

Lab 7

Due: at the end of class

1 Exercises

For the following questions, provide a 2-3 sentence description of how to represent the problem and how to solve it in an efficient way. Point out if the solution approach is similar to problems that we explored in class. You do not need to write out full solutions.

1. You are given a list of buildings on campus that require wi-fi coverage. You have to determine where to place wireless access points with broadcast radius r to make sure that all buildings have a signal. The access points don't have to be placed in buildings, and you want to minimize the number required.
2. You are given two binary trees. You want to determine if they have identical structures or not. The data that they store is irrelevant.
3. You wake up in a labyrinth with an unlimited supply of pennies. Describe how you can find your way out in a procedural way. (There's a reachable exit, I promise.)
4. You are given a 2D boolean array that represents the top-down view of an archaeological dig site. True elements represent locations of interest. If you are only allowed to move up/down/left/right in the array, how can you find the shortest path that visits all sites marked true?

