What is a Schelling Model?

- Thomas Schelling (1921–2016) made a famous model of **segregation**
- This model explains how a **global property** (segregation) **emerges from local interactions** based on homophily

- There are two types of agents: X and O
- The world is a grid, cells are either empty or occupied by a single agent
- Cells are 8-connected

X	X				
X	O		O		
X	X	O	O	O	
X	O			X	X
	O	O	X	X	X
		O	O	O	

- Each agent A wants to have some neighbor of the same type
- We formalize this by defining a common threshold t
  - If fewer than t neighbors are of the same type as A, A is **unsatisfied**
  - If at least t neighbors are of the same type as A, A is **satisfied**

Model that My Code Must Depict:

- The world is a 50x50 grid populated by 1,000 agents.
- The agents are 50% `X` and 50% `0`.
- The satisfaction threshold is set to $t = 3$.
- Agents are updated according to the cell they occupy, left-to-right, top-to-bottom. Start at the top-left corner, move left-to-right along the first row, and update all the agents you encounter.

  Once done with the row, move down to the leftmost cell of the second row, and repeat the above steps.
- Unsatisfied agents move to the closest cell that makes them satisfied. Use 8-distance to find the closest cell.

The python code SchellingModel.py in the folder depicts this model, using a breadth first search-based algorithm. Five iterations are performed.