Research/Programming Project Proposal #1

Title: Heuristic Minesweeper solver

Minesweeper is a logic puzzle video game that was released in the 90's. The game consists of a grid of tiles each of which has a chance to have a mine on it, when a mine is clicked the game is over. If a tile without a mine is clicked it will reveal the number of mines in the surrounding 8 tiles. If there is no mine around the tile it will cascade out and reveal all tiles in the area which do not have a mine around it, stopping once a tile is reached that has a mine adjacent to it.

Players who are new to the game will often take their time, using logic to determine which tiles contain the mines, but people who are more experienced in minesweeper will often play very heuristically. Players can recognize common patterns in the tiles to quickly solve games.

The initial steps for this project would include modeling the tiles, the mines, the board as a whole, the win/loss states, and a manual way to play for testing.

I would then implement a random player, to be used for comparison with the heuristic player. The heuristic player would start with basic rules and over time more would be added, with regular tests against the random to see if it is being improved.