

# WEB TECHNOLOGY(LAB)

Lab 5 Task

(BSCS)

By

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## Lab 5: Forms & Multimedia

### Lab Objectives

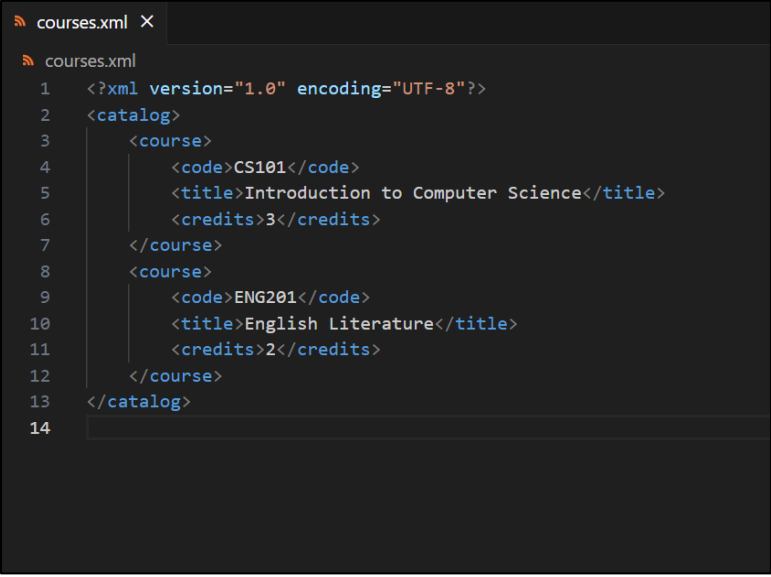
- Create a well-formed XML document.
- Validate XML using XSD or DTD.
- Understand the difference between HTML and XML.
- Optionally convert a simple HTML snippet to XHTML.

### Tools Required

- VS Code (or any text editor)
- Online XML Validator (e.g., <https://www.xmlvalidation.com/>)
- Sample XSD/DTD file (can be created or provided)

### Step 1: Create an XML File

- Let's create a sample XML file for a Course Catalog.
- File Name: courses.xml

A screenshot of a code editor window titled 'courses.xml'. The editor shows the following XML code:

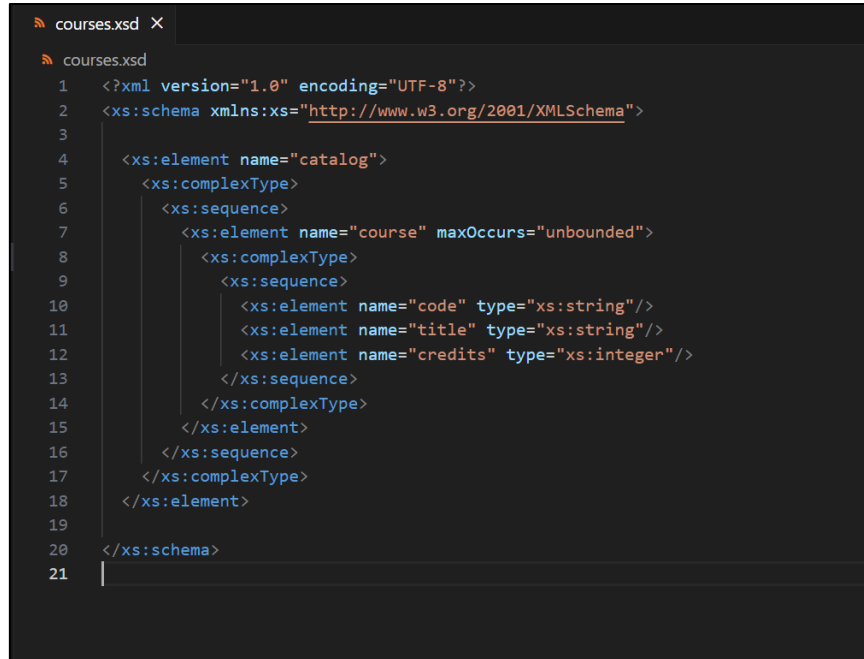
```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <catalog>
3      <course>
4          <code>CS101</code>
5          <title>Introduction to Computer Science</title>
6          <credits>3</credits>
7      </course>
8      <course>
9          <code>ENG201</code>
10         <title>English Literature</title>
11         <credits>2</credits>
12     </course>
13 </catalog>
14
```

