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Linguaggi e tecnologie per il Web

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corso di Laurea in Ingegneria Informatica

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Esercizi su XML Schema

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Esercizio 1

Si consideri la seguente DTD:

```
<!DOCTYPE a [
  <!ELEMENT a (b*,c,d+,e?)>
  <!ELEMENT b #PCDATA>
  <!ELEMENT c #PCDATA>
  <!ELEMENT d #PCDATA>
  <!ELEMENT e #PCDATA>
]>
```

Scrivere un XML Schema corrispondente a tale DTD.

Soluzione

```
<?xml version="1.0"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="a" type="Tipoa"/>
  <xsd:complexType name="Tipoa">
    <xsd:sequence>
      <xsd:element name="b" type="xsd:string" minOccurs="0" maxOccurs="unbounded"/>
      <xsd:element name="c" type="xsd:string"/>
      <xsd:element name="d" type="xsd:string" minOccurs="1" maxOccurs="unbounded"/>
      <xsd:element name="e" type="xsd:string" minOccurs="0" maxOccurs="1"/>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

Esercizio 2

Si consideri la seguente DTD:

```
<!DOCTYPE a [
  <!ELEMENT a ((b|c),(d|e|f)*)>
  <!ELEMENT b #PCDATA>
  <!ELEMENT c #PCDATA>
  <!ELEMENT d #PCDATA>
  <!ELEMENT e #PCDATA>
  <!ELEMENT f #PCDATA>
]>
```

Scrivere un XML Schema corrispondente a tale DTD.

Soluzione

```
<?xml version="1.0"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="a" type="Tipoa"/>
  <xsd:complexType name="Tipoa">
    <xsd:sequence>
      <xsd:choice>
        <xsd:element name="b" type="xsd:string"/>
        <xsd:element name="c" type="xsd:string"/>
      </xsd:choice>
      <xsd:choice minOccurs="0" maxOccurs="unbounded">
        <xsd:element name="d" type="xsd:string"/>
        <xsd:element name="e" type="xsd:string"/>
        <xsd:element name="f" type="xsd:string"/>
      </xsd:choice>
    </xsd:sequence>
  </xsd:complexType>
</xsd:schema>
```

Esercizio 3

Si consideri la seguente DTD:

```
<!DOCTYPE a [
  <!ELEMENT a (b*,c,d+,e?)>
  <!ELEMENT b #PCDATA>
  <!ELEMENT c #PCDATA>
  <!ELEMENT d EMPTY>
  <!ELEMENT e EMPTY>
  <!ATTLIST b
    x CDATA #REQUIRED
    y CDATA #IMPLIED>
  <!ATTLIST e
    x CDATA #REQUIRED
]>
```

Scrivere un XML Schema corrispondente a tale DTD.

Soluzione

```
<?xml version="1.0"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="a" type="Tipoa"/>
  <xsd:complexType name="Tipoa">
    <xsd:sequence>
```

```xsd
          <xsd:element name="b" type="Tipob" minOccurs="0" maxOccurs="unbounded"/>
          <xsd:element name="c" type="xsd:string"/>
          <xsd:element name="d" type="Tipod" minOccurs="1" maxOccurs="unbounded"/>
          <xsd:element name="e" type="Tipoe" minOccurs="0" maxOccurs="1"/>
       </xsd:sequence>
    </xsd:complexType>
    <xsd:complexType name="Tipob">
       <xsd:simpleContent>
         <xsd:extension base="xsd:integer">
            <xsd:attribute name="x" type="xsd:string" use="required"/>
            <xsd:attribute name="y" type="xsd:string" use="optional"/>
         </xsd:extension>
       </xsd:simpleContent>
    </xsd:complexType>
    <xsd:complexType name="Tipod">
       <xsd:attribute name="x" type="xsd:string" use="required"/>
    </xsd:complexType>
    <xsd:complexType name="Tipoe"/>
</xsd:schema>
```