

XML Validation

XML Schema

XML Schema (Or) XML Schema Definition (XSD)

- XML Schema mainly used for structuring XML documents. Similar to DTD, XML Schema is also used to check whether the given XML document is “**well formed**” and “**valid**”.
- XML Schema can be defined root element, child elements, their number as well as their order.
- It defines data types, default and fixed values for the elements and attributes.
- For this purpose, it has the form of XML schema language which is also known as **Xml Schema Definition (XSD)**.

- XML schemas are created by using XML syntax, where DTD use a separate syntax.
- XML Schemas specify the type of textual data that can be used with in attributes and elements.
- If we use the XML Schema for complex and large operations, then the processing of XML document may slow down.
- The XML document can't be displayed if the corresponding schema file is absent.

Data Types in XML Schema:

- **Binary data type:** It includes the binary data (0's or 1's).
- **Boolean data type:** It includes either “true” or “false”.
- **Number data type:** There are 3 main number data types those are
 - o **float :** It contains 32-bit floating point values.
 - o **double:** It contains 64-bit floating point values.
 - o **decimal:** It includes the decimal numbers either +ve or –ve.
- **Date data type:** It specifies the current date (YYYY-MM-DD).
- **Time data type:** It specifies the current time (HH:MM:SS).
- **String data type:** It includes series of characters such as strings.

- **Example:** The following example is an XML schema file called “remainder.xsd” that defines the elements of XML document.

“remainder.xsd”

```
<?xml version = "1.0" encoding = "UTF-8"?>
```

```
<xs:schema xmlns:xs = "http://www.w3.org/2001/XMLSchema">
```

```
<xs:element name="remainder">
```

```
<xs:complextype>
```

```
<xs:sequence>
```

```
<xs:element name="to" type="xs:string">
```

```
<xs:element name="from" type="xs:string">
```

```
<xs:element name="heading" type="xs:string">
```

```
<xs:element name="msg" type="xs:string">
```

```
</xs:sequence>
```

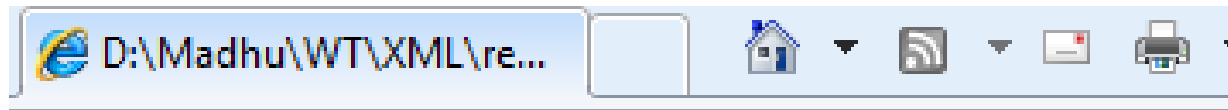
```
</xs:complextype>
```

```
</xs:schema>
```

“remaind.xml”

```
<?xml version = "1.0" encoding = "UTF-8"?>  
<remainder schemaLocation="remainder.xsd">  
<to>Madhu</to>  
<from>Durga</from>  
<heading>Notice</heading>  
<msg>This is My Last Remainder</msg>  
</remainder>
```

Output:



```
<?xml version="1.0" encoding="UTF-8" ?>  
- <remainder schemaLocation="remainder.xsd">  
    <to>Madhu</to>  
    <from>Durga</from>  
    <heading>Notice</heading>  
    <msg>This is My Last Remainder</msg>  
</remainder>
```