**PROJECT I**

**<Tic-Tac-Toe>**

CIS 5 – 40488

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**Introduction:**

Title: Tic-Tac-Toe

Tic-Tac-Toe is a game that play

**Flowchart:**

**Pseudo Code**

*Need 2 players to start the game*

*Player 1: [X]*

*Input first name and last name*

*Player 2: [O]*

*Input first name and last name*

*Player 1 [X] gets to choose a number first from 1 to 9*

**Program**

//System Libraries

#include <iostream> //Input and Output Library

#include <iomanip> //Formatting

#include <cmath> //Math Library

#include <fstream> //File I/O

#include <string> //String Object

#include <ctime> //Time for random seed

#include <cstdlib> //Setting random seed

using namespace std;

//User Libraries

//Global Constants

//Such as PI, Vc, -> Math/Science values

//as well as conversions from system of units to another

//Function Prototypes

char gBoard[3][3]= { {'1','2','3'},

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

{'7','8','9'} }, //Game board output

turn; //Player turns

bool DRAW=false, //Game Won

gOver(); //Game over

void dBoard(); //Display Board

void pTurn(); //Player switching turns

//Executable code begins here!!!

int main(int argc, char\*\* argv) {

//Declare Variables

string first1,last1, //First and last name (Player 1)

first2,last2; //First and last name (Player 2)

//Main Menu (Introducing The Game)

cout<<" Welcome Players."<<endl;

cout<<endl;

cout<<"We're about to play a game called Tic Tac Toe.\nPlease enter your first and last name"

" as Player 1 and Player 2."<<endl;

cout<<endl;

cout<<"Player 1: [X]"<<endl;

cin>>first1>>last1;

cout<<"Player 2: [O]"<<endl;

cin>>first2>>last2;

//Mapping out the game

turn='X';

while (!gOver()) {

dBoard();

pTurn();

gOver();

}

if (turn=='O'&&!DRAW) {

dBoard();

cout<<endl<<endl<<"Player 1 [X] "<<first1<<" "<<last1<<" Wins!\n";

}

else if (turn=='X'&&!DRAW) {

dBoard();

cout<<endl<<endl<<"Player 2 [O] "<<first2<<" "<<last2<<" Wins!\n";

}

else {

dBoard();

cout<<endl<<endl<<"[X] and [O] ==> DRAW!\n";

}

return 0;

}

void dBoard () {

//Game Board Output

cout<<"\n\t\tTIC-TAC-TOE\n ";

cout<<"Player 1 (X): - Player 2 (O): "<<endl;

cout<<" -------------------------------"<<endl;

cout<<"\t | | "<<endl;

cout<<"\t "<<gBoard[0][0]<<" | "<<gBoard[0][1]<<" | "<<gBoard[0][2]<<endl;

cout<<"\t\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_"<<endl;

cout<<"\t | | "<<endl;

cout<<"\t "<<gBoard[1][0]<<" | "<<gBoard[1][1]<<" | "<<gBoard[1][2]<<endl;

cout<<"\t\_\_\_\_\_|\_\_\_\_\_|\_\_\_\_\_"<<endl;

cout<<"\t | | "<<endl;

cout<<"\t "<<gBoard[2][0]<<" | "<<gBoard[2][1]<<" | "<<gBoard[2][2]<<endl;

cout<<"\t | | "<<endl<<endl;

}

void pTurn() {

//Declare Variables

int choice;

int row=0, col=0;

//Players Turns

if (turn=='X') {

cout<<"Player 1 turn [X]: "; //Player 1 get to play

}

else if (turn=='0') {

cout<<"Player 2 turn [O]: "; //Player 2 get to play

}

cin>>choice;

//Mapping out the game

switch (choice) {

case 1: row=0;col=0;break;

case 2: row=0;col=1;break;

case 3: row=0;col=2;break;

case 4: row=1;col=0;break;

case 5: row=1;col=1;break;

case 6: row=1;col=2;break;

case 7: row=2;col=0;break;

case 8: row=2;col=1;break;

case 9: row=2;col=2;break;

default:

cout<<"You did not enter a correct number! Try again!\n";

pTurn();

}

//Player turns on the game

if (turn=='X'&&gBoard[row][col]!='X'&&gBoard[row][col]!='O') {

gBoard[row][col]='X';

turn='O';

}

else if (turn=='O'&&gBoard[row][col]!='X'&&gBoard[row][col]!='O') {

gBoard[row][col]='O';

turn='X';

}

else {

cout<<"The cell you chose is used! Try again\n";

pTurn;

}

}

//Game Over

bool gOver() {

for (int i=0;i<3;i++) { //Check for a winner

if ((gBoard[i][0]==gBoard[i][1]&&gBoard[i][1]==gBoard[i][2])||

(gBoard[0][i]==gBoard[1][i]&&gBoard[1][i]==gBoard[2][i])||

(gBoard[0][0]==gBoard[1][1]&&gBoard[1][1]==gBoard[2][2])||

(gBoard[0][2]==gBoard[1][1]&&gBoard[1][1]==gBoard[2][0])) {

return true;

}

}

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

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

if (gBoard[i][j]!='X'&&gBoard[i][j]!='O') {

return false;

}

}

}

DRAW=true;

return true;

}