Design Document

Simple Visual Calculator

Libraries and Tools used

Front end is do completed using HTML5 with JavaScript and **JQuery** (version 1.11.0). JQuery is the most popular tool to manipulate the DOM, and I used JQuery to perform Ajax actions required for this project.

For the backend java RESTful service, I selected **RESTEasy** 3.0.7 (lastest version) as it is a fully certified and portable implementation of the JAX-RS specification.

I selected **Tomcat** 8.0.5 to deploy the compile WAR file.

Lastly, I used **ANT** for building the project.

Eclipse Java EE IDE (Kepler) was used for Java development.

User Experience

The History box allows user to see the last equation entered, and allows users to edit it, and then press "enter" to get an updated value.

The second text field is read only, and shows both equations as they are entered, and output results from Ajax requests to the server.

Note that the user input is designed to minimize error. If one of the operators is pressed (+, -, *, /), it is only an allowed input if the last input is a numeric digit. So there will not be error inputs like "36*/3", where there are incorrect ordering of operators.

Special processing is done to make sure that exponentiation is done correctly, as 2+3^4-5 evaluates to 2+(3^4)-5 instead of the incorrect (2+3)^4-5.

REST API:

The REST API has the url of:

{domain:port#}/calc/rest/calculator/evaluate/{equation}

For example:

http://localhost:8080/calc/rest/calculator/evaluate/3+8

will return 11.0 as a result.