



STI · INNSBRUCK

Semantic Web Services PS

Exercise Sheet 12 – 17.06.2014

Please answer the following questions. Provide your elaborated answers in a PDF or a plain text file. If you make use of references when elaborating your answers, please add the proper citations to your document. The deadline for submissions to the tutors (ioan.toma@sti2.at and jose.garcia@sti2.at) is 23rd June 2014 at 20:00 CET.

Exercise 1 (5 points)

In the context of the VTA scenario, introduced in Exercise Sheet 3, let us consider an imaginary hotel company, called The Blue Hotel that allows its clients to check for rooms availability using the BlueHotelService.

- Create a simple ontology in WSMML that can be used to annotate the BlueHotelService
- Extend the WSDL description of the BlueHotelService in Listing 1 by including SA-WSDL annotations. Use concepts from the ontology you created before.

- Listing 1: WSDL description of BlueHotelService

```
<?xml version="1.0" encoding="utf-8" ?>
<description
  xmlns="http://www.w3.org/ns/wsd1"
  targetNamespace= "http://www.bluehotel.com/wsd1/BlueHotelService"
  xmlns:tns= "http://www.bluehotel.com/wsd1/BlueHotelService"
  xmlns:bhns = "http://www.bluehotel.com/schemas/BlueHotelService"
  xmlns:wsoap= "http://www.w3.org/ns/wsd1/soap"
  xmlns:soap="http://www.w3.org/2003/05/soap-envelope"
  xmlns:wsd1x= "http://www.w3.org/ns/wsd1-extensions">

<documentation>
  This document describes the Blue Hotel Web service.
</documentation>

<types>
  <xs:schema
    xmlns:xs="http://www.w3.org/2001/XMLSchema"
    targetNamespace="http://www.bluehotel.com/schemas/
      BlueHotelService"
    xmlns="http://www.bluehotel.com/schemas/BlueHotelService">

    <xs:element name="checkAvailability" type="tCheckAvailability"/>
    <xs:complexType>
      <xs:sequence>
        <xs:element name="checkInDate" type="xs:date"/>
      </xs:sequence>
    </xs:complexType>
  </xs:schema>
</types>
</description>
```

```

        <xs:element name="checkOutDate" type="xs:date"/>
        <xs:element name="roomType" type="xs:string"/>
    </xs:sequence>
</xs:complexType>
</xs:element>

<xs:element name="checkAvailabilityResponse"
    type="tCheckAvailabilityResponse"/>
<xs:complexType>
    <xs:sequence>
        <xs:element name="roomType" type="xs:string"/>
        <xs:element name="rateType" type="xs:string"/>
        <xs:element name="rate" type="xs:double"/>
    </xs:sequence>
</xs:complexType>
</xs:element>
<xs:element name="invalidDataError" type="xs:string"/>
</xs:schema>
</types>

<interface name = "BlueServiceInterface" >
    <fault name = "invalidDataFault" element = "bhns:invalidDataError"/>
    <operation name="opCheckAvailability"
        pattern="http://www.w3.org/ns/wsd1/in-out"
        style="http://www.w3.org/ns/wsd1/style/iri"
        wsdlx:safe = "true">
        <input messageLabel="In" element="bhns:checkAvailability" />
        <output messageLabel="Out"
            element="bhns:checkAvailabilityResponse" />
        <outfault ref="tns:invalidDataFault" messageLabel="Out"/>
    </operation>
</interface>

<binding name="BlueServiceSOAPBinding"
    interface="tns:BlueServiceInterface"
    type="http://www.w3.org/ns/wsd1/soap"
    wsoap:protocol="http://www.w3.org/2003/05/soap/bindings/HTTP/">
    <fault ref="tns:invalidDataFault" wsoap:code="soap:Sender"/>
    <operation ref="tns:opCheckAvailability"
        wsoap:mep="http://www.w3.org/2003/05/soap/mep/soap-response"/>
</binding>

<service name="BlueService" interface="tns:BlueServiceInterface">
    <endpoint name="reservationEndpoint"
        binding="tns:BlueServiceSOAPBinding"
        address ="http://www.bluehotel.com/BlueService"/>
</service>

</description>

```

Exercise 2 (5 points)

Transform the annotated WSDL obtained in Exercise 1 into the WSMO-Lite RDFS form. The WSMO-Lite representation should include models for the capability of the service and at least one non-functional property (e.g. price of the service).

Exercise 3 (5 points)

Consider Flickr RESTful service (<http://www.flickr.com/services/api/>). Using hRESTS annotate the HTML pages describing the Upload Photos and Replacing Photos operations

Exercise 4 (5 points)

Enhance the obtained hRESTS description from Exercise 3 with MicroWSMO pointers.