5   XML Schema

5.1   Aufgabe (a)

5.1.1   termin.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns:t="http://www.fh-hagenberg.at/termin" xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.fh-hagenberg.at/termin" elementFormDefault="qualified">
    <element name="APPOINTMENT" type="t:AppointmentType">
        <key name="participiantKey">
            <selector xpath=".//t:PARTICIPIANT_LIST/t:PARTICIPIANT"/>
            <field xpath="@id"/>
        </key>
        <keyref name="creatorParticipiantId" refer="t:participiantKey">
            <selector xpath=".//t:APPOINTMENT_INFOS"/>
            <field xpath="@creator"/>
        </keyref>
    </element>
    <!-- ############# Types ############# -->
    <!-- Appointment Type-->
    <complexType name="AppointmentType">
        <sequence>
            <element name="APPOINTMENT_INFOS" type="t:AppointmentInfoType" minOccurs="1"
maxOccurs="1"/>
            <element name="PARTICIPIANT_LIST" type="t:ParticipiantListType" minOccurs="1"
maxOccurs="1"/>
        </sequence>
    </complexType>
    <!-- Serialized Appointment Type -->
    <complexType name="AppointmentSerializedType">
        <complexContent>
            <extension base="t:AppointmentType">
                <sequence>
                    <element name="APPOINTMENT_INFOS_SERIAL"
type="t:AppointmentInfosSerialType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <!-- Appointment Infos Serial Type -->
    <complexType name="AppointmentInfosSerialType">
        <simpleContent>
            <extension base="string">
                <attribute name="repeatDuration" type="int" use="required"/>
                <attribute name="repeatFrequency"
type="t:AppointmentTypeSerializedEnumeration" use="required"/>
            </extension>
        </simpleContent>
    </complexType>
    <!-- Appointment Info Type -->
    <complexType name="AppointmentInfoType">
        <sequence>
            <element name="NOTIFICATION" minOccurs="3" maxOccurs="3"/>
        </sequence>
        <attribute name="creator" type="string" use="required"/>
        <attribute name="creationDate" type="dateTime" use="required"/>
        <attribute name="movable" type="boolean" use="optional" fixed="false"/>
        <attribute name="serialized" type="boolean" use="optional" fixed="false"/>
        <attribute name="type" type="t:AppointmentTypeEnumeration" use="optional"
default="teaching"/>
    </complexType>
    <!-- Participant List Type -->
    <complexType name="ParticipiantListType">
        <sequence>
            <element name="PARTICIPIANT" type="t:ParticipiantType" minOccurs="1"
maxOccurs="unbounded"/>
        </sequence>
    </complexType>
    <!-- Participant Type -->
    <complexType name="ParticipiantType">
        <simpleContent>
            <extension base="string">
```

```xml
                    <attribute name="id" type="string" use="required"/>
                </extension>
            </simpleContent>
        </complexType>
        <!-- ############# Enumerations #############  -->
        <!-- Appointment Type Enumerations  -->
        <simpleType name="AppointmentTypeEnumeration">
            <restriction base="string">
                <enumeration value="teaching"/>
                <enumeration value="research"/>
                <enumeration value="projects"/>
                <enumeration value="private"/>
            </restriction>
        </simpleType>
        <!-- Serialized Appointment Type Enumerations -->
        <simpleType name="AppointmentTypeSerializedEnumeration">
            <restriction base="string">
                <enumeration value="daily"/>
                <enumeration value="weekly"/>
                <enumeration value="monthly"/>
                <enumeration value="quarterly"/>
                <enumeration value="yearly"/>
            </restriction>
        </simpleType>
</schema>
```

5.1.2   termin.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<APPOINTMENT xmlns="http://www.fh-hagenberg.at/termin"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.fh-
hagenberg.at/termin termin.xsd">
    <APPOINTMENT_INFOS creator="conductor" creationDate="2002-05-30T09:00:00" movable="false"
serialized="false" type="teaching">
        <NOTIFICATION>Hello</NOTIFICATION>
        <NOTIFICATION>Hello</NOTIFICATION>
        <NOTIFICATION>Hello</NOTIFICATION>
    </APPOINTMENT_INFOS>
    <PARTICIPIANT_LIST>
        <PARTICIPIANT id="conductor">Thomas Herzog</PARTICIPIANT>
        <PARTICIPIANT id="participiant_1">Hugo Maier</PARTICIPIANT>
    </PARTICIPIANT_LIST>
</APPOINTMENT>
```

