Exercise 1: Game of Life
Microsoft’s Simple Encrypted Arithmetic Library (SEAL)\(^1\) is a publicly available homomorphic encryption library. It can be found and downloaded at [http://sealcrypto.codeplex.com/](http://sealcrypto.codeplex.com/).

Implement the Game of Life using homomorphic encryption for any operation/calculation using the MS SEAL.

Note: Rules for Game of Life:

- A dead cell having exactly three living neighbors will be newly born in the next round.
- A living cell with less than two living neighbors will die in the next round.
- A living cell with two or three living neighbors will survive the next round.
- Living cells with more than three living neighbors will die in the next round.
- Please note that any other cell is not alive

\[\text{due date: } 01.07.2018 \text{ (EOB)}\]
\[\text{no. of students: } 2\]
\[\text{deliverables: } 1. \text{ Implementation (including source code(s))} \]
\[\quad 2. \text{ Documentation (max. 10 pages)} \]
\[\quad 3. \text{ Presentation (10 – max. 15 minutes)} \]

\(^1\)https://www.microsoft.com/en-us/research/publication/simple-encrypted-arithmetic-library-seal-v2-0/\#