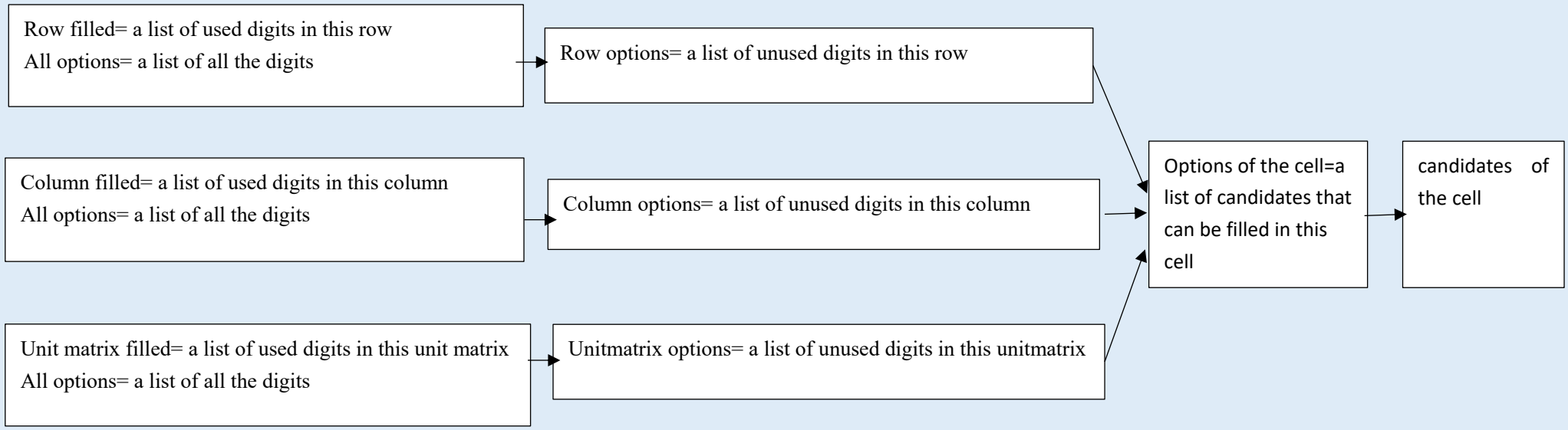
Flow chart 1. How to get the candidates of each cell



