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Problem Description

Create a TicTacToe game that enables two players to play the game. There should be a three by three 2D array where players take turn choosing where to put their symbol, either an X or an O. When one player gets to have three of their symbols in a row, they win. If neither player manages to win before the board is filled up, it’s a tie. Players cannot place their symbol outside the grid or on another player’s symbol.

Major Program Components (Classes, Objects, and Methods)

Class: TicTacToe

Object: An instance of the TicTacToe class representing a “new game” every time the TicTacToe class instructor is called by the TicTacToeTest.

Constructor: TicTacToe()

Method: void play()

Method: void printStatus()

Method: void gameStatus()

Method: void printBoard:

Method: Boolean validMove(int row, int col)

Class: TicTicToeTest

Method: void main (String[] args)

UML Diagram

Name: TicTacToe Name: TicTacToeTest

Attributes: -isPlayer1Turn : Boolean Attributes: none

-gameBoard : String[][] Methods: +main()

Methods: +TicTacToe()

+play()

-printStatus()

-gameStatus()

+printBoard()

-validMove()

Control Flow (Flow Chart)

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Description automatically generated

True: The game is tied

False: Continue

All of the boxes are filled

False: Continue

False: Continue

User Execution

Open the game to see the empty TicTacToe board. The interface says that it is Player X’s turn and the player needs to pick a row and column using the numbers 0-2. Once the square is chosen, if it is invalid the player must choose again and if it is valid the player continues. It is then Player O’s turn and the same thing happens. This continues until one person wins by claiming three boxes in a row, or all the boxes fill up and nobody wins. If someone wins, The interface wil congratulate them. If not, The interface will say it’s a tie.