Part 1: Solving Sudoku (80 points)

Your goal is to finish your Sudoku solver from last week.

Finishing Your Implementation

You should continue with your implementation from last week. I suggest implementing the remaining functions in the following order:

1. Implement `next_boards`, which returns a list of possible next boards. To do so, (1) pick a cell that has a minimal number of available values, and (2) place each available value in that cell. IMPORTANT: Use `Board.copy` so that each next board is independent!
2. Implement `Board.is_solved` and `Board.is_unsolvable`. A board is solved if every cell is constrained to exactly one value. Similarly, a board is unsolvable if any cell is constrained to the empty set of values (i.e., nothing can be placed in that cell).
3. Implement `board.solve`. If `board.is_solved` is true, then return `board`. If it is unsolvable, return `None`. Otherwise, iterate through the list of next boards, recursively applying `solve`, and return the first board that is solved.

The starter code also includes some tests with boards that your solver should be able to solve. These tests only check that a solution is found. They do not check that the solution is correct. You should write some tests for yourself that check this. I recommend playing around and creating your own puzzles to test your solver as well.

Testing Solution Correctness

Your last task is to write a function to check whether a solved board is really correct. Implement `check_solution`. This function should take a board and check to make sure that it is valid Sudoku solution: each digit appears exactly one in every row, column, and square.

Part 2: Reading Reflections

These questions ask you to reflect on Chapter 2 of *You Look Like A Thing And I Love You.*
Question 1 (10 points)

Given what you learned in Chapter 2 about the limitations of AI models, discuss how difficult you think the following problems would be:

- Generate image captions for an album of family vacation photos
- Given several episodes of an animated TV show, identify fan art of various characters online
- Given an unfinished novel by a prolific author, generate an ending for the work

Question 2 (10 points)

Pick a game that you enjoy playing that we have not discussed in class or in the reading. Research whether an AI player has been built for it. How well does the AI player do? What kind of techniques does it use? If the AI player has surpassed human performance, when did this happen?

You can pick either a board game or a video game.