



STI · INNSBRUCK

Semantic Web Services PS

Exercise Sheet 9 – 27.05.2014

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 2nd June 2014 at 20:00 CET.

Exercise 1 (12 points)

In the context of the VTA scenario, introduced in Exercise Sheet 3, let's consider an imaginary hotel company, called The Blue Hotel that allows its clients to check for rooms availability using the BlueHotelService. The WSDL description of the BlueHotelService is available in Listing 1. Create a WSML ontology for the description of the hotel domain and a service description for the Blue Hotel. In the service description include also the choreography definition.

Exercise 2 (8 points)

Define a goal for booking a double room for non-smokers according to the ontology modeled in Exercise 1.

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: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>

```