02267: Software Development of Web Services

3.1 WSDL

Create a WSDL file for a calendar service. The service should offer two operations. One operation stores an appointment (a string) for a specific date (for simplicity, we just consider appointments that take on a whole day) and another operation returns the appointment stored for a specific day.

- Create a WSDL file calendar.wsdl

- The Web service should define the namespace `http://ws.imm.dtu.dk/calendar`

- The file should contain the port type calendarServicePortType with two operations

    - addAppointment that takes a xsd:date and a String and returns nothing
        * Implement addAppointment as a one-way operation
    - getAppointment that takes an xsd:date and returns a String

- The Web service should use SOAP-RPC binding where the parameters are transported in the SOAP body

- You can use the NetBeans wizard/editor File>new file>XML>WSDL document to create a WSDL document

3.2 Web Service from WSDL

- Create a Web service based on the WSDL file from the previous section. The appointments can be stored in a HashMap.

- You can use the NetBeans wizard File>new file>Web Services>Web Services from WSDL to create the Web service implementation stubs from a WSDL file

- Implement the correct application logic for the Web service

3.3 Web Service Client

- Create a client for the Web service in the previous exercise to test the Web service.

  - Note, use the WSDL generated by the GlassFish server instead of the original WSDL file. The reason is, that for JAX-WS Web services, GlassFish changes the SOAP address from the one provided in the original WSDL file.

  1 Make one test which adds an appointment for a date and then gets the appointment for that date: make sure that the texts are the same

  2 Make a **second** test that adds an appointment for the same date as in the first test, but with a **different** text for the appointment.

- Use tcpmon or Wireshark to observe the traffic between client and server

  - How do SOAP messages for the one-way operation addAppointment differ from getAppointment? Are they different?

- Questions

  - When you run both tests, what will happen if it takes, e.g., 3 seconds for the Web service to add an appointment? (Discuss with the TA's or me, what should happen; try it out and explain what really happens :-)

  - You can wait for three seconds with `Thread.sleep(3000);`

- The following code snippet creates a XMLGregorianCalendar for a specific date (i.e., 15.9.2011): Note that the date has to be of the form yyyy-mm-dd, i.e., two digits for month and day. For example, yyyy-m-dd does not work.

```
import javax.xml.datatype.DatatypeConfigurationException;
import javax.xml.datatype.DatatypeFactory;
import javax.xml.datatype.XMLGregorianCalendar;
...
        DatatypeFactory df = DatatypeFactory.newInstance();
        XMLGregorianCalendar date = df.newXMLGregorianCalendar("2011-09-15");
...
```