Bugs

❖ **Syntax Errors:**
1. MyConnectFour.java: **Line 4:** Wrong class name.
   • **Solution:** Change Class Name = MyConnectFour
2. MyConnectFour.java: **Line 19:** Missing semicolon.
   • **Solution:** Add semicolon. ;
3. MyConnectFour.java: **Line 104**: Missing semicolon.
   • **Solution**: Add semicolon. ;
4. MyConnectFour.java: **Line 117:** Missing semicolon.
   • **Solution:** Add semicolon. ;
5. MyConnectFour.java: **Line 126:** The semicolon at the end of Line 126 terminates the loop prematurely, causing it to execute only once. This results in subsequent issues, including:

   5.1 **Line 127:** The loop intended to iterate over a range of indices (i) in the board array will only execute for the first index (i=0).

   5.2 **Line 128:** Any code inside the loop, such as iterations over columns (j) or checks for player pieces, will not be executed beyond the first iteration.

   5.3 **Line 131:** This premature termination disrupts the flow of the program and introduces logical errors in subsequent lines relying on the loop's full execution.

   • **Solution:** Remove the semicolon to allow the loop to execute as intended and resolve subsequent bugs caused by its premature termination.
6. MyConnectFour.java: **Line 165:** Missing semicolon.
   • **Solution:** Add semicolon. ;

❖ **Logical Errors**:
7. MyConnectFour.java: **Line 28:** Wrong data type used in function.
   • **Solution:** Use move variable that parses string to int in line 27 for placeCounter('r',move)
8. MyConnectFour.java: **Line 117:** Unnecessary reassignment of variable.
   • **Solution:** Delete Reassignment: toReturn = input.readLine();
9. MyConnectFour.java: **Line 161:** Logical error in if statement.
   • **Solution:** Add equal logical error if(board[i][position-1] == 'r')

❖ **Incorrect Variable/Function Names**:
10. MyConnectFour.java: **Line 26:** Wrong function name.
    • **Solution:** Correct Function Name getUserInput();
11. MyConnectFour.java: **Line 127:** Wrong variable name within for loop.
    • **Solution:** Make the variable name board
12. MyConnectFour.java: **Line 153:** Wrong Boolean statement.
    • Solution: Set placed = true;

Omissions

- ❖ **Board Omissions**
  1. **WrongBoardSize:**
     - MyConnectFour.java: **Line 126:** If you solve all the bugs above, you can run the application and see Connect4 gameboard that has **5x7** grid.
     - **Problem:** for(int i=0; i<board.length-1; i++)
     - **Solution: Line 126:** To achieve **6x7** size board you need delete the -1 from first loop inside the printBoard() function. for(int i=0; i<board.length ; i++)
  2. **WrongBoardEdges:**
     - MyConnectFour.java: **Line 138:** Current version of the game does not cover the last number seven with | edges this problem caused by
     - **Problem: Line 138:** System.out.println("|") this code part.
     - **Solution: Line 138:** System.out.println("| |") change the code with this code snippet. It can solve this problem.

- ❖ **Exception & Suggestion Omissions**
  1. **LackOfExceptionHandling:**
     - **Problem:** Game is crushed when you enter value different than 1,2,3,4,5,6,7
     - **Solution:** Make Exception Handler show an alert message to a user as an invalid input try again.
  2. **LackOfSuggestionAccordingtoDifficultyLevel:**
     - **Problem:** Game can make suggestions to user which places are empty according to difficulty level. İf it is in easy mode game can give alert when computer has 3 counters, in medium give alert in 2 counters. In hard mode there is no suggestion.

- ❖ **PlaceCounterMethod**
  1. **Problem: Line:146:** This loop in line 146 causes infinite loops**: for(int i=board.length-1; I>=0; i++){**
     Solution: In the first glance, loop can be corrected without infinite loop.
     for(int i= 0; board.length-1; i++){
     Even this cannot solve the problem of this method. As a result, this method does not work properly and puts players moves into wrong places. This method needs to be rewritten according to Connect4 Game Rules.

- ❖ **PlayGameMethod:**
1. **Problem:** This method does not work properly and don't give you a chance to play the game after a few movements of the players. The current code is broken and printing out you have won without completing the game. There are several problems related to the structure of this method İ will explain in Requirement two detailly.
   Solution: This method needs to be rewritten according to Connect4 Game Rules.