#include<stdio.h>

char board[9];

void init(){

for(int i=0;i<9;i++){

board[i]=' ';

}

int count=1;

printf("\n\n\*\*\*The board positions are shown below\n");

printf("\n\n\t");

for(int i=0;i<9;i++){

printf("%d",i+1);

if((i+1)%3==0){

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

printf("\n\t");

}else{

printf(" | ");

}

}

}

void printBoard(){

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

printf("\n\t");

for(int i=0;i<9;i++){

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

if((i+1)%3==0){

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

printf("\n\t");

}else{

printf(" | ");

}

}

}

int updateBoard(int box, char player)

{

int flag = 1;

if (board[box-1] == ' ')

{

board[box-1] = player;

}

else

{

printf("\nInvalid:Position is already Filled!\n");

flag = 0;

}

printBoard();

return flag;

}

int checkWinner(char sign)

{

if (board[0] == sign && board[1] == sign && board[2] == sign ||

board[3] == sign && board[4] == sign && board[5] == sign ||

board[6] == sign && board[7] == sign && board[8] == sign)

{

return 1;

}

else if (board[0]== sign && board[3] == sign && board[6] == sign ||

board[1] == sign && board[4] == sign && board[7] == sign ||

board[2] == sign && board[5] == sign && board[8] == sign)

{

return 1;

}

else if (board[0] == sign && board[4] == sign && board[8] == sign ||

board[2] == sign && board[4] == sign && board[6] == sign)

{

return 1;

}

return 0;

}

void game(){

int count=0;

int result=0;

int box;

int flag;

char player=' ';

while(!result && count<9){

if(count%2==0){

printf("\nPlayer 1[X]:");

player='X';

}

else{

printf("\nPlayer 2[O]:");

player='O';

}

scanf("%d",&box);

if(box>0 && box<10){

flag=updateBoard(box,player);

if(flag){

result=checkWinner(player);

if (result)

{

printf("\t \*\*\* Player %d Won!! \*\*\*\n", player == 'X' ? 1 : 2);

}

count++;

}

}

else

{

printf("\nPlease Enter a valid position value\n");

}

}

if (!result && count == 9)

{

printf("\n\t \*\*\* Draw... \*\*\*\n");

}

printf("\n\t --- Game Over --- \n");

}

int main(){

printf("\t### Tic-Tac-Toe ###");

init();

printf("\n\n\* Instructions \n\n");

printf("\tPlayer 1 sign = X\n");

printf("\tPlayer 2 sign = O\n");

char start = ' ';

printf("\n> Press any key to start...");

scanf("%c", &start);

if (start)

{

int key = 1;

while (key)

{

game();

printf("\n\*\*\*Menu\*\*\*\n");

printf("\nPress 1 to Restart");

printf("\nPress 0 for Exit");

printf("\n\nChoice: ");

scanf("%d", &key);

if (key)

{

init();

}

printf("\n");

}

}

printf("\n \*\*\*Thanks for playing\*\*\*\n");

return 0;

}