

Assignment Report

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1. Problem Statement

Design a Microservice using Spring Boot and Apache Camel which will act as a REST proxy for a SOAP service hosted at the below URL. Package and deploy the service into a docker container.

<http://www.webserviceex.com/globalweather.asmx?WSDL>

The following are the expected behaviors

- Accept input in the form of JSON or HTTP using a client such as postman
- Accept the name of the operation in the SOAP service to call
- Call the SOAP Service Operation and pass the Input
- Receive the Response
- Give out the JSON response on HTTP

Following are the constraints that will apply.

- No usage of WSDL to Java to convert WSDL types into Java Objects
- JSON to SOAP envelope conversion should be dynamic and on the fly. Hypothetically by changing the WSDL (and minor configuration) we should be able to call another SOAP service.
- The same proxy should be able to call different operations within the specified WSDL

2. Solution Overview

- Designed Proxy Service using apache camel, Spring Microservices,
- Technologies used: Camel, Spring, Spring Annotation, Spring Boot, Spring AOP, Swagger, Maven, Docker, SOAP UI libraries in pom file
- Identified soap service operations and their existing soap request and response.
- Done R&D with various implementations
- Selected appropriate implementation based on the constraints to satisfy.
- Designed the microservice corresponding to the soap service operations
- Camel proxy service runs on configurable server port (8080)
- When microservice is invoked from camel proxy, it has been configured to fetch corresponding soap service and required configuration items can be configured from application.properties
- It fetches SOAP Request XML dynamically
- It modifies SOAP request with JSON parameters dynamically
- It invokes SOAP Service call and receives response
- Response can be returned back as JSON or XML format dynamically, which is configurable in application.properties file
- The same proxy service can be used with other soap services with minimal changes.
- The proxy service containerized using docker.

3. SOAP Service Operation: GetCitiesByCountry

3.1. Original Request & Response

| | |
|------------|---|
| URL | http://www.webserviceX.com/globalweather.aspx |
| SOAPAction | http://www.webserviceX.NET/GetCitiesByCountry |
| Request | <pre><soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:web="http://www.webserviceX.NET"> <soapenv:Header/> <soapenv:Body> <web:GetCitiesByCountry> <web:CountryName>India</web:CountryName> </web:GetCitiesByCountry> </soapenv:Body> </soapenv:Envelope></pre> |
| Response | <pre><?xml version="1.0" encoding="utf-8"?> <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"> <soap:Body> <GetCitiesByCountryResponse xmlns="http://www.webserviceX.NET"> <GetCitiesByCountryResult>&lt;NewDataSet&gt; &lt;Table&gt; &lt;Country&gt;British Indian Ocean Territory&lt;/Country&gt; &lt;City&gt;Diego Garcia&lt;/City&gt; &lt;/Table&gt; &lt;Table&gt; &lt;Country&gt;India&lt;/Country&gt; &lt;City&gt;Vellore&lt;/City&gt; &lt;/Table&gt; &lt;/NewDataSet&gt;</GetCitiesByCountryResult> </GetCitiesByCountryResponse> </soap:Body> </soap:Envelope></pre> |

Postman

File Edit View Collection History Help

New Import Runner Builder Team Library

Filter

History Collections

Clear all

Today

- POST http://www.webservices.com/globalweather.asmx
- POST http://localhost:8080/v1/globalweather/GetCitiesByCountry
- POST http://localhost:8080/v1/globalweather/GetCitiesByCountry
- POST http://localhost:8082/globalweather/GetCitiesByCountry
- POST http://localhost:8080/v1/globalweather/GetWeather
- POST http://localhost:8080/v1/globalweather/GetWeather
- POST http://localhost:8080/v1/globalweather/GetWeather
- POST http://localhost:8080/v1/globalweather/GetWeather

