CIS 189

Week 8 Team Project

This week, you will work in teams of two to create an XML file that stores data, plus an HTML + JavaScript web page that transforms that data for viewing in a web browser.

Your project must meet the following requirements:

1. Each team will create:

a) An XML file containing appropriate data for the projects (20 points)  
Team member names must be a comment on the second or third line of the file.  
Your XML structure will be graded for clarity: are related elements properly nested?   
Do the child/sibling/parent relationships reflect the nature of the data?  
Good XML structure should be easy to read. XML elements generally correspond to rows in tables or records in a database. If you have to think deeply about how things relate to make connections, you may want to try another approach.  
All XML files must have at least 20 of the major data element:  
20 temperature readings, 20 students, etc.

b) An HTML + JavaScript file that formats the XML suitable for display and demonstrates

 Load an XML file into JavaScript (5 points)

 Select an XML element by name (5 points)

 Iterate through/processing child nodes (5 points)

 Filter by node type (5 points)

 Use node values from the XML DOM in HTML code (5 points)

c) A CSS file for styling (10 points)

2. Team member names must be a comment on the second or third line of each source file to receive credit for that part of the lab

3. You are welcome to find example HTML, CSS, and JavaScript code on-line. If you include nontrivial code from someone else's example, please include the URL in a comment in the program.  
*You will still receive full credit for your project if you cite your source.*  
Code included without citation can have serious academic consequences.

4. The HTML, XML, and related files must work when loaded through Visual Studio on the instructor's computer! (10 points)

5~~. Your team will demonstrate your completed XML-and-other files to the class  
on the first class meeting of week 9. (20 points)~~

6. Extra effort and creativity will be rewarded. (15 points)

7. When the project is complete, please zip all related files into a single folder and turn in the zip file to the professor on-line. The project must work on the professor’s computer using only the project files submitted through Canvas.

8. ~~All files you want to use for your presentation, including slides or similar, must be submitted through Canvas by end-of-day before the presentation.~~

Sample Project topics

1. The XML file contains a list of Celsius temperatures from a weather station. The data for each readingincludes a city name, a date, a time, and a decimal temperature. Display using a <table> in the web browser.

2. The XML file contains a list of students, courses completed, and grades earned. Use a CSS file to display the information in an attractive, professional way in a web browser.

3. The XML file contains a list of quiz questions and answers. Display the questions and answers in an attractive manner using CSS. Use JavaScript to display a timer or similar.

4. The XML file contains a list of employees, their employee IDs, and their salaries. Display a list of employees who make more than one million dollars a year.

5. The XML file contains a list of record albums, artist names, year of publication, and any other information you deem suitable. Use a web browser to display the list of albums using an unsorted list (<ul>) HTML element.

6. Create an interactive HTML+JS quiz program that uses an XML file as the source of its quiz questions.

You are welcome to suggest other projects, but they must be approved by the instructor within one hour of the start of team projects.

HOW TO APPROACH THIS PROJECT

You have several class sessions to complete this! You will put together something rough and improve it as time goes on.

Day 1: Team up, form project plan, start initial coding

◦ Form your team

◦ Choose from the instructor-provided list of topics

◦ Sketch out the big picture of what is required and how development can be split up

◦ Create a small XML file that demonstrates the structure you'll use for the final project

▪ In most teams, one person will be in charge of populating the XML file, the other will be in charge of initial HTML/CSS/JS development

◦ Make sure to start with something small that works and build up!

Development days: Coordinate with your team

◦ Populate XML file with data as required

◦ Add features to HTML/CSS/JS to make the information display more dynamic or attractive

◦ Confirm that the program works on the instructor computer - you are welcome to test before the due date!

Last day: create a writeup

* A writeup template is provided at the end of this document
* Take one or more screenshots of your project displayed in a web browser
* Copy-and-paste the code from your HTML/JS, CSS, and XML files

~~Last day: Show off!~~

~~◦ The file must be submitted to the instructor by end-of-day the day before the presentations. Files submitted after this time~~ *~~will not be accepted for presentation~~*~~.~~

~~◦ The instructor will load your team's program on the instructor workstation~~

~~◦ Take a few minutes to tell the class:~~

~~▪ Who is on your team~~

~~▪ What you've created~~

~~▪ Show off the web page~~

~~▪ Point out one or two neat things you've done in the code~~

~~ Can be as simple as a for loop or as complex as object-level coding in JavaScript using XML data~~

~~◦ Plan to talk to the class for about 5 minutes. It may be easier to present if the whole team comes up, but it is acceptable appoint a spokesperson for your team.~~

CHECKLIST FOR SUBMISSION

o The team has created related XML, plus CSS and HTML/JS files

o The XML file has at least 20 of the major data element (such as 20 students, 20 music albums, 20 employees ...)

o Team members have their names in the comments of *all* source code files, 2nd or 3rd line

o All required technologies are used: XML, HTML, JS, CSS

o A test confirms all required files are being sent to the instructor

o The files work on Firefox on the instructor workstation

o Submission is in by end-of-day on the due date

o If there are presentations this quarter, the submission is due end-of-day the night before presentations

