**Question 1. The N-queens problem requires you to place N queens on an N × N chessboard such that no queen attacks another queen. (A queen attacks any piece in the same row or column or diagonal). Here are some important facts:**

**• The states are any configurations where all N queens are on the board, one per column.**

**• The moveset includes all possible states generated by moving a single queen to another square in the same column. The function to obtain these states is called the successor function.**

**• The heuristic function h(state) is the number of attacking pairs of queens.**

a) Consider N=4. How many states are there in total? Explain your answer.

b) For each state, how many successor states are there in the moveset? Explain your answer