Database Architectures

**Practical Assessment #2 (PR2):**

**XML Extension**

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# Activity 1

## a)

## b)

The main purpose of the extensive markup language (xml) is to stablish a proper communication mechanism among applications. To achieve this, it is necessary to strictly define a structure of elements (known as vocabulary) which implies a set rules and constraint. Here is where xml schemas come into play since they allow defining that so-called vocabulary with a very high degree of details regarding the application data particularities.

That said, to define the xml schema that will stablish the required vocabulary and set of rules for the xml structure proposed in this activity statement, we will proceed as follows:

**<!-- ################### definition of the xml schema #################### -->**

<?xml version = **"1.0"** encoding = **"ISO-8859-1"** ?>

<!-- see comments section [0] -->

<xsd:schema><!-- see comments section [1] -->

**<!-- ################### definition of simple elements ################## -->**

<xsd:element name=**"id\_type"**><!--see comments section [2.1.3]-->

<xsd:simpleType>

<xsd:restriction base=**"xsd:positiveInteger"**>

<xsd:maxInclusive value=**"9999"**/>

</xsd:restriction>

</xsd:simpleType>

</xsd:element>

<xs:element name=**"year"** type=**"xs:integer"**/><!--see comments section [2.2.1]-->

<xs:element name=**"month"** type=**"xs:integer"**/><!--see comments section [2.2.1]-->

<xs:element name=**"day"** type=**"xs:integer"**/><!--see comments section [2.2.1]-->

<xs:element name=**"idRegion"** type=**"xs:integer"**/><!--see comments section [2.3.1]-->

<xs:element name=**"descripton"** type=**"xs:string"**/><!--see comments section [2.3.2]-->

<xs:element name=**"hospitalised"** type=**"xs:integer"**/><!--see comm. section[2.4.1]-->

<xs:element name=**"ICU"** type=**"xs:integer"**/><!-- see comments section [2.4.2]-->

<xsd:element name=**"gender"**><!--see comments section [2.4.3]-->

<xsd:simpleType>

<xsd:restriction base=**"xsd:NMTOKEN"**>

<xsd:enumeration value=**"female"** />

<xsd:enumeration value=**"male"** />

<xsd:enumeration value=**"other"** />

</xsd:restriction>

</xsd:simpleType>

</xsd:element>

**<!-- ##################### definition of attributes ##################### -->**

<xs:attribute name=**"id"** type=**"xs:id\_type"**/><!-- see comments section [2.1.3] -->

**<!-- ##################### definition of complex elements ##################### -->**

<xsd:element name=**"date"**><!-- see comments section [2.2] -->

<xsd:complexType>

<xsd:sequence>

<xs:element ref=**"year"**/>

<xs:element ref=**"month"**/>

<xs:element ref=**"day"**/>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

<xsd:element name=**"region"**><!-- see comments section [2.3] -->

<xsd:complexType>

<xsd:sequence>

<xs:element ref=**"idRegion"**/>

<xs:element ref=**"description"**/>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

<xsd:element name=**"patients"**><!-- see comments section [2.4] -->

<xsd:complexType>

<xsd:sequence>

<xs:element ref=**"hospitalised"**/>

<xs:element ref=**"ICU"**/>

<xs:element ref=**"gender"**/>

</xsd:sequence>

</xsd:complexType>

</xsd:element>

**<!-- ##################### root element ##################### -->**

<xs:element name=**"COVID"**><!-- see comments section [2.1.1] -->

<xs:complexType>

<xs:sequence>

<xs:element ref=**"date"**/>

<xs:element ref=**"region"**/>

<xs:element ref=**"patients"** maxOccurs=**"10"**/>

</xs:sequence>

<xs:attribute ref=**"id"** use=**"required"**/><!--comm. sections [2.1.2] & [2.1.3]-->

</xs:complexType>

</xs:element>

<!—xml schema definition end -->

</xs:schema>

# Activity 2

## a)

## b)

## c)

# Activity 3

## a)

## b)