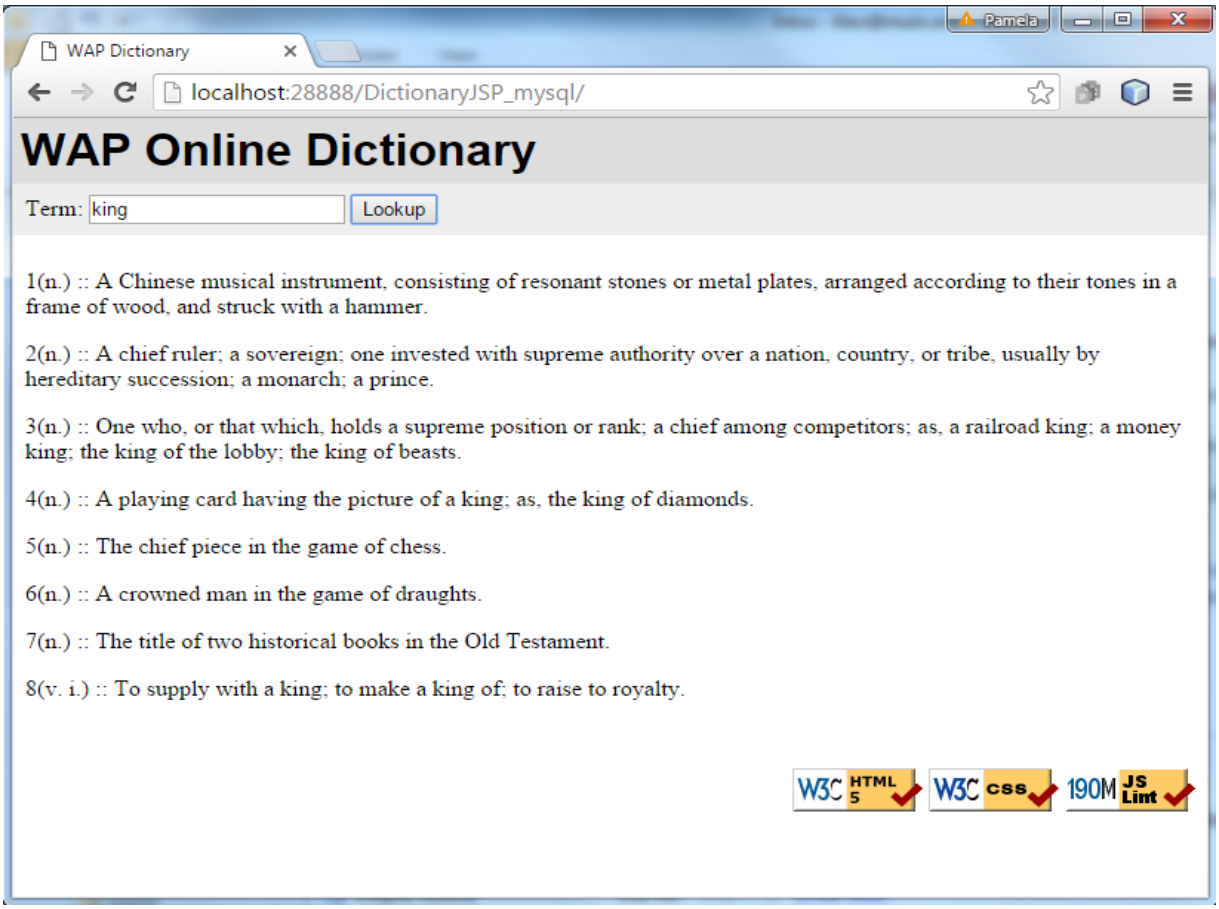
14 March 2016
Web Application Programming (CS472)

Online Dictionary Project

The purpose of this project is to review and integrate all of the tools and techniques you have learned in this course. In this project, you will create a website that uses all of the following technologies: HTML, CSS, JavaScript, Module Pattern, jQuery, AJAX, SQL, and JSON.

Your goal is to create a simple website that functions as an Online English Dictionary. The Dictionary is stored on the web server as a SQL table with three fields: word, word type, and definition. Your website is created using the following files:

dict.html	displays the webpage containing the User Interface
dict.css	styling for dict.html
dict.js	JavaScript event handlers for dict.html (using Module Pattern)
jQuery.js	Standard jQuery library
dictServlet.java	handles the Ajax request
DbConnection.java	Uses JDBC to connect to a MySQL database containing the online dictionary



The main webpage (User Interface) has a text field for the User to enter a word and a Lookup Button to request the definition of the word. When the User clicks the Lookup Button, a JavaScript event handler is invoked that contains a jQuery Ajax call. The Ajax call picks up the word from the text field and sends

it to the servlet. Then the servlet uses the SQL Dictionary to find the definition(s) of the word, and then converts the definition(s) into JSON format and transmits it back to the JavaScript in dict.js, where jQuery is used to display the definition(s) on the website. If there are multiple definitions, then all should be displayed. The above picture is a simple example of a display. You can style it to make it more visually appealing.

