ASSIGNMENT 5

#include <stdio.h>

char board[3][3];

char currentPlayer = 'X';

void initializeBoard() {

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

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

board[i][j] = ' ';

}

}

}

void printBoard() {

printf(" %c | %c | %c\n", board[0][0], board[0][1], board[0][2]);

printf("---|---|---\n");

printf(" %c | %c | %c\n", board[1][0], board[1][1], board[1][2]);

printf("---|---|---\n");

printf(" %c | %c | %c\n", board[2][0], board[2][1], board[2][2]);

}

int checkWin() {

// Check rows

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

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

return 1;

}

}

// Check columns

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

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

return 1;

}

}

// Check diagonals

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

return 1;

}

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

return 1;

}

return 0;

}

void switchPlayer() {

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

}

void playerMove() {

int row, col;

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

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

if (row >= 1 && row <= 3 && col >= 1 && col <= 3 && board[row - 1][col - 1] == ' ') {

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

} else {

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

playerMove();

}

}

int main() {

int moves = 0;

initializeBoard();

while (1) {

printBoard();

playerMove();

moves++;

if (checkWin()) {

printBoard();

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

break;

}

if (moves == 9) {

printBoard();

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

break;

}

switchPlayer();

}

return 0;

}