

```
import itertools
```

```
def get_sea(size, alive_cons):  
    return [[1 if (i, j) in alive_cons else 0  
            for j in xrange(size)]  
           for i in xrange(size)]
```

```
def get_neighbors(con):  
    x, y = con  
    neighbors = [(x + i, y + j)  
                for i in xrange(-1, 2)  
                for j in xrange(-1, 2)  
                if not i == j == 0]  
    return neighbors
```

```
def calculate_alive_neighbors(con, alive_cons):  
    return len(filter(lambda x: x in alive_cons, get_neighbors(con)))
```

```
def is_alive_con(con, alive_cons):  
    alive_neighbors = calculate_alive_neighbors(con, alive_cons)  
    if (alive_neighbors == 3 or  
        (alive_neighbors == 2 and con in alive_cons)):  
        return True  
    return False
```

```
def next_step(alive_cons):  
    sea = itertools.chain(*map(get_neighbors, alive_cons))  
    next_sea = set([con  
                   for con in board  
                   if is_alive_con(con, alive_cons)])  
    return list(next_sea)
```

```
def is_correct_con(size, con):  
    x, y = con  
    return all(0 <= coord <= size - 1 for coord in [x, y])
```

```
def correct_cons(size, cons):  
    return filter(lambda x: is_correct_con(size, x), cons)
```

```
def print_sea(sea):  
    for line in sea:  
        print line  
    print
```

```
def main():  
    size = 5  
    sea = [(1, 2), (2, 3), (3, 1), (3, 2), (3, 3)]  
    print_sea(get_sea(size, sea))  
    for _ in xrange(1000):  
        sea = correct_cons(size, next_step(sea))  
        print_sea(get_sea(size, sea))
```