Question 2 : Chess Solver

The Chess Solver is designed keeping the following assumptions in mind as follows:

1. Only one Player (Black or White) is playing. Which means there are no attacks on any pieces.
2. Pieces are taken to be of any number.
3. A piece cannot move to any position already occupied by some piece.
4. A piece cannot skip over other pieces. Exception: Knight.
5. A Pawn will never occupy a space in the first row according to legal Chess Rules.
   Pawns will move one or two steps ahead (Vertically downwards) if they are in the 2nd row. They will move one step ahead (Vertically Down) in any rows from 3 to 8.
   Pawns will move diagonally left and right downwards only while attacking any other piece. But since diagonal movement is a possible move, it is considered here.
6. A Rook will move Vertically Upwards and Downwards and Horizontally both sides.
7. The Knight piece can move forward, backward, left or right two squares and must then move one square in either perpendicular direction.
8. A Bishop can move in any direction diagonally, so long as it is not obstructed by another piece.
9. A Queen can move in any direction for any number of steps until some other piece obstructs its path.
10. A King can move one single square in any direction.

Implementation:

The rows are named as 1-8 and the columns are named as a-h.
The available pieces are: pawn, rook, bishop, knight, queen and king.

1. The User has to select one piece and an initial location for that piece according to the instructions on the console.
2. The User will then be provided with the possible moves for that piece. If there are no possible moves, i.e. the piece is surrounded by some other pieces, then this initial location will be considered as the selected location for the particular piece.
3. The program execution will end when the user is asked if he wants to continue playing further or if the board has been filled. That is the length of the occupied pieces list is equal to 64.