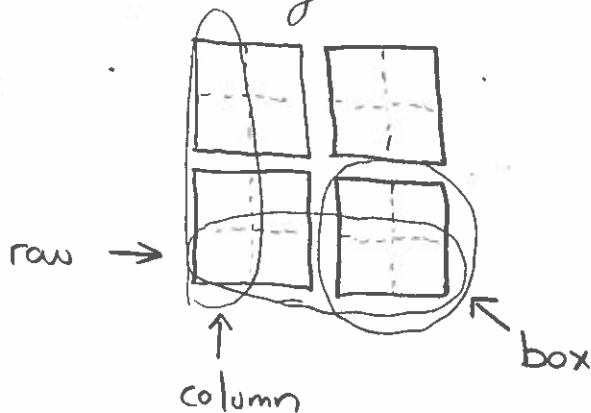


## HW: Sudoku 1

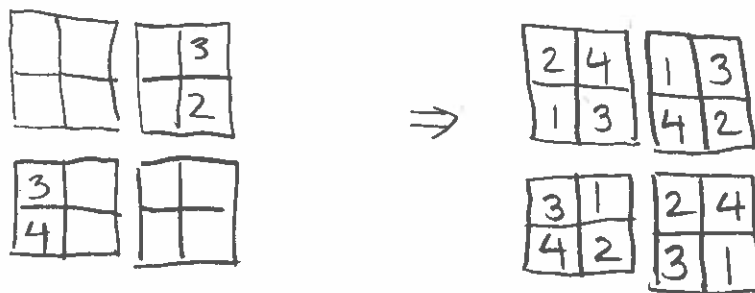
Sudoku is a game in which you fill in the cells of a grid like the following:



In 2x2 sudoku, the goal is to fill the cells with digits  $\{1, 2, 3, 4\}$  such that:

- no row contains the same digit twice
- no column contains the same digit twice
- no box contains the same digit twice

For instance, here is a puzzle and its (unique) solution:



Suppose we wanted to describe the set of valid completed puzzles using a truth table.

- Define an appropriate set of (boolean) variables  $\Sigma$  for the table.
- How many models are there (i.e. how many rows are there) in a truth table over variable set  $\Sigma$ ?
- How many truth tables are there over variable set  $\Sigma$ ?