Chemical Reactions Feasibility Checking and Ordering System

Problem Description:

This project uses Bellman Ford's Greedy type Algorithm to solve the problem. A chemical can be modified into several other chemicals through a series of reactions and through various methods. Finding the optimum way is mostly difficult which can be solved through this program.

All the chemicals available are taken as nodes and are mapped according to the possibility of reactions. All the paths that dissipate heat are taken as positive paths and those that absorb heat are taken as negative paths. This can be done using other shortest path algorithms like Dijkstra's Algorithm but it does not work with negative weighted graphs.

The greedy method of this algorithm has time complexity of O(n^2) for best case and O(n^3) for worst case. This way the minimal amount of heat energy used during a reaction is found and ones impossible to proceed with is also found. This System is very much useful in chemical factories and other industries.

This program outputs the feasibility list and the most and least preferable chemical reactions.

Note:

The code has been changed as per ma'am's advice to inculcate more real life elements and strings to refer chemicals.