WEEK4 INDIVIDUAL REPORT

1. Existing game link: https://jrmf.org/puzzle/map-coloring/
2. Existing game doesn't provide solution to the users.
3. The algorithm used here is backtracking algorithm which iterates over each cell, attempting to color it with the selected color while checking neighboring cells to avoid conflicts. If a conflict arises, it backtracks to the previous cell and tries a different color until a valid coloring is achieved.
4. The algorithm used is not optimal because it explores all possible colorings, resulting in exponential time complexity, especially for large grids. However, it is a simple and effective solution for small grids like the one used in this game.
5. The time complexity of the backtracking algorithm used in this map coloring game is O(k^n), where n is the number of cells in the grid and k is the number of available colors.