CSCI 4511

Project 2

GitHub Link: https://github.com/Hermanubis/CS4511_Project2

I chose to use a backtracking search algorithm to solve the CSP. The algorithm takes a txt file of the graph in the specified format as input, and convert the graph into an adjacency matrix. I chose the heuristic to be the number of neighbors each vertex have. Using the idea of minimum remaining values, the algorithm prioritizes assigning most constrained variables first; in our case, vertices with the most neighbors. Each time a color is assigned to a vertex, constraint propagation is done by comparing the color against all of its neighbors to rule out invalid colors from the domain. The algorithm recursively searches through all vertices to find a constraint satisfying solution. The color assignment of all vertices is returned as a list. If no solution is found, nothing is returned.

The algorithm is implemented in python 3.