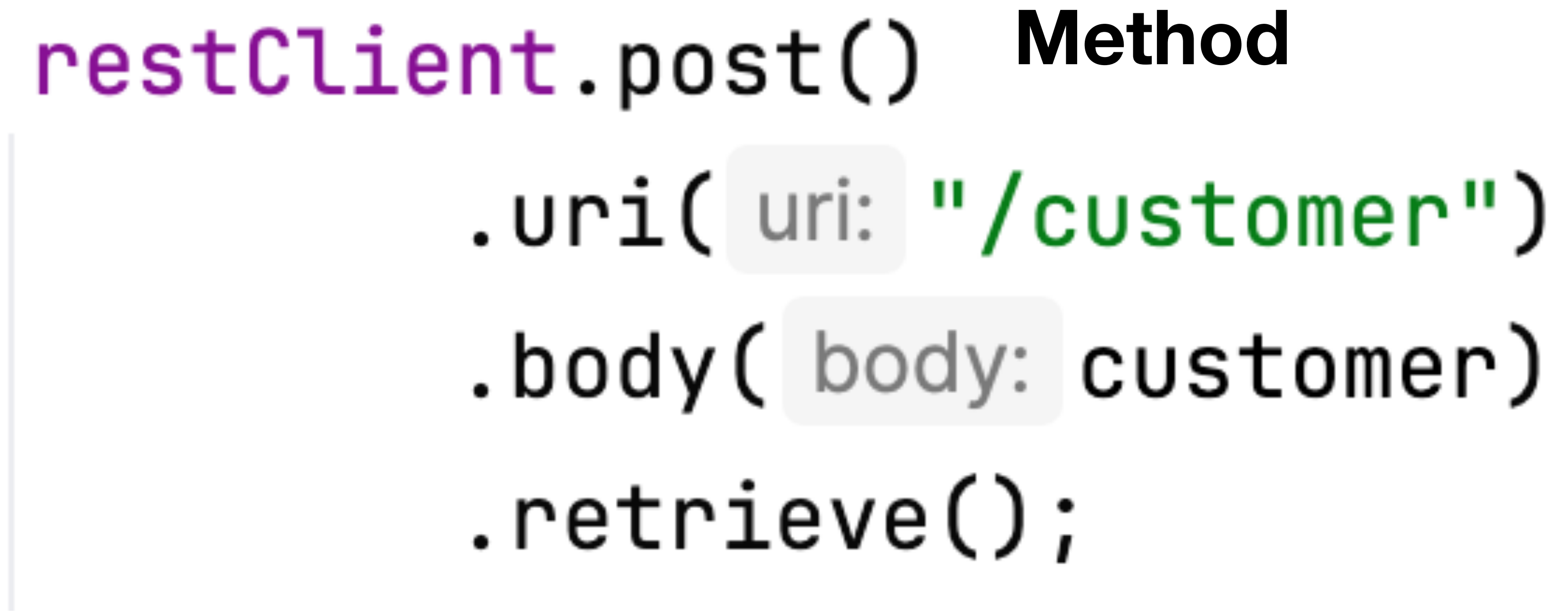


```
Customer customer = restTemplate.getForObject( url: "http://localhost:8080/customer/" + id, responseType: Customer.class);
```

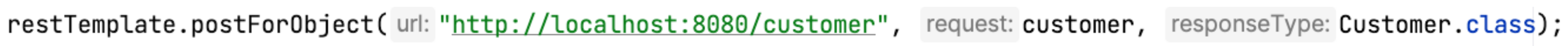
Method URI Type of response

RestClient example code

- Posting an object of type Customer.class by using the post method of the restClient to post a customer object to a REST Service with the URI / customer (compared to the RestTemplate below):



```
restClient.post()                        Method
        .uri( uri: "/customer")          URI
        .body( body: customer)           Object
        .retrieve();
```



```
restTemplate.postForObject( url: "http://localhost:8080/customer", request: customer, responseType: Customer.class);
```

Method **URI** **Object** **Type of response**

HTTP methods

- RestClient methods for sending different HTTP methods:
- POST - to Create - restClient.post()
- GET - to Read - restClient.get()
- PUT - to Update - restClient.put()
- DELETE - to Delete - restClient.delete()

Demo/Exercise 2 - RestClient

- Download and open the ConsumingRESTRestClientStarter project
- It’s a working application. Try it out and look at the code and comments
- All calls to the DogRepository should be replaced by calls made by a RestClient to the REST Service created in the exercise for Creating REST Services
- A RestClient is already declared in the Controller class. Run the REST Service in another IntelliJ window on port 8080, this application will run on port 8081. Try it out when you have switched from repository to REST with the RestClient!