5.1.3   terminSpezialisierung.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<APPOINTMENT xsi:type="AppointmentSerializedType"  xmlns="http://www.fh-hagenberg.at/termin"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.fh-
hagenberg.at/termin termin.xsd">
<APPOINTMENT_INFOS creator="conductor" creationDate="2002-05-30T09:00:00">
    <NOTIFICATION>Hello</NOTIFICATION>
    <NOTIFICATION>Hello</NOTIFICATION>
    <NOTIFICATION>Hello</NOTIFICATION>
</APPOINTMENT_INFOS>
<PARTICIPIANT_LIST>
    <PARTICIPIANT id="conductor">Thomas Herzog</PARTICIPIANT>
</PARTICIPIANT_LIST>
<APPOINTMENT_INFOS_SERIAL repeatDuration="10" repeatFrequency="daily"/>
</APPOINTMENT>
```

5.2 Aufgabe (b)

5.2.1   termin_neu.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns:t="http://www.fh-hagenberg.at/termin" xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.fh-hagenberg.at/termin" elementFormDefault="qualified">
    <include schemaLocation="teilnehmerListe.xsd"/>
    <element name="APPOINTMENT" type="t:AppointmentType">
        <key name="participiantKey">
            <selector xpath=".//t:PARTICIPIANT_LIST/t:PARTICIPIANT"/>
            <field xpath="@id"/>
        </key>
        <keyref name="creatorParticipiantId" refer="t:participiantKey">
            <selector xpath=".//t:APPOINTMENT_INFOS"/>
            <field xpath="@creator"/>
        </keyref>
    </element>
    <!-- ############# Types #############  -->
    <!-- Appointment Type-->
    <complexType name="AppointmentType">
        <sequence>
            <element name="APPOINTMENT_INFOS" type="t:AppointmentInfoType" minOccurs="1"
maxOccurs="1"/>
            <element name="PARTICIPIANT_LIST" type="t:ParticipiantListType" minOccurs="1"
maxOccurs="1"/>
        </sequence>
    </complexType>
    <!-- Serialized Appointment Type -->
    <complexType name="AppointmentSerializedType">
        <complexContent>
            <extension base="t:AppointmentType">
                <sequence>
                    <element name="APPOINTMENT_INFOS_SERIAL"
type="t:AppointmentInfosSerialType"/>
                </sequence>
            </extension>
        </complexContent>
    </complexType>
    <!-- Appointment Infos Serial Type -->
    <complexType name="AppointmentInfosSerialType">
        <simpleContent>
            <extension base="string">
                <attribute name="repeatDuration" type="int" use="required"/>
                <attribute name="repeatFrequency"
type="t:AppointmentTypeSerializedEnumeration" use="required"/>
            </extension>
        </simpleContent>
    </complexType>
    <!-- Appointment Info Type -->
    <complexType name="AppointmentInfoType">
        <sequence>
            <element name="NOTIFICATION" minOccurs="3" maxOccurs="3"/>
        </sequence>
        <attribute name="creator" type="string" use="required"/>
        <attribute name="creationDate" type="dateTime" use="required"/>
        <attribute name="movable" type="boolean" use="optional" fixed="false"/>
        <attribute name="serialized" type="boolean" use="optional" fixed="false"/>
        <attribute name="type" type="t:AppointmentTypeEnumeration" use="optional"
default="teaching"/>
    </complexType>
    <!-- ############# Enumerations #############  -->
    <!-- Appointment Type Enumerations  -->
    <simpleType name="AppointmentTypeEnumeration">
        <restriction base="string">
            <enumeration value="teaching"/>
            <enumeration value="research"/>
            <enumeration value="projects"/>
            <enumeration value="private"/>
        </restriction>
    </simpleType>
    <!-- Serialized Appointment Type Enumerations -->
    <simpleType name="AppointmentTypeSerializedEnumeration">
        <restriction base="string">
            <enumeration value="daily"/>
```

```xml
                <enumeration value="weekly"/>
                <enumeration value="monthly"/>
                <enumeration value="quarterly"/>
                <enumeration value="yearly"/>
            </restriction>
        </simpleType>
</schema>
```

5.2.2   teilnehmerListe.xsd

```xml
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns:t="http://www.fh-hagenberg.at/termin" xmlns="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.fh-hagenberg.at/termin" elementFormDefault="qualified">
    <!-- Participant List Type -->
    <complexType name="ParticipiantListType">
        <sequence>
            <element name="PARTICIPIANT" type="t:ParticipiantType" minOccurs="1"
maxOccurs="unbounded"/>
        </sequence>
    </complexType>
    <!-- Participant Type -->
    <complexType name="ParticipiantType">
        <simpleContent>
            <extension base="string">
                <attribute name="id" type="string" use="required"/>
            </extension>
        </simpleContent>
    </complexType>
</schema>
```

5.2.3   termin_neu.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<APPOINTMENT xmlns="http://www.fh-hagenberg.at/termin"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.fh-
hagenberg.at/termin termin_neu.xsd">
    <APPOINTMENT_INFOS creator="conductor" creationDate="2002-05-30T09:00:00" movable="false"
serialized="false" type="teaching">
        <NOTIFICATION>Hello</NOTIFICATION>
        <NOTIFICATION>Hello</NOTIFICATION>
        <NOTIFICATION>Hello</NOTIFICATION>
    </APPOINTMENT_INFOS>
    <PARTICIPIANT_LIST>
        <PARTICIPIANT id="conductor">Thomas Herzog</PARTICIPIANT>
        <PARTICIPIANT id="participiant_1">Hugo Maier</PARTICIPIANT>
    </PARTICIPIANT_LIST>
</APPOINTMENT>
```

5.2.4   terminSpezialisierung_neu.xml

```xml
<?xml version="1.0" encoding="UTF-8"?>
<APPOINTMENT xsi:type="AppointmentSerializedType"  xmlns="http://www.fh-hagenberg.at/termin"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.fh-
hagenberg.at/termin termin_neu.xsd">
<APPOINTMENT_INFOS creator="conductor" creationDate="2002-05-30T09:00:00">
    <NOTIFICATION>Hello</NOTIFICATION>
    <NOTIFICATION>Hello</NOTIFICATION>
    <NOTIFICATION>Hello</NOTIFICATION>
</APPOINTMENT_INFOS>
<PARTICIPIANT_LIST>
    <PARTICIPIANT id="conductor">Thomas Herzog</PARTICIPIANT>
</PARTICIPIANT_LIST>
<APPOINTMENT_INFOS_SERIAL repeatDuration="10" repeatFrequency="daily"/>
</APPOINTMENT>
```