POST http://www.webservices.com/globalweather.asmx

Authorization Headers (2) Body Pre-request Script Tests

form-data x-www-form-urlencoded raw binary XML (text/xml)

```
1 <soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:web="http://www.webserviceX.NET">
2   <soapenv:Header/>
3   <soapenv:Body>
4     <web:GetCitiesByCountry>
5       <web:CountryName>India</web:CountryName>
6     </web:GetCitiesByCountry>
7   </soapenv:Body>
8 </soapenv:Envelope>
```

Body Cookies Headers (9) Test Results

Status: 200 OK Time: 1539 ms Size: 1.53 KB

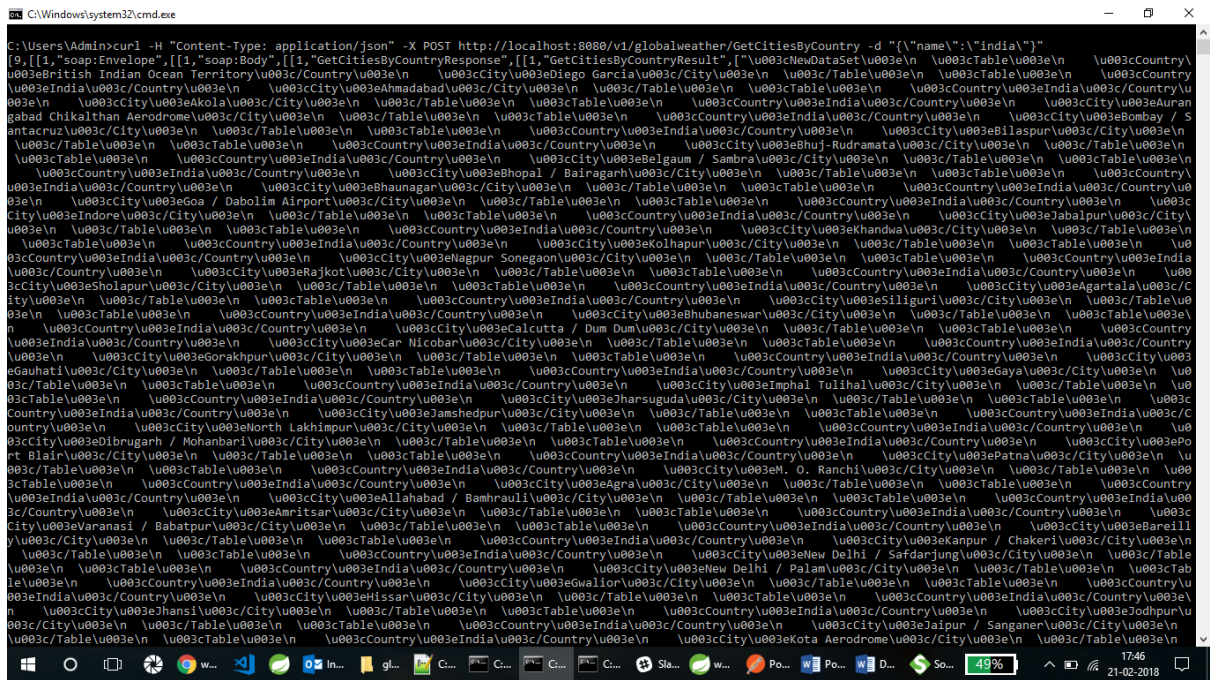
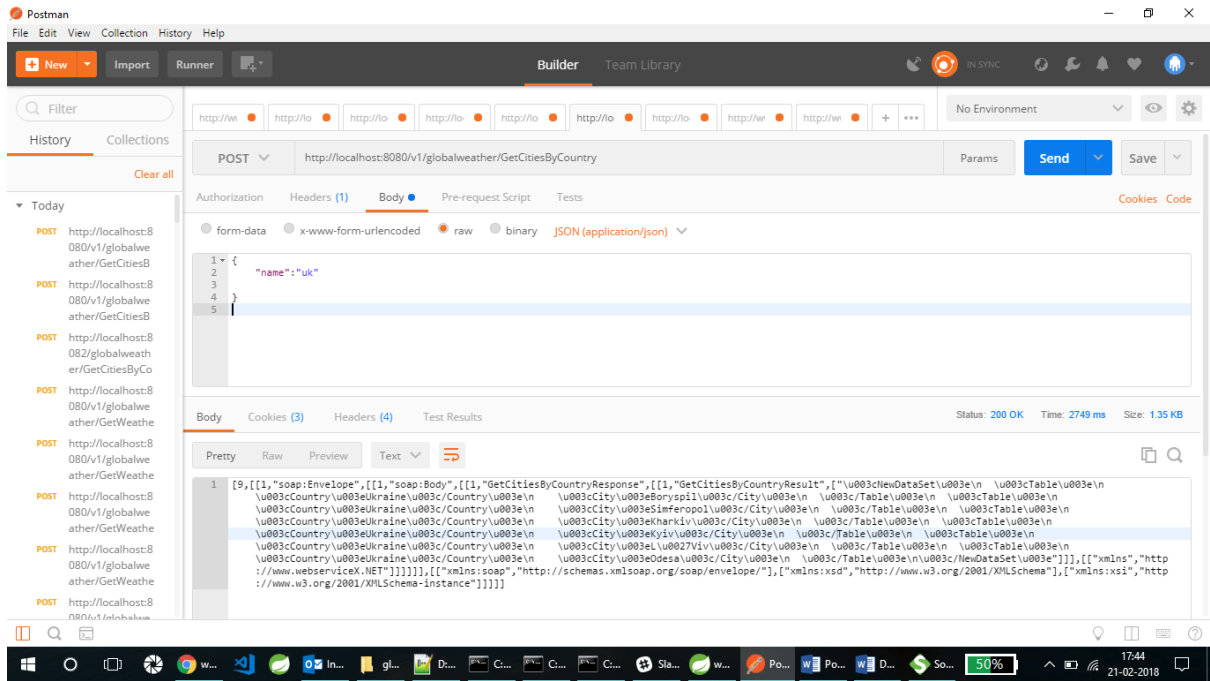
Pretty Raw Preview XML

```
4 <GetCitiesByCountryResponse xmlns="http://www.webserviceX.NET">
5   <GetCitiesByCountryResult>&lt;NewDataSet&gt;
6     &lt;Table&gt;
7       &lt;Country&gt;British Indian Ocean Territory&lt;/Country&gt;
8       &lt;City&gt;Diego Garcia&lt;/City&gt;
9     &lt;/Table&gt;
10    &lt;Table&gt;
11      &lt;Country&gt;India&lt;/Country&gt;
12      &lt;City&gt;Ahmadabad&lt;/City&gt;
13    &lt;/Table&gt;
14    &lt;Table&gt;
15      &lt;Country&gt;India&lt;/Country&gt;
```

