Question 2

In the box below, write down the Prolog representation for the initial board state given in question 1.

```
[ [ [1,1], [2,6], [3,4], [3,5], [3,8], [4,1], [4,2], [5,7], [6,2], [7,1], [7,3], [7,5] ],
  [ [1,8], [2,2], [2,8], [3,7], [4,6], [5,3], [6,6], [7,6], [7,7], [7,8], [8,3], [8,7] ] ]
```

Use this representation, and the predicate

```
next_generation(+BoardState, -NextGenerationBoardState)
```

to check whether your answer for question 1 was correct. If it is, then run a further two generations, and put the resulting board states in the tables below:

3rd Generation:

	1	2	3	4	5	6	7	8
1						b	r	
2		b		b	b	b		r
3	b							b
4								b
5	b							b
6								r
7						r		r
8				b	b		r	r

4th Generation:

	1	2	3	4	5	6	7	8
1						b	r	
2					b	b		r
3					b			b
4							b	b
5							b	b
6								r
7					b	r		r
8					b	r	r	r

Question 3

In a Prolog shell, load the file `war_of_life.pl` and run this query:

```
play(verbose, random, random, NumMoves, WinningPlayer).
```

This will play a game of war of life. Each player will randomly move a piece until the game is won or drawn. The predicate records how many moves there were in the game and who won. Run this a few times to get a feel for what it does and how the games progress when players choose randomly.

Now open a new file called `my_wol.pl`. In the file, write a Prolog program to act as a wrapper for the `play/5` predicate. In particular, you should write a predicate called `test_strategy/3` which takes three inputs: the number of games, N, to play, the strategy for player 1 and the strategy for player 2. When run, the predicate will play the war of life game N times and tell you (print to screen) how many draws and how many wins for each player there have been, the longest, shortest, and average moves in a game, and the average time taken to play a game. Use the `test_strategy/3` predicate to run the game 1000 times, with both players moving pieces randomly. Record the results in this box:

Number of draws	50
Number of wins for player 1 (blue)	477
Number of wins for player 2 (red)	473
Longest (non-exhaustive) game	42 moves
Shortest game	2 moves
Average game length (including exhaustives)	11.5 moves
Average game time	0.03 sec