

Noughts and Crosses (Tic Tac Toe)

Noughts and Crosses (or Tic Tac Toe) is a game played on a 3x3 grid. Players alternate turns placing X's or O's, with X's going first. The objective of the game is to get three X's or three O's in a vertical, horizontal, or diagonal row.

Write a Noughts and Crosses game that a user can play from the console. First prompt the user to select whether they are playing as crosses (X's) or noughts (O's). When it is the user's turn, prompt them to enter a number 1-9, representing the nine squares of the playing board. The user should not be allowed to play a space that is already filled.

Define a class named Computer with the following API:

```
public class Computer {
    /**
     * Initializes a new computer player.
     * @param side - 0 if computer is X, 1 if are O
     */
    Computer(int side);

    /**
     * The computer should get the current state of
     * the board as input and return the position of
     * its next move. Each element of the board state
     * is initialized to a 0, then is marked with a 1
     * for an X or a -1 for a O.
     *
     * @param board - a 9x9 array representing the
     * current state of the board
     */
    public int play(int[][] board);
}
```

The computer and user should alternate turns until someone wins the game or there is a draw. Between each move, the current state of the board should be displayed. A sample game is as follows. User input is in *italics*:

Press 0 to play X and 1 to play O: 0

```
| |
-----
| |
-----
| |
```

```
User Move> 5
Computer Plays 1.
O| |
-----
|X|
-----
| |
```

```
User Move> 5
Illegal move.
```

```
User Move> 2
Computer Plays 8.
```

```
O|X|
-----
|X|
-----
|O|
```

```
User Move> 3
Computer Plays 7.
```

```
O|X|X
-----
|X|
-----
O|O|
```

```
User Move> 4
Computer Plays 9.
```

```
O|X|X
-----
X|X|
-----
O|O|O
```

Computer wins!