**Brute‐force approaches**

1. **How the individual possible or partial (if applicable) solutions are generated and represented.**

First, we designed a sub-function ‘get\_val’ to represent a combination of elements in a list and a fixed value, and then search for each row and column of the board, so that we can get several solutions that satisfy each row or column. Secondly, combine the solution of the appeal, use the previous addition to determine whether this combination meets the conditions, because the problem only needs to get the first solution, so we first choose row, if there is a solution for this board, then the solution will definitely appear in the row.

1. **What are the complexities of your algorithm (include descriptions and the Big O notation).**

The algorithm complexity is

1. **Discuss whether you can be certain that the algorithm will give the correct solution. In your discussion, include why you can or cannot be certain.**

Our algorithm can accurately solve the case where there is a certain solution. For the case without a solution, we cannot give.