

VASAVI COLLEGE OF ENGINEERING

(AUTONOMOUS)
(Affiliated to Osmania University)
Hyderabad - 500 031.

DEPARTMENT OF : IT

NAME OF THE LABORATORY : WT Lab

Name A. Varun Kuman Reddy Roll No. 1602-19-737-121 Page No. _____

Lab-6

1Q) Aim: To create a well-formed XML document containing details of a student like: roll number, student name, course id, marks (CIE and SEE).

Tags & attributes used: <Result>, <student>, <nno>, <sname>, <marks>, <fname>, <lname>, <courseid>, coursenamename & gender attributes etc.

Program:

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

```
<!DOCTYPE Result PUBLIC "ResultId" "Result.dtd">
```

```
<Result>
```

```
  <student>
```

```
    <nno>1602-19-737-121 </nno>
```

```
    <sname gender="male">
```

```
      <fname>Nani </fname>
```

```
      <lname>Ande </lname>
```

```
    </sname>
```

```
    <courseid coursenamename="WT">324 </courseid>
```

```
    <marks>
```

```
      <CIE>35 </CIE>
```

```
      <SEE>45 </SEE>
```

```
    </marks>
```

```
  </student>
```

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<student>

<rno>1602-19-737-001 </rno>

<sname gender = "male">

<fname>Sunny </fname>

<lname>Ade </lname>

</sname>

<courseid coursename = "AIML">311 </courseid>

<marks>

<CIE>36 </CIE>

<SEE>48 </SEE>

</marks>

</student>

<student>

<rno>1602-19-737-002 </rno>

<sname gender = "female">

<fname>Sweety </fname>

<lname>Rajapuram </lname>

</sname>

<courseid coursename = "DBMS">324 </courseid>

<marks>

<CIE>38 </CIE>

<SEE>54 </SEE>

</marks>

</student>

</Result>

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Result: The program for creating a well-formed XML document has been executed successfully.

2a) Define a DTD for the XML with the given rules.

Aim: To define a DTD for the XML with the given rules & validate XML document against DTD.

DTD:

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

```
<!ELEMENT Result (student+)>
```

```
<!ELEMENT student (rno, sname, courseid, marks)>
```

```
<!ELEMENT rno (#PCDATA)>
```

```
<!ELEMENT sname (fname, lname)>
```

```
<!ELEMENT fname (#PCDATA)>
```

```
<!ELEMENT lname (#PCDATA)>
```

```
<!ATTLIST sname gender (male/female) #IMPLIED>
```

```
<!ELEMENT courseid (#PCDATA)>
```

```
<!ATTLIST courseid coursename ID #REQUIRED>
```

```
<!ELEMENT marks (CIE, SEE)>
```

```
<!ELEMENT CIE (#PCDATA)>
```

```
<!ELEMENT SEE (#PCDATA)>
```

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Result: DTD has been defined & XML document is validated against DTD successfully.

- 3) Aim: To create a webpage to display the details of the Students in the descending order of their total marks, using html & javascript.

Program:

```
<html>  
<head>  
<style>
```

```
table, th, td {
```

```
border: 1px solid black;
```

```
border-collapse: collapse;
```

```
}
```

```
th, td {
```

```
padding: 5px;
```

```
}
```

```
</style>
```

```
<script>
```

```
function loadXMLDoc(){
```

```
var xmlhttp = new XMLHttpRequest();
```

```
xmlhttp.onreadystatechange = function(){
```

```
if (this.readyState == 4 && this.status == 200) {
```


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```
    myFunction(this);  
}  
};  
xmlhttp.open("GET", "XMLExamples/Invoice/Result.xml");  
xmlhttp.send();  
}  
function myFunction(xml) {  
    var i;  
    var xmlDoc = xml.responseXML;  
    var table = "<tr><th> Name </th> <th> Marks </th> </tr>";  
    var x = xmlDoc.getElementsByTagName("student");  
    var a1 = new Array();  
    var a2 = new Array();  
    for(i=0; i<x.length; i++){  
        a2 = [];  
        var str = (x[i].getElementsByTagName("fname")[0].childNodes[0].  
            nodeValue);  
        var marks = parseInt(x[i].getElementsByTagName("CIE")[0].  
            childNodes[0].nodeValue) + parseInt(x[i].getElementsByTagName("SEE")  
            [0].childNodes[0].nodeValue);  
        a2.push(str);
```

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```
a2.push(marks);
a1.push(a2);
}
sorted = a1.sort((a,b) => b[1] - a[1]);
for(i=0; i<sorted.length; i++){
    table += "<tr><td>" + sorted[i][0] + "</td><td>" + sorted[i][1] +
    "</td></tr>";
}
document.getElementById("demo").innerHTML = table;
}
</script>
</head>
<body>
    <button type="button" onclick="loadXMLDoc()">View Result </button>
    <br><br>
    <table id="demo"></table>
</body>
</html>
```

Result: The program to display student details in descending order of their marks has been executed successfully.

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Prelab Questions:

1) What is XML used for?

A) XML is used to describe structured data/information intended to be used by people or machine. XML is used as a primary means to manipulate & transfer structured data over the web.

2) Write the XML declaration tag & explain its contents.

A) XML declaration: `<?xml version="1.0" encoding="UTF-8"?>`

Attributes: Version \Rightarrow xml version used in this document.

encoding \Rightarrow type of encoding used in this document.

3) What does SVG stand for & what is it used for in XML?

A) SVG stands for Scalable Vector Graphics. SVG is used to define vector-based graphics for the web. SVG defines the graphics in XML format.

4) Differentiate between XML and HTML.

A)

XML

HTML

1) Extensible markup language

1) Hypertext markup language

2) Describes data

2) deals with displaying data

3) User defined tags

3) Predefined tags

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4) Case sensitive

4) Case insensitive

5) All elements must have closing tag.

5) Closing tag is not necessary for all elements.

5) What is XSLT? What importance does XSLT hold in XML?

A) XSLT (Extensible Stylesheet Language Transformations) is the recommended style sheet language for XML. With XSLT we can add/remove elements & attributes from/to output file. It provides the ability to transform XML data from one format to another.

6) What is the purpose of a DTD in XML?

A) The purpose of a DTD is to define the structure and the legal elements & attributes of an XML document. A DTD describes the tree structure of a document & something about its data.

7) State the drawbacks of DTD.

A) 1) DTD doesn't support namespaces.

2) It supports only text string data type.

3) It is not object oriented.

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8) XML Schema is an alternative of DTD to overcome DTD's drawbacks, What is XML Schema? Give an example.

A) An XML Schema describes the structure of an XML document.

Ex: `<?xml version="1.0"?>`

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

`targetNamespace="https://www.vasavi.ac.in"`

`xmlns="https://www.vasavi.ac.in" elementFormDefault="qualified">`

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

`<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="body" type="xs:string"/>`

`</xs:sequence>`

`</xs:complexType>`

`</xs:element>`

`</xs:schema>`