**PROJECT I**

Title

**TIC-TAC-TOE**

Course

**CIS-5**

Section

**40488**

Date

**January 30th, 2017**

Author

**Linh Vu**

1. **INTRODUCTION**

Title: Tic-Tac-Toe

Tic-Tac-Toe is a game that play

1. **FLOWCHART:**
2. **DEVELOPMENT SUMMARY:**

Lines of Code: 141

Comment Lines: 36

Blank Lines (White Spaces): 13

Total Lines of Source File: 157

This game is running on C++ Program. The hardest part of this program is to output the board for players to input X and O. Instead of clicking into the box and type X or O, I created a switch for players to input numbers from 1 to 9. Each box will have a number, Player 1 is assigned as “X” and Player 2 is assigned as “O”. The board will display after Player 1 and Player 2 typed in their first and last names. The program will asks Player 1 to input a number from 1 to 9 then hit enter, the board then will display again with “X” replaces the number that Player 1 chose. After that will be Player 2’s turns to play, the program will ask the same thing and “O” will be replace the number that Player 2 chose.

The game will continue until it finds a winner, if one of the two Players type a wrong number, the program will ask the player to input a correct number again.

1. **PSEUDO CODE:**

*//System Libraries*

*//Input Output Library*

*//Formatting*

*//Math Library*

*//File I/O*

*//String Object*

*//Time for Random Seed*

*//Setting Random Seed*

*//Namespace std of system libraries*

*//User libraries*

*//Global Constants*

*//Such as PI, Vc, -> Math/Science Values*

*//As well as conversions from system of unites to another*

*//Function Prototypes*

*//Game board output (gBoard[3][3])*

*//Player turns (turn)*

*//Game won (DRAW=false)*

*//Game over (gOver())*

*//Display Board (dBoard())*

*//Player switching turns (pTurn())*

*//Main -> //Executable code begins here!*

*//Declare Variables (2 Players)*

*//Main Menu Introducing the Game*

*//Enter (first1) and (last1) name – Player1[X]*

*//Enter (first2) and (last2) name – Player2[O]*

*//Mapping out the game*

*//Player1[X] turn*

*//Player2[O] turn*

*//Game Board Output*

*//TIC-TAC-TOE*

*//Player 1 (X): - Player 2 (O):*

*//Choose a number from 1 to 9*

*//Choose right (O) turns*

*//Choose wrong (input a correct number again)*

*//Player2[0] turns*

*//Player Switching Turns*

*//Declare Variables (int choice)*

*(int row=0,col=0)*

*//Plyer Turns*

*//Mapping out*

*//Player Turns on the Game*

*//Game over*

*//Check for a winner*

*//Check for a draw*

*//Output all the game to a file*

*//Close files and Exit Stage right!*

1. **PROGRAM C++:**

//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;

}

1. **REFERENCE:**
2. Text book.
3. C++
4. [www.cpp.com](http://www.cpp.com)