



Module Presenter's Manual

for

Markup Language & JSON

***Effective from: December 2021
Ver. 1.0***

Amendment Record

Version No.	Effective Date	Change	Replaced Pages
1.0	December 2021	New	-

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1. Introduction

At the end of this course, students will be able to:

- Outline the features of markup languages and list their drawbacks.
- Define and describe XML.
- State the benefits and scope of XML.
- Describe the structure of an XML document.
- Explain the lifecycle of an XML document.
- State the functions of editors for XML and list the popularly used editors.
- State the functions of parsers for XML and list names of commonly used parsers.
- State the functions of browsers for XML and list the commonly used browsers.
- Explain the steps towards building an XML document.
- Define what is meant by well-formed XML.
- State and describe the use of comments and processing instructions in XML.
- Describe entities, DOCTYPE declarations and attributes.
- Identify the need for a namespace.
- Define and describe namespaces in XML.
- Explain the syntax for XML namespaces.
- Describe attributes and namespaces.
- Describe how to use default namespaces.
- Define what is meant by a DTD.
- Identify the need for a DTD.
- Describe the structure of a DTD.
- Explain how to create a simple DTD.
- Describe what is meant by document type declarations.
- Define document validity.
- Describe in brief how to test for document validity.
- Explain how to declare elements, attributes, and entity declaration in a DTD.
- Define and describe what is meant by schema.
- Compare and differentiate the features of DTDs and schemas.
- List the data types supported by schemas.
- Explain the XML Schema vocabulary.
- List and describe the data types used with simple types.
- Explain restrictions and facets.
- Identify the usage of attributes.
- Define and describe stylesheets.
- Define and describe cascading stylesheets (CSS).
- Explain how to implement styles with CSS.
- Describe the other properties such as margins, borders, layout and padding.
- Explain briefly about positioning, cascading, and inheritance.
- Define XSL, XSLT and their purpose.
- Explain the structure and syntax of XSL.
- Explain XSL templates.
- Describe the use of select attribute.
- State how to use `xsl:value-of`, `xsl:foreach`, `xsl:text`, and other elements.
- Define and describe XPath.
- State and explain the various XPath expressions and functions.
- List the node set, Boolean, numeric, and string functions.
- Explain what are result tree fragments.
- Explain how to switch between styles.
- Describe how to transform XML documents into HTML using XSLT.
- Define and describe JSON.

- Explain the basic concepts of JSON.
- List and describe the features of JSON.
- Describe the advantages of JSON.
- Explain how to create a simple JSON file.
- Explain literal notation in JavaScript and conversion to JSON.
- Explain syntax and rules.
- Identify datatypes supported by JSON.
- Explain how to represent complex data with JSON.
- Explain how to execute serialization and de-serialization of JSON with JavaScript.
- Describe tools and editors that can be used to work with JSON.
- Describe the syntax and schema of a JSON document.
- Identify browser and programming languages support for JSON.
- Describe JSON content types.
- Explain how to use JSON for Web and Data Storage.
- Compare JSON with relational databases.
- Identify security and data portability issues with respect to JSON.

2. Information on Session Allocation

Module	Online (No. of Hrs)	Self-Study (No. of Hrs)
Markup Language & JSON	12	06

Throughout this Presenter's Manual, the module **Markup Language & JSON** will be referred to as **XML-JSON**.










3. Module Deliverables available on OnlineVarsity

To aid the learning process, following are the deliverables

Student Deliverables:

1. Learner's Guide (eBook)

Resources available on OnlineVarsity for Students:

Icons	Feature - Description/Functionality
	Download Book - Student has the option to download the subject related e-book and read offline.
	Glossary - Student can access a list of subject related specialized words with their definitions.
	FAQ - Student can access frequently asked questions and their answers.
	Show Me How - Student can view a step-wise simulation/demonstration of the module related topics.
	Practice 4 Me - Student can test and evaluate their understanding of module related topics.
	Work Assignments - Student can solve scenario based lab assignments (Hands-on). The faculty will evaluate and give their feedbacks.
	References - Student can access additional subject related material for reading.
	Feedback - Student can provide feedback on the course material.
	Ask to Learn – Student can submit subject related technical queries. Queries submitted will be directed to the particular course coordinator/head.

4. Week-wise Session Schedule

- A Session is of 2 hours duration

➤ **Week-Wise Schedule**

Week	Day 1		Day 2		Day 3	
1	Session 1 XML-JSON – TL1		Session 2 XML-JSON – TL2	S1	Session 3 XML-JSON – TL3	
2	Session 4 XML-JSON – TL4	S2	Session 5 XML -JSON– TL5		Session 6 XML-JSON – TL6	S3

TL: Online Session

S: Self-Study Session (over and above the module duration)