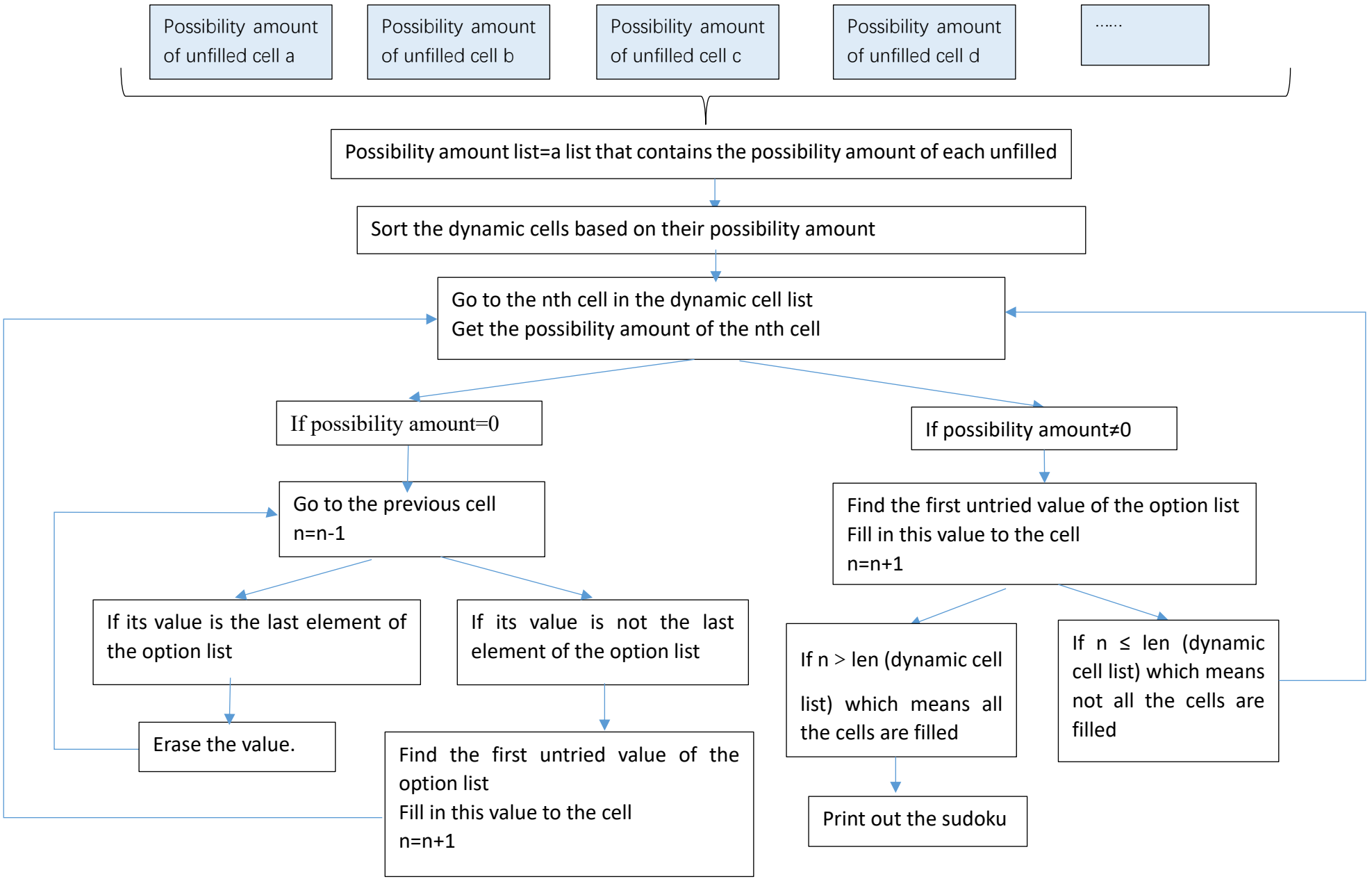
The solve_sudoku function is written in two different ways.

Before describing the two ways, here is an important definition in both methods. The dynamicCells is a list that contains all the empty cells in the original sudoku list. The element of this list never changes in the process of solving Sudoku.

The first way is called a simple method (flow chart 1+flow chart2). The dynamicCells is only sorted for one time. The order of cells does not change later. For example, if a sorted dynamic cell list is [cell a, cell b, cell c, cell d, cell e…], then the cells will be filled by the order: cell a, cell b, cell c, cell d… The code in this simple method is completed.

The second way is called an advanced method (flow chart 1+flow chart3). The dynamicCells is sorted every time after a cell is filled. The order of cells in the dynamicCells keeps changing. Another definition that is used in this method is a list of unfilled cells. The element of this "unfilledCells" list changes when original empty cells are filled. For example, if a sorted dynamic cell list is [cell a, cell b, cell c, cell d, cell e…]. When we find cell c has minimum possibility, then the dynamic cell list becomes [cell c, cell a, cell b, cell d, cell e…]. After filling in cell c, if the next cell that has the min possibility is cell e, then the dynamic cell list becomes [cell c, cell e, cell a, cell b, cell d…]. This way is more efficient compared with the simple method. I like it much better. I tried this way as much as I can. I am able to remove the position of cell c and cell e (in this example) into their correct position. But the index is a complicated problem, especially when I have to change the value of the previous cell. Because filling /erasing a value of a cell has influence on which cells are filled and unfilled, what the new order of cell is, and which digit option to choose. In the programming, I showed how far I went in the complicated method.

Flow chart 2. A Simple Method



Flow chart 3. An Advanced Method