C++ Exercise: Basic Agent Movement Simulation

Imagine you have a group of agents (represented as points) that move in a two-dimensional space (e.g., a 10x10 grid).

Each agent can move one unit in any of the four directions: up, down, left, or right.

The goal is to create a program that initializes several agents at random positions and then moves them randomly for several steps.

Exercise Requirements:

1. Create a class Agent that has attributes to represent the agent's position (x, y).

2. Create a method in the class to move the agent randomly.

3. Create a simulation that initializes several agents in random positions and moves them for 10 steps.

4. Display each agent's position at each step.

Hints:

- Use the <cstdlib> library to generate random numbers.

- Use a std::vector to store the agents.

- Create a loop to move each agent at every step.

What you will learn with this exercise:

1. Basic concepts of classes and objects in C++.

2. Use of loops and control flow (like switch).

3. Generating random numbers.

4. Using vectors (std::vector), which are useful in agent-based modeling.