Consulting Project Abstract

Web Interface for A Data Mining Solution

Our Customer's Problem:

In order to plot the behavior of certain polymer characteristics with respect to their composition, our customer's researchers had to do multiple queries, and then plot the results.

Why This Was A Problem:

Researchers had to run some tests in the lab, which cost significant time and money, instead of querying the database for a previously conducted test data. Researchers therefore wasted hours on querying and plotting.

Our Solution:

A small data warehouse was created with various values of polymer properties as they varied with changes in the composition. A deductive database was used to collate the results to create the warehouse.

Users interact with the databases using a Web browser. The researcher selects the parameters for doing the mining, and results are instantly plotted in a graph and visualized over the Web interface.

*Read a note from the developer on how we did it.

Results:

Researchers saved hours of otherwise previously wasted time on repetitive tasks, and instead invested more time on being fully productive.

*How we did it: "We created a CGI based tool to do a specialized OLAP application. A data warehouse was created using a deductive database query engine. A couple of extrapolation algorithms were applied to the data to fill in holes and extend some ranges. This enabled the users to plot variations of property values, observe glitches in normal patterns and some boundary conditions. The interface was easy to use as it was built into a browser. The system itself was implemented in C++ running on HP-UX servers. The

databases were on VMS and UNIX systems. We had to implement a middle-ware solution to do the systems level integrating to connect the disparate environments together. This involved installation, maintenance and management of various components on multiple operating systems. A heartbeat monitoring system had to be added to the framework to make sure all the pieces were working in unison.