RUBRIC

XML data file: 20

JavaScript: 25 points total

Load XML: 5

Select by name: 5

Child nodes: 5

Filter by type: 5

Insert nodeValue: 5

CSS: 10

Works on Instructor’s Computer: 10

Presentation (or writeup for quarters without presentations): 20

Extra effort: 15

SAMPLE XML FILE COMMENT

<!-- Project created for CIS 189 by Janet Weiss and Joe Ortega -->

SAMPLE PROJECT WRITEUP

Team member names: Jamal Brown and Seo Yeon Nugyen

Screenshot(s):

Graphical user interface, text

Description automatically generated

Copy-and-paste your HTML/JS, CSS, and XML code:

<HTML>

. . . etc.

head { }

. . . etc.

<?Xml version=”1.0”>

. . . etc.

WRITEUP TEMPLATE

Team member names: Jordan McNair and Jude Mai

Screenshot(s):

Without hovering

Graphical user interface, application

Description automatically generated

While hovering

Graphical user interface, application

Description automatically generated

Copy-and-paste your HTML/JS, CSS, and XML code:

(HTML/JS, CSS, and XML code goes here.

Paste the code as text. Screenshots will not be accepted for credit.)

<?xml version="1.0" encoding="utf-8"?>

<?xml-stylesheet href="TeamStyle.css"?>

<!-- Jordan McNair & Jude Mai -->

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<designer>Yukihiro Matsumoto</designer>

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<family>ML-family (with C-family sytnax)</family>

<designer>Graydon Hoare</designer>

<initialRelease>July 7th 2010</initialRelease>

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<designer>Guido van Rossum</designer>

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<designer>Dennis Ritchie</designer>

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<initialRelease>Unknown</initialRelease>

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</WebPage>

<html>

<!-- Jordan McNair & Jude Mai // 11.2.2022 -->

<head>

<link href="TeamStyle.css" rel="stylesheet" />

</head>

<body>

<script>

/\*...SCRIPT LINEAR LOGIC...\*/

var fileName = "TeamTree.xml";

var recursionLevel = 0;

var savedFields = [];

var x = loadXMLDoc(fileName);

if (!x)

alert("XML file did not load.");

else {

traverse(x.documentElement);

}

/\* LOAD ENTRIES ON TO PAGE USING THE SAVED XML FIELDS\*/

for (var i = 0; i < savedFields.length; i++) {

var lang = savedFields[i];

i++;

var desc = savedFields[i];

i++;

var para = savedFields[i];

i++;

var fam = savedFields[i];

i++;

var desi = savedFields[i];

i++;

var ini = savedFields[i];

i++;

AddEntry(lang, desc, para, fam, desi, ini);

}

/\*...DEFINING THE FUNCTIONS...\*/

/\* FUNCTION TO TRAVERSE THROUGH CURRENT NODE \*/

function traverse(currentNode) {

if (currentNode.childNodes.length > 0) {

recursionLevel++;

for (var i = 0; i < currentNode.childNodes.length; i++) {

// outputNode(currentNode, recursionLevel)

var result = traverse(currentNode.childNodes[i]);

}

if (currentNode.nodeType == 1) {

savedFields.push(currentNode);

}

/\*AFTER AN ELEMENT IS CREATED FOR EACH XML FIELD IT IS ADDED TO THE ADD ENTRY FUNCTION WHICH PLACES IT WITHIN A DIV ELEMENT\*/

recursionLevel--;

}

}

/\* FUNCTION THAT IDENTIFIES SPACES \*/

function spaces(n) {

var myStr = "";

for (var i = 0; i < n; i++)

myStr += "&nbsp&nbsp&nbsp&nbsp";

return (myStr);

}

/\* FUNCTION THAT LOADS AN XML DOCUMENT \*/

function loadXMLDoc(filename) {

xhttp = new XMLHttpRequest();

xhttp.open("GET", filename, false);

xhttp.send();

return xhttp.responseXML;

}

/\* FUNCTION ADDS NEW ELEMENTS TO AN ENTRY DIV\*/

function AddEntry(lang,desc,para,fam,des,ini) {

// create a new entry

const newEntry = document.createElement("div");

lang.setAttribute("id", "h1");

desc.setAttribute("id", "h2");

para.setAttribute("id", "h3");

fam.setAttribute("id", "h4");

des.setAttribute("id", "h5");

ini.setAttribute("id", "h6");

// add the newly created element to the entry "div"

newEntry.appendChild(lang);

newEntry.appendChild(desc);

newEntry.appendChild(para);

newEntry.appendChild(fam);

newEntry.appendChild(des);

newEntry.appendChild(ini);

// add the newly created element and its content into the DOM

const currentElement = document.getElementById("div");

document.body.insertBefore(newEntry, currentElement);

}

</script>

</body>

</html>