

# Lahore Garrison University

**DHA Phase 6 Lahore**



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## Lab 5: Forms & Multimedia

### Lab Objectives

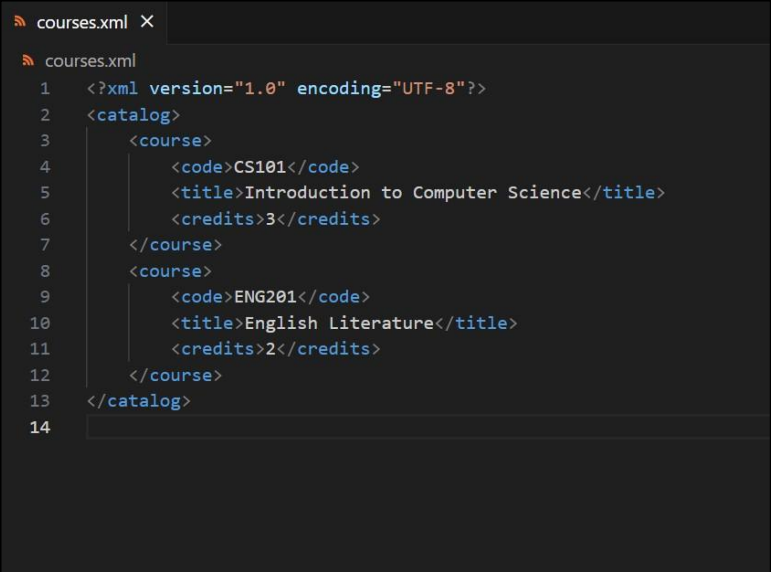
- Create a well-formed XML document.
- Validate XML using XSD or DTD.
- Understand the difference between HTML and XML.
- Optionally convert a simple HTML snippet to XHTML.

### 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:

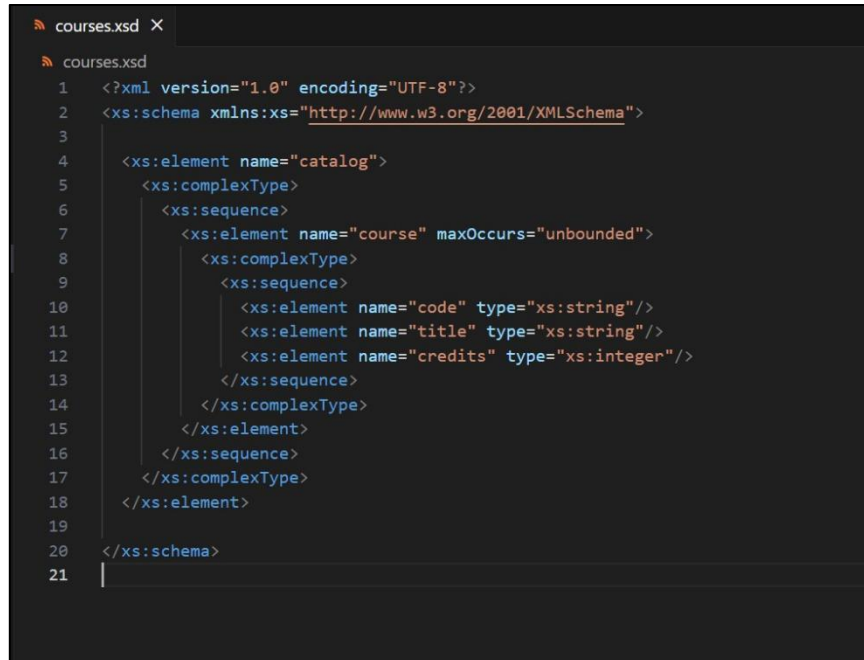
```
1  <?xml version="1.0" encoding="UTF-8"?>
2  <catalog>
3    <course>
4      <code>CS101</code>
5      <title>Introduction to Computer Science</title>
6      <credits>3</credits>
7    </course>
8    <course>
9      <code>ENG201</code>
10     <title>English Literature</title>
11     <credits>2</credits>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



```
courses.xsd X
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/xmlvalidator-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

Choose file

No file chosen

File encoding  
 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

Choose file

No file chosen

File encoding  
 UTF-8 ▼

## 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/>



The screenshot displays the W3C Markup Validation Service interface. At the top, the W3C logo and the text "Markup Validation Service" are visible, along with a subtitle "Check the markup (HTML, XHTML, ...) of Web documents". Below this, a navigation bar includes "Jump To:" followed by links for "Notes and Potential Issues" and "Congratulations · Icons". A prominent green banner states: "This document was successfully checked as XHTML 1.0 Strict!". The main content area shows the validation result: "Result: Passed, 1 warning(s)". The "Source:" section displays the XML code of the document being validated. Below the source code, there are dropdown menus for "Encoding:" (set to utf-8), "Doctype:" (set to XHTML 1.0 Strict), and "Root Element:" (set to html). Each dropdown menu has a "(detect automatically)" option.

W3C 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!

Result: Passed, 1 warning(s)

Source:

```
<?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>
```

Encoding: utf-8 (detect automatically)

Doctype: XHTML 1.0 Strict (detect automatically)

Root Element: 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 \_\_\_\_\_