### Explanation:

- `<?xml version="1.0" encoding="UTF-8"?>` → XML declaration line.
- `<catalog>` → Root element.
- Each `<course>` has three child tags:
  - `<code>` – Course code
  - `<title>` – Course name
  - `<credits>` – Credit hours

## Step 2: Create an XSD File to Validate XML

- **File Name: courses.xsd**



```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
3
4   <xs:element name="catalog">
5     <xs:complexType>
6       <xs:sequence>
7         <xs:element name="course" maxOccurs="unbounded">
8           <xs:complexType>
9             <xs:sequence>
10               <xs:element name="code" type="xs:string"/>
11               <xs:element name="title" type="xs:string"/>
12               <xs:element name="credits" type="xs:integer"/>
13             </xs:sequence>
14           </xs:complexType>
15         </xs:element>
16       </xs:sequence>
17     </xs:complexType>
18   </xs:element>
19
20 </xs:schema>
21
```

### Explanation:

- `xs:schema` → Defines the XML schema (structure).
- `catalog` → Root element containing multiple course elements.
- `maxOccurs="unbounded"` → Means you can have many `<course>` entries.
- Data types:
  - `xs:string` → Text
  - `xs:integer` → Numbers only

## Step 3: Validate XML Against XSD

- **Use an online XML validator:**
- Go to <https://www.xmlvalidation.com/> or <https://www.freeformatter.com/xml-validator-xsd.html>
- **Paste your XML and XSD code**
- **Click Validate**

**Deliverable:** Save the validation result as a screenshot or report.

The XML document is valid. ✕

Option 1: Copy-paste your XML document here

```
<?xml version="1.0" encoding="UTF-8"?>
<catalog>
  <course>
    <code>CS101</code>
    <title>Introduction to Computer Science</title>
```

Option 2: Or upload your XML file File encoding

Choose file No file chosen

UTF-8 ▼

---

Option 1: Copy-paste your XSD here (Optional if XSD referred in XML using schemaLocation)

```
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">

  <xs:element name="catalog">
    <xs:complexType>
```

Option 2: Or upload your XSD document File encoding

## ◆ Step 4 (Optional): Convert HTML to XHTML

### Original HTML Snippet:


```
<html>
<head>
<title>Sample Page</title>
</head>
<body>
<h1>Welcome</h1>
<p>This is a sample page.</p>
</body>
</html>
```

### Converted XHTML:

```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"
  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
  <title>Sample Page</title>
</head>
<body>
```

```
<h1>Welcome</h1>
<p>This is a sample page.</p>
</body>
</html>
```

✅ Validate XHTML using <https://validator.w3.org/>

**Markup Validation Service**  
Check the markup (HTML, XHTML, ...) of Web documents

**Jump To:** [Notes and Potential Issues](#) [Congratulations · Icons](#)

**This document was successfully checked as XHTML 1.0 Strict!**

<b>Result:</b>	Passed, 1 warning(s)	
<b>Source:</b>	<pre>&lt;?xml version="1.0" encoding="UTF-8"?&gt; &lt;!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Strict//EN"   "http://www.w3.org/TR/xhtml1/DTD/xhtml1-strict.dtd"&gt; &lt;html xmlns="http://www.w3.org/1999/xhtml"&gt; &lt;head&gt;   &lt;title&gt;Sample Page&lt;/title&gt; &lt;/head&gt; &lt;body&gt;   &lt;h1&gt;Welcome&lt;/h1&gt;   &lt;p&gt;This is a sample page.&lt;/p&gt; &lt;/body&gt; &lt;/html&gt;</pre>	
<b>Encoding:</b>	utf-8	(detect automatically) ▼
<b>Doctype:</b>	XHTML 1.0 Strict	(detect automatically) ▼
<b>Root Element:</b>	html	



## Final Deliverables

- courses.xml (well-formed XML)
- courses.xsd (schema file)
- Validation report or screenshot
- (Optional) sample.xhtml file

## CONCLUSION:

In this lab, I successfully created a well-formed XML document and validated it using an XSD schema. This helped me understand the structure and data types used in XML. Additionally, I learned how to convert HTML into XHTML, which follows stricter syntax rules for compatibility and correctness. This lab improved my understanding of XML, XSD, and XHTML validation techniques.

## RUBRICS:

Performance			Lab Report		
Description	Total Marks	Marks Obtained	Description	Total Marks	Marks Obtained
Ability to Conduct practical	5		Structure	5	
Data Analysis & Interpretation	5		Efficiency	5	
Total Marks obtained			Total Marks Obtained		

Instructor Signature \_\_\_\_\_