5. Session Coverage

Session No.	Session Title	Session Details	Deliverables' Mapping
1	XML-JSON – TL1	<p>All the concept lessons as listed below from Session 1 to Session 4 of <i>Modern Markup for Data Interchange</i> book should be covered in this session.</p> <p><u>Session 1 – Introduction to XML</u></p> <ul style="list-style-type: none"> ➤ Introduction to XML ➤ Exploring XML ➤ Working with XML ➤ XML Syntax <p><u>Session 2 – Namespaces</u></p> <ul style="list-style-type: none"> ➤ XML Namespaces ➤ Working with Namespaces Syntax <p><u>Session 3 – DTDs</u></p> <ul style="list-style-type: none"> ➤ Document Type Definition ➤ Working with DTDs ➤ Valid XML documents ➤ Declarations <p><u>Session 4 – XML Schema</u></p> <ul style="list-style-type: none"> ➤ XML Schema ➤ Exploring XML Schemas ➤ Working with complex types ➤ Working with simple types 	<p><u>Modern Markup for Data Interchange</u></p> <p>SG - Session 1, 2, 3 & 4 XP - Session 1, 2, 3 & 4 TG - Session 1, 2, 3 & 4</p>
2	XML-JSON – TL2	<p>The workshop lessons of Session 1 to Session 4 of <i>Modern Markup for Data Interchange</i> course should be covered in this session.</p>	<p><u>Modern Markup for Data Interchange</u></p> <p>(OnlineVarsity)</p> <p>Session 1, 2, 3 & 4</p>

Session No.	Session Title	Session Details	Deliverables' Mapping
	S1	After the session, ask the students to refer the References and solve Assignments of Session 1 to Session 4 available on Onlinevarsity.	<u>Modern Markup for Data Interchange</u> (OnlineVarsity) Session 1, 2, 3 & 4
3	XML-JSON – TL3	<p>All the concept lessons as listed below from Session 5 to Session 7 of <i>Modern Markup for Data Interchange</i> book should be covered in this session.</p> <p><u>Session 5 – Stylesheets</u></p> <ul style="list-style-type: none"> ➤ Stylesheets ➤ Selectors in CSS ➤ Properties and Values ➤ Inheritance and Cascades in CSS <p><u>Session 6 – XSL and XSLT</u></p> <ul style="list-style-type: none"> ➤ Introduction to XSL ➤ Working with XSL <p><u>Session 7 – More on XSLT</u></p> <ul style="list-style-type: none"> ➤ Xpath ➤ XPath Expressions and Functions ➤ Working with different styles 	<p><u>Modern Markup for Data Interchange</u></p> <p>SG - Session 5, 6, & 7 XP - Session 5, 6, & 7 TG - Session 5, 6, & 7</p>
4	XML-JSON – TL4	The workshop lessons of Session 5 to Session 7 of <i>Modern Markup for Data Interchange</i> course should be covered in this session.	<u>Modern Markup for Data Interchange</u> (OnlineVarsity) Session 5, 6, & 7
	S2	After the session, ask the students to refer the References and solve Assignments of Session 5 to Session 7 available on Onlinevarsity.	<u>Modern Markup for Data Interchange</u> (OnlineVarsity) Session 5, 6, & 7

Session No.	Session Title	Session Details	Deliverables' Mapping
5	XML-JSON – TL5	<p>All the concept lessons from Session 8 to Session 10 of <i>Modern Markup for Data Interchange</i> book should be covered in this session.</p> <p><u>Session 8 Introduction to JSON</u></p> <ul style="list-style-type: none"> ➤ Basics of JSON ➤ Features of JSON ➤ Compare JSON with XML ➤ Advantages of JSON ➤ Syntax and rules ➤ Literal notation in JavaScript and conversion to JSON ➤ Create a simple JSON file <p><u>Session 9 Work with JSON Data</u></p> <ul style="list-style-type: none"> ➤ Data types supported by JSON ➤ Represent complex data with JSON ➤ Execute serialization and de-serialization of JSON with JavaScript ➤ Tools and editors that can be used to work with JSON ➤ Syntax and schema of a JSON document <p><u>Session 10 JSON in the Real World</u></p> <ul style="list-style-type: none"> ➤ Support of different browser and programming languages for JSON ➤ JSON content types ➤ Use JSON for Web and Data Storage ➤ Compare JSON with relational databases ➤ Security and data portability issues with respect to JSON 	<p><u>Modern Markup for Data Interchange</u></p> <p>SG - Session 8, 9 & 10 XP - Session 8, 9 & 10 TG - Session 8, 9 & 10</p>

Session No.	Session Title	Session Details	Deliverables' Mapping
6	XML-JSON – TL6	The workshop lessons of Session 8 to Session 10 of <i>Modern Markup for Data Interchange</i> course should be covered in this session.	<u>Modern Markup for Data Interchange</u> (OnlineVarsity) Session 8, 9 & 10
	S3	After the session, ask the students to refer the References and solve Assignments of Session 8 to Session 10 available on Onlinevarsity.	<u>Modern Markup for Data Interchange</u> (OnlineVarsity) Session 8, 9 & 10

6. Library References

➤	XML Bible by Elliotte Rusty Harold
➤	The XML Handbook by Charles F. GoldFarb, Paul Prescod
➤	Beginning JSON by Ben Smith
➤	JavaScript and JSON Essentials by Sai Srinivasa

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