Town Planning Coding Round Question

Problem Statement

You are tasked with designing a town planning system that models the layout of a new town. The town consists of plots arranged in a grid pattern (N x M). Each plot can be empty or contain one of several building types:

- Residential (R)
- Commercial (C)
- Industrial (I)
- Park (P)
- Road (-)

Requirements:

1. **Initialization**: Create a town grid of size N x M initialized with empty plots (denoted by '.').
2. **Place Buildings**: Implement functionality to place buildings on specific plots.
3. **Validation**: Ensure buildings are placed according to these rules:
    - Residential (R) cannot be adjacent to Industrial (I)
    - Parks (P) should have at least one adjacent Park or Road
    - Commercial (C) must be accessible via roads from at least one town edge
    - Height of newly proposed buildings on a particular plot should be proportional to the existing buildings. (i.e, there should not be much height difference between the surrounding buildings. Identify the best spot among all the available plots in that category)
4. **Score Calculation**: Calculate a score based on:
    - +10 for each Residential adjacent to a Park
    - +5 for each Commercial accessible from town edge
    - -20 for each Industrial adjacent to Residential
5. **Find Path**: Implement a function to find if there's a road path between two given coordinates.