QUEENSBOROUGH COMMUNITY COLLEGE
The City University of New York
Department of Engineering Technology

Connect 4 Game Part I

Objective

Your task is to implement the `drop_chip()` method in the Connect4 class. This method simulates dropping a chip into a column on the Connect 4 game board.

Instructions

1. Method Signature:

- The `drop_chip()` method takes one argument:

- `column`: An integer representing the column where the chip should be dropped. Columns are numbered from 1 to 7.

2. Input Validation:

- Check if the game is already over. If the game is over, do nothing and return.

- Ensure that the provided column number is within the valid range of 1 to 7. If the column number is not within this range, do nothing and return `False`.

3. Finding the Empty Slot:

- Start searching from the bottom row (row index 5) of the selected column.

- Move upwards row by row until you find an empty slot (denoted by a space character).

- If the column is already full (no empty slots), do nothing and return `False`.

4. Dropping the Chip:

- Once you find the first empty slot, place the current player's chip in that slot.

- Update the game board by assigning the current player's symbol ('X' or 'O') to the found slot.

5. Returning the Result:

- After successfully dropping the chip, return `True` to indicate that the chip was dropped successfully.

6. After implementing the *drop_chip()* method, copy the unittest program *test_drop_chip.py* to the same folder of the main program. Run the provided unittest program to ensure that your implementation works as expected. The unittest program will run four testing cases. If any of the four testing cases failed, the unittest program will show the errors. This will help verify that the method correctly handles various scenarios and properly updates the game state.

Note:

- Ensure that you follow the instructions carefully and test your implementation thoroughly to ensure correctness.

- You do not need to worry about checking for a win condition in this method. The method to check a winning condition will be addressed in the second part of the project.

Submission Requirements:

You must submit your project with a pdf file and two source code files:

PDF Submission:

- Create a PDF document with screenshots demonstrating the steps of your project.
- Include the following:
    - Screenshots of your main.py and test_drop_chip.py code, with added test cases highlighted.
    - Screenshots of running the unittest tests and the results displayed in the terminal.
    - Add brief descriptions for each screenshot explaining what is being shown.
    - Ensure the PDF is well-organized.

Source Code:

- Include both main.py and test_drop_chip.py.
- Ensure the code is well-commented.
- Submit the code files in a ZIP file.