

I have advanced my code using the menu system....

It also required several new variables and also clearing ambiguous variables such as in since it created total confusion when analysing it

```
in = new Scanner(System.in);
```



```
scanner = new Scanner(System.in);
```

My testing will commence from hereon. My objective is to track every modification that is required.

TEST CASE: Selecting all menu options and experiencing correct flow

TEST CASE: Selecting menu size inconsistent with permitted

TEST CASE: Perform 4.start game without completing prerequisites

```
*****Welcome to TICTACTOE*****
NOTE: Code will not terminate on a win, see onscreen messages
***MENU***
1. Configure Players
2. Configure board size
3. Configure consecutive symbols for win
4. Start game
4. Exit
Please make a choice
4
SELECTED: 4
Please complete 1,2,3
***MENU***
1. Configure Players
2. Configure board size
3. Configure consecutive symbols for win
4. Start game
```

TEST CASE: Starting the game once all the prerequisites fulfilled

```
WELCOME: Amit , John

***ASSIGN CHIP***
Amit has been assigned: X chip
***SELECT CHIP POSITION***

***CURRENT BOARD***
|---|---|---|
| - | - | - |
|---|---|---|
| - | - | - |
|---|---|---|
| - | - | - |
|---|---|---|
| - | - | - |
|---|---|---|
Amit(X), Which column would you like to insert the chip?
```

TEST CASE: Rejecting any board configurations with numberConsecutiveForWin =2 since it will affect fair play on any boards as follows.

boardWidth=1
boardHeight = 3
numberConsecutiveForWin =2



TEST CASE: Prompting end user to enter [X,Y] for chip placement. Simply observing chip will be placed in all available columns and player gets another attempt if selected incorrect value

TEST CASE: Showing board size and also the target for win

```
***CHECKING AVAILABILITY*** Board height: 5 board Width: 5 number consecutive for win: 3
```

These are now the significant logic changes involving transition from Connect4 => TicTacToe

TEST CASE: Getting user input for columns and rows and adjust the while loop for matcher for both cases

TEST CASE: Modifying method for chip placement for placement on exact location (Also need to be aware that user input [X,Y] translates to [Y],[X] in board[][])

TEST CASE: Need to implement Math.abs... I eventually found out this was not actually required since the inputted column and row from end user translated exactly on the board...

TEST CASE: Implementing check upwards since we know that symbols no longer drop down to the bottom like Connect4

TEST CASE: Need to include more if statement (logic) for diagonal checks in which net (left and right) can not reach end user specified consecutive symbols (for win).

TEST CASE: Since the board sizes are getting bigger, it might be worth displaying congratulations with where it has fulfilled objective on the board

TEST CASE: Fill the board and determine no Tic-Tac-Toe, message no winner on the screen.. I completed this as one of the highest priority tests....

TEST CASE: Change all the ==4 to variable specified by end user.. Try to ascertain if it congratulates end user

TEST CASE: Remove the boolean columnfull since we are not concerned with dropping of any chips

This was a major milestone (given that I had implemented various of the above changes)...

```
|---|---|---|
| X | 0 | - |
|---|---|---|
***CHECK TIC-TAC-TOE***
VERTICAL CHECK => DOWNWARDS*****
row chip placd: 2
base: 0
SAME COLOUR TOTAL: 1
SAME COLOUR TOTAL: 2
SAME COLOUR TOTAL: 3
***1Congratulations Amit(X) Connect 4 in column:1
HORIZONTAL CHECK => RIGHT*****
HORIZONTAL CHECK => LEFT*****
0
0
DIAGONAL CHECK 1
DIAGONAL CHECK 2
DIAGONAL CHECK 3
INSIDE D3 - Diagonal south east check
DIAGONAL CHECK 4
***ASSIGN CHIP***
John has been assigned: 0 chip
***SELECT CHIP POSITION***

***CURRENT BOARD***: ***Congratulations Amit(X)
|---|---|---|
| X | - | 0 |
|---|---|---|
| X | - | - |
|---|---|---|
| X | 0 | - |
|---|---|---|
John(0), Which column would you like to insert the chip?
```

At this moment, I have placed last chip in column 1 and row 2 and it has triggered vertical check down. I have flipped the base and board height variables and hence direction of the for loop also

TEST CASE: Issue with left side check in which it was reducing runningTotal even though it was 2. This of course is detrimental on 3x3 board since left total

TEST CASE: Found structural issue with moving to left... Everything was in the for loop. So everytime it found a match on the left hand side, it would decrease the right running total by 1... Reduced size of the for loop..

TEST CASE: Also need to change the variables when performing diagonal, right or left check... Since we know that values had been swapped for base and height... We need to also change the variable names around!