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**TY CS-D**

**Batch-1**

**Roll no: 1**

**Assignment - 1 A: Tic-tac-toe game with Non-AI approach.**

**Code:**

**import java.util.Scanner;**

**public class TicTacToe {**

**private char[][] board;**

**private char currentPlayer;**

**public TicTacToe() {**

**board = new char[3][3];**

**currentPlayer = 'X';**

**initializeBoard();**

**}**

**public void initializeBoard() {**

**int cellValue = 1;**

**for (int i = 0; i < 3; i++) {**

**for (int j = 0; j < 3; j++) {**

**board[i][j] = Character.*forDigit*(cellValue, 10);**

**cellValue++;**

**}**

**}**

**}**

**public void printBoard() {**

**System.*out*.println("---------");**

**for (int i = 0; i < 3; i++) {**

**System.*out*.print("| ");**

**for (int j = 0; j < 3; j++) {**

**System.*out*.print(board[i][j] + " | ");**

**}**

**System.*out*.println();**

**System.*out*.println("---------");**

**}**

**}**

**public boolean isBoardFull() {**

**for (int i = 0; i < 3; i++) {**

**for (int j = 0; j < 3; j++) {**

**if (Character.*isDigit*(board[i][j])) {**

**return false;**

**}**

**}**

**}**

**return true;**

**}**

**public boolean isWinner() {**

**return checkRows() || checkColumns() || checkDiagonals();**

**}**

**private boolean checkRows() {**

**for (int i = 0; i < 3; i++) {**

**if (Character.*isDigit*(board[i][0])) continue;**

**if (board[i][0] == board[i][1] && board[i][0] == board[i][2]) {**

**return true;**

**}**

**}**

**return false;**

**}**

**private boolean checkColumns() {**

**for (int i = 0; i < 3; i++) {**

**if (Character.*isDigit*(board[0][i])) continue;**

**if (board[0][i] == board[1][i] && board[0][i] == board[2][i]) {**

**return true;**

**}**

**}**

**return false;**

**}**

**private boolean checkDiagonals() {**

**if (!Character.*isDigit*(board[0][0])) {**

**if (board[0][0] == board[1][1] && board[0][0] == board[2][2]) {**

**return true;**

**}**

**}**

**if (!Character.*isDigit*(board[0][2])) {**

**if (board[0][2] == board[1][1] && board[0][2] == board[2][0]) {**

**return true;**

**}**

**}**

**return false;**

**}**

**public void makeMove(int move) {**

**if (move >= 1 && move <= 9) {**

**int row = (move - 1) / 3;**

**int col = (move - 1) % 3;**

**if (Character.*isDigit*(board[row][col])) {**

**board[row][col] = currentPlayer;**

**currentPlayer = (currentPlayer == 'X') ? 'O' : 'X';**

**}**

**}**

**}**

**public static void main(String[] args) {**

**TicTacToe game = new TicTacToe();**

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

**System.*out*.println("Welcome to our Tic-Tac-Toe Game");**

**System.*out*.println(" Symbol - X would represent player 1");**

**System.*out*.println(" Symbol - O would represent player 2");**

**System.*out*.println("Enter a number from 1 to 9 to make a move.");**

**while (!game.isBoardFull() && !game.isWinner()) {**

**game.printBoard();**

**int move;**

**System.*out*.print("Player " + game.currentPlayer + ", enter your move: ");**

**move = scanner.nextInt();**

**game.makeMove(move);**

**}**

**game.printBoard();**

**if (game.isWinner()) {**

**game.currentPlayer = (game.currentPlayer == 'X') ? 'O' : 'X';**

**System.*out*.println("Yayyy!! Player " + game.currentPlayer + " wins!");**

**} else {**

**System.*out*.println("It's a tie!");**

**}**

**scanner.close();**

**}**

**}**