MySQL Dictionary

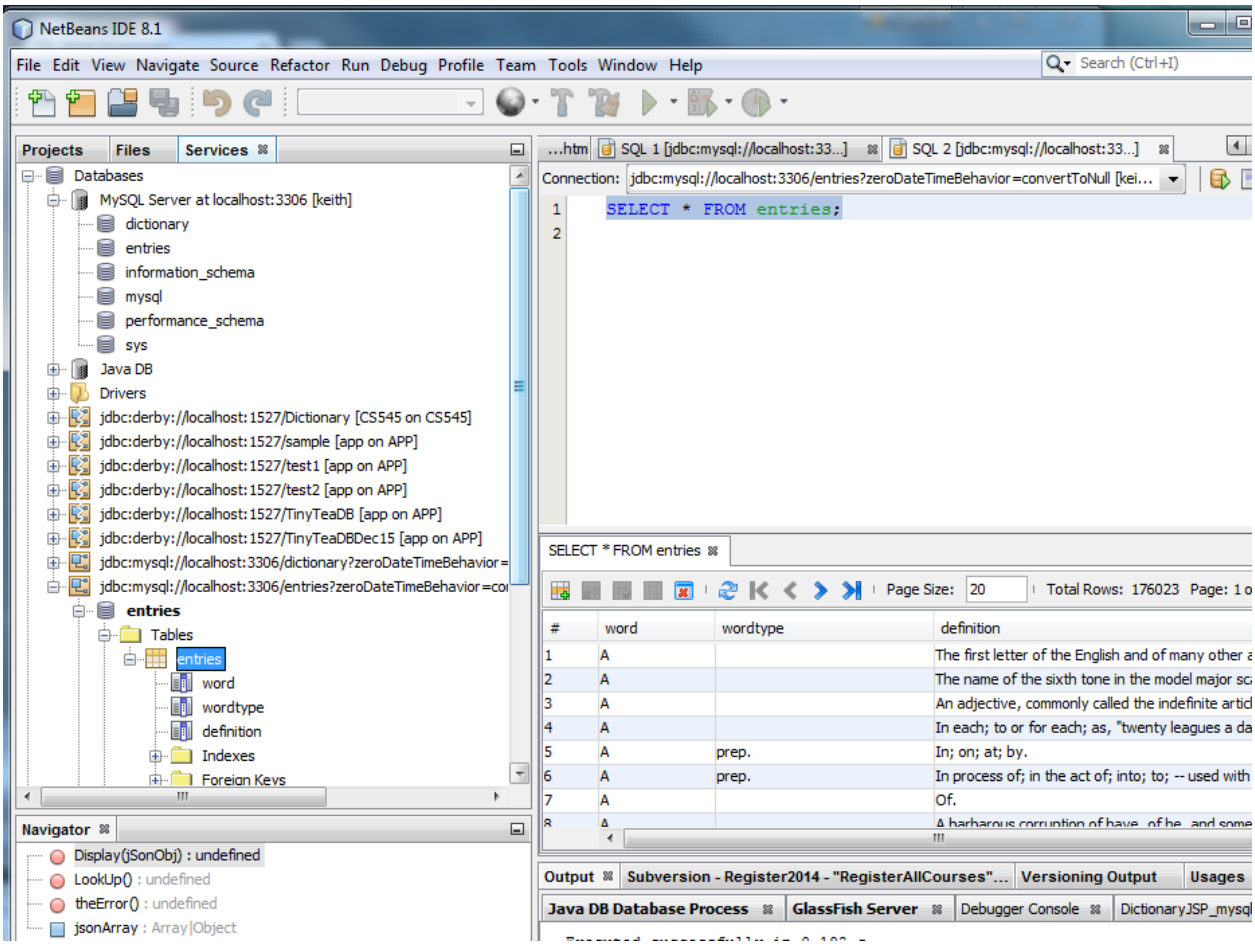
The file englishdictionary.sql contains a full English Dictionary, and can be down loaded from the course website. You will need a database on your machine that can host a large set of records. You can download MySQL from http://dev.mysql.com/downloads/mysql/ .

- Use the MySQL Installer 5.7 for Windows
- "Note: MySQL Installer is 32 bit, but will install both 32 bit and 64 bit binaries."
    - Most of our machines are 64 bit
- If XAMPP or WAMP is installed on your computer, uninstall them before installing MySQL
- The following settings should work for the MySQL installation
    - root password: root //or your choice
    - add yourself as user
    - username: [your name]
    - host <All Hosts(%)> //this is default
    - role: DB Admin //this is default
    - authentication: MySQL //this is default
    - password: [mumsql] //or your choice
    - then do Execute on the config steps

- Now you need to configure Netbeans to run with your MySQL installation
    - This takes a few steps. You can follow the first 4 steps of the following tutorial
    - https://netbeans.org/kb/docs/ide/mysql.html
        - Configuring MySQL Server Properties
        - Starting the MySQL Server
        - Creating and Connecting to the Database
            - Create a database named 'entries'
        - Creating Database Tables
            - Follow their instructions for 'Using the SQL Editor'
            - Instead of their CREATE TABLE example, first download the dictionary from: English Dictionary download (15MB)
            - Open a Command Window and navigate to the folder containing the MySQL binaries (c:\Program Files\MySQL\MySQL Server 5.7\bin)
            - Enter the following command
                - >mysql -u root -p entries c:\full_filepath\englishdictionary.sql
                - where full_filepath is the path to where you stored the downloaded dictionary file
        - Now you should be able to find the entries tables and view the data similar to the following screenshot

You will also need to add the library for the MySQL driver to your Netbeans project. You should be able to do this simply by right-clicking the Libraries folder for the project, select the 'Add Library' command, and look for the 'MySQL JDBC Driver' library.

Your servlet will connect to the database using the DbConnection.java class that you will write. You can use the same JDBC techniques that are covered in the FPP course. Ask the instructor if you are unsure about this.



JSON

jQuery has the convenient JSON.parse method to handle the JSON string returned from the Ajax call. The JSON required is simple enough that you can do all the encoding directly in Java. Or, you could use a Java JSON library. One simple such library is JSON.simple.

If you want to use this library:

- Download, e.g., http://json-simple.googlecode.com/files/json-simple-1.1.1.jar
- Save the jar somewhere convenient, e.g. your WEB-INF lib folder
- Import it as a jar file into your project Libraries package so it is visible on the project class path