Windows taskbar: 17:47 21-02-2018

3.2. Proxy Request & Response: GetCitiesByCountry

| | |
|------------|--|
| URL | http://www.webserviceX.com/globalweather.asmx |
| SOAPAction | http://www.webserviceX.NET/GetCitiesByCountry |
| Request | <pre>{ "name":"India" }</pre> |
| Response | <pre>[9,[[1,"soap:Envelope",[[1,"soap:Body",[[1,"GetCitiesByCountryResponse",[[1,"GetCitiesByCountryResult",["\u003cNewDataSet\u003e\n \u003cTable\u003e\n \u003cCountry\u003eBritish Indian Ocean Territory\u003c/Country\u003e\n \u003cCity\u003eDiego Garcia\u003c/City\u003e\n \u003c/Table\u003e\n \u003cTable\u003e\n \u003cCountry\u003eIndia\u003c/Country\u003e\n \u003cCity\u003eAhmadabad\u003c/City\u003e\n \u003c/Table\u003e\n \u003cTable\u003e\n \u003cCountry\u003eIndia\u003c/Country\u003e\n \u003cCity\u003eAkola\u003c/City\u003e\n \u003c/Table\u003e\n \u003cTable\u003e\n \u003cCountry\u003eIndia\u003c/Country\u003e\n \u003cCity\u003eAurangabad Chikalthan Aerodrome\u003c/City\u003e\n \u003c/Table\u003e\n \u003cCountry\u003eIndia\u003c/Country\u003e\n \u003cCity\u003eVellore\u003c/City\u003e\n \u003c/Table\u003e\n\u003c/NewDataSet\u003e"]]]],["xmlns","http://www.webserviceX.NET"]]]]]],["xmlns:soap","http://schemas.xmlsoap.org/soap/envelope/"],["xmlns:xsd","http://www.w3.org/2001/XMLSchema"],["xmlns:xsi","http://www.w3.org/2001/XMLSchema-instance"]]]]]]</pre> |



