TECHNOCATION FREELANCING TRAINING INSTITUTE & SOFTWARE HOUSE

Professional XML Course Outline

Module 1: Introduction to XML

- What is XML and Why is it Used?
- Differences Between XML, HTML, and JSON
- Understanding XML Syntax and Rules
- Writing a Simple XML Document

Module 2: XML Structure and Data Representation

- Elements, Attributes, and Namespaces
- XML Well-Formed vs. Valid Documents
- XML Comments, CDATA Sections, and Special Characters
- Formatting and Indentation Best Practices

Module 3: XML Validation with DTD and XSD

- Introduction to Document Type Definition (DTD)
- Creating and Using DTD for XML Validation
- Introduction to XML Schema Definition (XSD)
- Writing and Using XSD for XML Validation

Module 4: Parsing XML with Different Technologies

- XML Parsing Methods: DOM vs. SAX vs. StAX
- Parsing XML with Java (DOM & SAX Parsers)
- Parsing XML with Python (`xml.etree.ElementTree`)
- Parsing XML with JavaScript (`XMLHttpRequest` and `DOMParser`)

Module 5: Transforming XML with XSLT

- Introduction to XSLT (Extensible Stylesheet Language Transformations)
- Writing XSLT Templates to Convert XML to HTML
- Using XPath in XSLT for Data Selection
- Applying XSLT in Web and Application Development

Module 6: Querying XML with XPath and XQuery

- Basics of XPath: Selecting Nodes and Elements
- XPath Expressions and Functions
- Introduction to XQuery for Advanced XML Data Retrieval
- Writing Complex Queries with XQuery

Module 7: Working with XML in Databases & Web Services

- Storing and Retrieving XML in Relational Databases
- XML in APIs: REST & SOAP Web Services
- Working with XML in AJAX and Web Applications
- Converting XML to JSON and Vice Versa

Module 8: Advanced XML Topics

- XML Digital Signatures and Security
- Optimizing XML for Large-Scale Applications
- Using XML with Big Data and Cloud Storage
- Future of XML and Its Alternatives

Final Module: Capstone Project & Certification

- Designing a Real-World XML-Based System
- Implementing XML Data Exchange in an Application
- XML Data Transformation and Integration
- Final Presentation and Certification