ASSIGNMENT -6

TIC TAC TOE

#include <stdio.h>

#include <stdlib.h>

void printBoard(char board[3][3]);

int checkWin(char board[3][3]);

int isFull(char board[3][3]);

int main() {

char board[3][3] = {

{'1', '2', '3'},

{'4', '5', '6'},

{'7', '8', '9'}

};

int turn = 1;

int move, row, col, winner = 0;

printf("Welcome to Tic Tac Toe!\n");

printf("Player 1: O | Player 2: X\n\n");

while (!winner && !isFull(board)) {

printBoard(board);

printf("Player %d's turn. Enter your move (1-9): ", turn);

scanf("%d", &move);

row = (move - 1) / 3;

col = (move - 1) % 3;

if (move < 1 || move > 9 || board[row][col] == 'O' || board[row][col] == 'X') {

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

continue;

}

board[row][col] = (turn == 1) ? 'O' : 'X';

winner = checkWin(board);

turn = (turn == 1) ? 2 : 1;

}

printBoard(board);

if (winner) {

printf("Player %d wins!\n", (turn == 1) ? 2 : 1);

} else {

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

}

return 0;

}

void printBoard(char board[3][3]) {

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("|");

}

printf("\n");

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

}

printf("\n");

}

int checkWin(char board[3][3]) {

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

if (board[i][0] == board[i][1] && board[i][1] == board[i][2]) return 1;//Row

if (board[0][i] == board[1][i] && board[1][i] == board[2][i]) return 1; // Column

}

if (board[0][0] == board[1][1] && board[1][1] == board[2][2]) return 1; // Diagonal

if (board[0][2] == board[1][1] && board[1][1] == board[2][0]) return 1;

return 0;

}

int isFull(char board[3][3]) {

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

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

if (board[i][j] != 'O' && board[i][j] != 'X') return 0;

}

}

return 1;

}