Tictactoe Board Display Notes

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Cornell Notes - Understanding Board Display in Tic-Tac-Toe (Python)

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Topic: `print_board` function & list slicing logic in `game.py`
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Cues / Questions	Notes
What is the purpose of `print_board(self)`?	It displays the 3x3 visual board using the internal list `self.board`.
How is the board stored in the game?	It's a flat list of 9 items, e.g., `['X', 'O', 'X', ' ', 'X', ' ', 'O', ' ', ' ']`
What does the inner list comprehension do?	`[self.board[i*3:(i+1)*3] for i in range(3)]` breaks the 1D list into 3 rows.
How does slicing `[i*3:(i+1)*3]` work?	

- i = 0: 0:3 → `['X', 'O', 'X']`
- i = 1: 3:6 → `[' ', 'X', ' ']`
- i = 2: 6:9 → `['O', ' ', ' ']` Why use `i*3` and `(i+1)*3`? | Because each row has 3 items, and we want to divide the flat list into 3 equal chunks. What does the outer `for row in ...` do? | It loops through each of the 3 sublists (rows). What does `' | '.join(row)` do? | Turns the row list like `['X', 'O', 'X']` into a string: `'X | O | X'` What does the final print line output? | It prints: `| X | O | X |` followed by the next rows, forming a grid. Can you show the final printed board visually? |

```
| X | O | X |
|   | X |   |
| O |   |   |
```

How is this section useful? | It helps format the board nicely for players to see their moves visually.

Summary:
The `print_board(self)` function converts the flat list into a grid view using a nested structure. It uses list slicing (`i*3:(i+1)*3`) inside a list comprehension to get each row and a loop to print each row cleanly. Understanding this slicing helps in grasping how board transformations work when handling 1D arrays visually.

Code Snippet:

```python
for row in [self.board[i*3:(i+1)*3] for i in range(3)]:
    print('| ' + ' | '.join(row) + ' |')
```