

Assignment - 5

Maze

Union-Find: Maze

Write a program that generates mazes of arbitrary size using the union-find algorithm. A simple algorithm to generate the maze is to start by creating an $N \times M$ grid of cells separated by walls on all sides, except for entrance and exit. Then continually choose a wall randomly, and knock it down if the cells are not already connected to each other. If we repeat the process until the starting and ending cells are connected, we have a maze. It is better to continue knocking down the walls until every cell is reachable from every cell as this would generate more false leads in the maze.

Test your algorithm by creating a 15×15 grid, and print all the walls that have been knocked down. Draw the resulting maze (hand-drawing is acceptable).