Tic-Tac-Toe Game

Problem Statement

Design a tic-tac-toe game that has two modes

Pattern based

First user places X on any position and the second player places O

o	x	
	x	
	o	

The first player to get his a row, column or diagonal filled with his pattern wins.

Number based

First user places any of the odd numbers from 1 to 9 and the second player uses even numbers from 2 to 8

6	3	
	1	
	4	

First player to get a sum of 15 on any row, column or diagonal wins (The row or column or diagonal can contain numbers entered by other player as well)

Each digit should be entered only once and cannot be repeated

The application should ask for the mode and proceed with the game accordingly.

After each step the application responds with 3 possibilities.

- Continue (The game should continue)
- Won (The player has met the criteria for win)
- Draw (No more positions available)

As a next level one should implement a single player mode, where the computer plays as the second player. It is assumed that the computer will play the best move possible. (Do some investigation online on the algorithm to get it done)

Evaluation Criteria

- The code is written using Object Oriented concepts with no duplication of logic taking care of all the 4 variations in one program.
  - Two Player, Pattern based
  - Two Player, Number based
  - Single Player, Pattern based
  - Single Player, Number based

- The code works and produces correct results
- The code is modular, extensible, readable and logic easily understood (self-documenting). Use multiple files to organize your code into packages if required.
- Implementing Unit Tests gives additional bonus
- The application should be console based. No UI expected. But the I/O code should be separated from the business logic in such a way that, it is easy to convert this application into a Web based or GUI application later.
- Use virtualenv/requirements.txt or pipenv/Pipfile to enable easy evaluation.
- Include a text file explaining your design and approach.