Conway's Game of Life.

Variant A:

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Our solution is somehow similar with other groups, but do a little bit modification for decreasing the message communication time. Let's apply our solution on the small example for demonstration.

Assume having the following initial Matrix:

0	1	1	0	0	1
0	1	1	0	1	0
0	1	0	1	0	0

Partition:

The matrix that we assumed to divided to two parts by the columns. Meanwhile, an additional independent process only take the border columns and its neighbor columns.

Process 1:

0	1	1
0	1	1
0	1	0

Process 2:

0	0	1
0	1	0
1	0	0

Process 3:

1	1	0	0
1	1	0	1
1	0	1	0

So, each individual process only calculate the internal data and leave the neighbor columns(blue background). So that means all the blue columns is just for helping updating the white columns under the rules of Conway's Game of Life.

So the results for each process are below:

Calculation:

Process 1:

0	1	1
1	0	1
0	1	0

Process 2:

0	0	0
0	0	0
1	0	0

Process 3:

1	1	1	0
1	0	0	1
1	0	1	0

All the data calculated in the white will transform to the new Matrix in corresponding position and prepare for the next state.

An alternative way to divide the matrix is to spilt to several squares. And each independent square is responsible for a process. And also the border parts will do separately by other process. Than combine all the update results, the basic priciple are the same as before. For instance:

0	1	1	0	0	1	0
0	1	0	0	1	1	0
0	0	1	1	0	0	0
1	1	1	0	0	1	0
0	0	0	1	0	0	1

Process 1:

0	1	1	0
0	1	0	0
0	0	1	1

Process 2:

0	0	1	0
0	1	1	0
1	0	0	0

Process 3:

0	0	1	1
1	1	1	0
0	0	0	1

Process 4:

1	0	0	0
0	0	1	0
1	0	0	1

Process 5:

0	1	0	0	1	1	0
0	0	1	1	0	0	0
1	1	1	0	0	1	0

Process 6:

1	0	0
0	0	1
1	1	0
1	0	0
0	1	0