QUEENSBOROUGH COMMUNITY COLLEGE
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Project: Connect 4 Game Description

Overview: The Connect 4 game is a two-player strategy game where the objective is to be the first to connect four of one's own discs in a row, vertically, horizontally, or diagonally, on a grid of 6 rows and 7 columns. You can play a version of Connect 4 game online - https://www.cbc.ca/kids/games/all/connect-4

Program Description: The provided program implements the Connect 4 game using Python classes. Let's go through the main components of the program:

1. Connect4 Class:

- This class represents the Connect 4 game board and its functionality.

- It contains methods for initializing the game, switching players, printing the game board, dropping a chip into the board, checking for a win condition, and playing the game.

2. Initialization (`__init__()` method):

- Upon initialization, the game board is created as a 6x7 grid, where each cell initially contains a space character `' '`.

- The current player is set to `'X'`, indicating that player X starts the game.

3. Switch Player (`switch_player()` method):

- This method switches the current player between `'X'` and `'O'`.

4. Printing the Game Board (`print_board()` method):

- This method prints the current state of the game board to the console, showing the arrangement of chips in rows and columns.

5. Dropping a Chip (`drop_chip()` method):

- This method simulates dropping a chip (belonging to the current player) into a specified column on the game board.

- It checks if the selected column is within the valid range (1-7) and if it's not already full.

- If the conditions are met, it finds the first empty slot in the column and places the current player's chip there.

6. Checking for a Win (`check_win()` method):

- This method checks if the specified player has won the game by connecting four chips in a row (horizontally, vertically, or diagonally).

- It iterates through the game board to check for all possible winning combinations.

7. Playing the Game(`play_game()` method):

- This method orchestrates the gameplay loop, where players take turns dropping chips into the board until one player wins or the board is full.

8. Main Execution:

- In the main block, an instance of the Connect4 class is created, and the `play_game()` method is called to start the game.

How to Play:

1. Run the program.

2. Players take turns entering column number (1-7) where they want to drop their chip.

3. The game continues until one player connects four chips in a row or the board is full.

4. The winning player is announced, and the game ends.

Instructions for Implementation:

- You're provided with the skeleton of the `drop_chip()` method and the `check_win()` method. Your task is to complete the implementation of the `drop_chip()` method.

- Follow the detailed instructions provided in the docstring of the `drop_chip()` method to implement its functionality accurately.

- Once implemented, you can run the program to test your implementation and play the Connect 4 game.