Assignment 6 (Tic Tac Toe Game)

#include <stdio.h>

char board[3][3];

char player = 'X';

void initializeBoard() {

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

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

board[i][j] = ' ';

}

}

}

void printBoard() {

printf("\n");

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

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

printf(" %c ", board[i][j]);

if (j < 2) printf("|");

}

if (i < 2) printf("\n---|---|---\n");

}

printf("\n");

}

int checkWin() {

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

if (board[i][0] == player && board[i][1] == player &&

board[i][2] == player) return 1;

if (board[0][i] == player && board[1][i] == player &&

board[2][i] == player) return 1;

}

if (board[0][0] == player && board[1][1] == player && board[2][2]

== player) return 1;

if (board[0][2] == player && board[1][1] == player && board[2][0]

== player) return 1;

return 0;

}

int checkDraw() {

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

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

if (board[i][j] == ' ') return 0;

}

}

return 1;

}

void switchPlayer() {

player = (player == 'X') ? 'O' : 'X';

}

void makeMove() {

int row, col;

while (1) {

printf("Player %c, enter your move (row and column): ",

player);

scanf("%d %d", &row, &col);

if (row >= 1 && row <= 3 && col >= 1 && col <= 3 &&

board[row-1][col-1] == ' ') {

board[row-1][col-1] = player;

break;

} else {

printf("Invalid move! Try again.\n");

}

}

}

int main() {

initializeBoard();

while (1) {

printBoard();

makeMove();

if (checkWin()) {

printBoard();

printf("Player %c wins!\n", player);

break;

}

if (checkDraw()) {

printBoard();

printf("It's a draw!\n");

break;

}

switchPlayer();

}

return 0;

}