4. SOAP Service Operation: GetWeather

4.1. Original Request & Response

| | |
|------------|---|
| URL | http://www.webserviceX.com/globalweather.aspx |
| SOAPAction | http://www.webserviceX.NET/GetWeather |
| Request | <pre><soapenv:Envelope xmlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/" xmlns:web="http://www.webserviceX.NET"> <soapenv:Header/> <soapenv:Body> <web:GetWeather> <!--Optional:--> <web:CityName>Mumbai</web:CityName> <!--Optional:--> <web:CountryName>India</web:CountryName> </web:GetWeather> </soapenv:Body> </soapenv:Envelope></pre> |
| Response | <pre><?xml version="1.0" encoding="utf-8"?> <soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema"> <soap:Body> <GetWeatherResponse xmlns="http://www.webserviceX.NET"> <GetWeatherResult>Data Not Found</GetWeatherResult> </GetWeatherResponse> </soap:Body> </soap:Envelope></pre> |

Postman

File Edit View Collection History Help

New Import Runner Team Library

Filter

History Collections

Clear all

Today

- POST http://www.webservices.com/globalweather.asmx
- POST http://www.webservices.com/globalweather.asmx
- POST http://www.webservices.com/globalweather.asmx
- POST http://www.webservices.com/globalweather.asmx
- POST http://localhost:8080/v1/globalweather/GetCitiesB
- POST http://localhost:8080/v1/globalweather/GetCitiesB
- POST http://localhost:8080/globalweather/GetCitiesByCo
- POST http://localhost:8080/v1/globalweather/GetCitiesByCo

Builder

POST http://www.webservices.com/globalweather.asmx

Authorization Headers (2) Body Pre-request Script Tests

| Key | Value | Description |
|--------------|---------------------------------------|-------------|
| Content-Type | text/xml | |
| SOAPAction | http://www.webserviceX.NET/GetWeather | |

New key Value Description

Body Cookies Headers (9) Test Results

Status: 200 OK Time: 626 ms Size: 598 B

Pretty Raw Preview XML

```
<?xml version="1.0" encoding="utf-8"?>
<soap:Envelope xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <soap:Body>
    <GetWeatherResponse xmlns="http://www.webserviceX.NET">
      <GetWeatherResult>Data Not Found</GetWeatherResult>
    </GetWeatherResponse>
  </soap:Body>
</soap:Envelope>
```

Windows taskbar: 17:51 21-02-2018

4.2. Proxy Request & Response

| | |
|------------|--|
| URL | http://www.webserviceX.com/globalweather.asmx |
| SOAPAction | http://www.webserviceX.NET/GetWeather |
| Request | <pre>{ "cityName":"mumbai", "countryName":"India" }</pre> |
| Response | <pre>[9,[[1,"soap:Envelope",[[1,"soap:Body",[[1,"GetWeatherResponse", [[1,"GetWeatherResult",["Data Not Found"]]]],["xmlns","http://www.webserviceX.NET"]]]]]],["xmlns:s oap","http://schemas.xmlsoap.org/soap/envelope/"],["xmlns:xsd"," http://www.w3.org/2001/XMLSchema"],["xmlns:xsi","http://www. w3.org/2001/XMLSchema-instance"]]]]]]</pre> |

