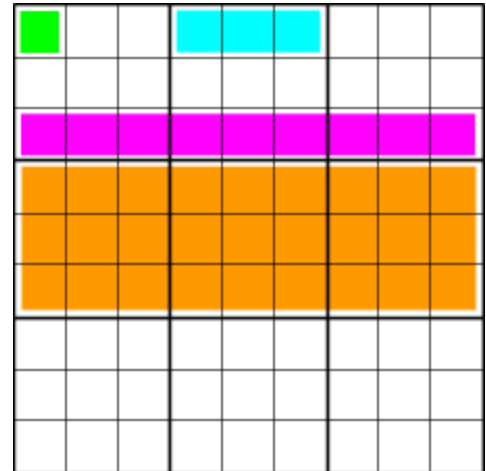


Terminology:

- **Element**
 - A single digit in the sudoku board
 - 1-9
- **Trio**
 - A horizontal group of three elements
- **Row**
 - A horizontal group of three trios
 - Holds all the digits 1-9
 - Cannot have an repeated digits
- **Row Block**
 - A vertical group of three rows



Target Board($\text{genRow} = \{\{1, 2, 3\}, \{4, 5, 6\}, \{7, 8, 9\}\}$) :

1	2	3	4	5	6	7	8	9
7	8	9	1	2	3	4	5	6
4	5	6	7	8	9	1	2	3
3	1	2	6	4	5	9	7	8
9	7	8	3	1	2	6	4	5
6	4	5	9	7	8	3	1	2
2	3	1	5	6	4	8	9	7
8	9	7	2	3	1	5	6	4
5	6	4	8	9	7	2	3	1

Pattern:

By adding elementNum to trioNum																	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17

By adding elementNum to trioNum																	
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
After mod by 3																	
0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2
0	1	2	0	1	2	0	1	2	0	1	2	0	1	2	0	1	2
Replacing trio num with the product of trioNum and 5																	
0	1	2	2	0	1	1	2	0	0	1	2	2	0	1	1	2	0

Using this pattern to access elements in the generated row we get the target board.

Pseudocode:

Algorithm sudokuMaker(genRow, sudokuBoard)

Input: A 2D array genRow which holds the digits 1-9 non-repeating. A 2D array
sudokuBoard which represents the sudoku board

for rowBlock \leftarrow 0 to 2 do

for row \leftarrow 0 to 2 do

for trio \leftarrow 0 to 2 do

for elem \leftarrow 0 to 2 do

sudokuBoard[(blockRow x 3) + row][(trio x 3) + elem] \leftarrow

genRow[(row x 5 + trio) % 3][(blockRow x 5 + elem) % 3]