

Programming on the Web (CSC309S)  
Tutorial

**Software Tools and CDF facilities**

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## **Agenda**

### **Software and technology for CSC309**

- Web Browser
- Web Server
- Java Servlets Engine
- Java Database Connectivity (JDBC) Bridge
  
- XML
- JavaScript/ JavaScript Interpreter
- DOM
- Java Applets / Java Applets Container
- SQL / Relational Database

### **How to work at home**

- Validate XML
- Apache
- Tomcat

### **Course evaluations and policies**

# Web Browser: Mozilla

## XML and DTD

Xtensible Markup Language (XML)

- Notice that XHTML is an instance of XML

Example:

- Personal.xml
- Personal.dtd

How to validate xml?

```
Java -cp /u/csc309h/lib/xerces.jar: /u/csc309h/lib/ Validator -v <doc.xml>
```

How to validate at home?

Download two files:

[xerces.jar](#) and [Validator.java](#) from

<http://www.cs.toronto.edu/~delara/courses/csc309/resources/resources/XML/validation/>

Note that you can follow the instructions on the above page ,OR simply put both files in the same directory as your xml files and type:

```
Java -cp xerces.jar: Vaidator -v file.xml
```

## XHTML and CSS

By using a Cascading Style Sheet, one can separate the content and the look of the (HTML) page

Example: My website

## JavaScript and DOM

Scripting language vs. Programming Languages (JavaScript vs. Java)

- Variable declaration
- Interpret vs. compile

Document Object Model

- Programming Interface for XML and in particular XHTML

Example:

- ball dragging
- Calculator
- More....

All examples can be obtained from:

<http://www.cdf.toronto.edu/~gljimccm/oldteaching.html>

## Web Server: Apache

- What is a web server?
- What can we do with a web server?

Run Apache Server on CDF:

1. Copy all the files from  
<http://www.cs.toronto.edu/~delara/courses/csc309/resources/resources/apache.tar.gz>
2. run bin/start.sh to start the server
3. Run your web browser with the URL:  
<http://localhost:<port>/index.htm> to get the welcome page.
4. Do not forget to run stop.sh to stop the server afterwards. Do not occupy the port number if you are not using it.

Please see demonstration:

# Java Servlets Engine: Tomcat5.0

- What is Tomcat?
- Where does Tomcat reside?

## Run Tomcat Server on CDF:

- 1 Copy all the files from  
<http://www.cs.toronto.edu/~delara/courses/csc309/resources/resources/tomcat/tomcat.tar.gz>
- 2 Set environment variables:  

```
sh-2.05b$ JAVA_HOME=/usr/local/packages/jdk1.3.1  
sh-2.05b$ export JAVA_HOME
```
- 3 run bin/start.sh to start the server
- 4 Run your web browser with the URL: <http://localhost:<port>/servlets-examples/index.htm> to get the welcome page.
- 5 Do not forget to run stop.sh to stop the server afterwards. Do not occupy the port number if you are not using it.

Please see demonstration:

## How to run apache/Tomcat at home

### 1. Apache:

Download source from [www.apache.org](http://www.apache.org). We prefer you to run apache under Linux environment so it will better match up with the CDF configuration.

Unzip the tar file.

(You must have root privilege to do the following)

`./configure`

`./make`

`./make install`

fireup the server at default port 80 by running `/usr/local/apache/bin/apachectl start`

### 2. Tomcat

Download the binary from tomcat website (search google)

Unzip the tar file

Go to bin directory and run `./startup` at default port 8080. You may need to tell linux where to look for jdk:

`JAVA_HOME=.....`

Export `JAVA_HOME`

If you have further question, please post on newsgroup.

## **DBMS: PointBase**

- Why PointBase?
  - Portable: 100% Java<sup>™</sup>
  - Relational Database Management System
- Where is PointBase installed?  
/h/u2/csc309h/lib/pointbase
- Do I need to know SQL to work with PointBase?

DBMS examples to follow

## Java Applets Container

- Will not be covered in detail

```
import java.applet.Applet;  
import java.awt.Graphics;
```

```
public class HelloWorld extends Applet {  
    public void paint(Graphics g) {  
        g.drawString("Hello world!", 50, 25);  
    }  
}
```

- Run an Applet?

```
<HTML>
```

```
<HEAD>
```

```
<TITLE> A Simple Program </TITLE>
```

```
</HEAD>
```

```
<BODY>
```

```
<APPLET CODE="HelloWorld.class" WIDTH=150  
HEIGHT=25>
```

```
</APPLET>
```

```
</BODY>
```

```
</HTML>
```

- How can I debug my Java Applets?

Mozilla:

Tools->web development->java console

## Submitting your assignments

1) Validate all your XML files before submitting them

`java -cp /u/csc309h/lib/xerces.jar:/u/csc309h/lib/ Validator`

2) Don't submit any compiled code

3) Compile and test with the same tools that the markers will be using

4) For every assignment you **MUST** submit a **README** file

5) Document all your bugs/missing features in your assignments in the README file

6) If the make fails the TA isn't required to try to fix it and may give you a failing mark

7) Don't submit any shared files (like xerces.jar or saxon.jar)

8) Don't use any third-party software other than what is provided to you.

9) Use “submit” command (man submit if you did not use it before)

## What will your TA do to mark an assignment?

- 1) type **make**
- 2) type **mozilla** <http://localhost:<yourport>/index.html>
- 3) **Kill the running apache/tomcat server**

Check the Guide

<http://www.cs.toronto.edu/~delara/courses/csc309/resources/csc309guide.html>

and

Post your questions to  
**ut.cdf.csc309h**