ST MARY UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

COURSE: INTRODUCTION COMLUTER PROGRAMING

GROUP NUMBER 4

TITLE: TIC-TAC-TOE GAME

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Overview and functionality.

This code is a C++ implementation of a two-player Tic-Tac-Toe game that runs in the console. The program allows two players to take turns marking spaces on a 3x3 grid, with one player using 'X' and the other using 'O'.

The game starts by welcoming the players and displaying an empty board with positions numbered 1 through 9. Player 1 is prompted to choose whether they want to be X or O. Player 2 is automatically assigned the remaining symbol.

Players take turns entering numbers 1-9 to place their symbol on the corresponding board position. The game checks for several conditions:

- Valid position input (must be 1-9)
- Position availability (cannot overwrite existing marks)
- Win conditions (3 in a row horizontally, vertically or diagonally)
- Draw condition (board filled with no winner)

After each move, the updated board is displayed. If a player wins, the game announces the winner and ends. If all spaces are filled without a winner, it declares a draw.

The code uses a 3x3 character array to represent the game board and includes functions to check for win conditions and handle player input. The game alternates turns between players until a win or draw occurs.

The implementation includes basic error handling for invalid inputs and already-taken positions, prompting players to enter valid moves. The board is redrawn after each move to show the current game state.

CODE SNIPPET

```
#include <iostream>

#include<string>

Using namespace std;

Bool checkWin(char dis[3][3], char player) {

  // Check rows and columns

  For(int I = 0; I < 3; i++) {

    // Check rows

    If((dis[i][0] == player && dis[i][1] == player && dis[i][2] == player)||

    // Check columns

    (dis[0][i] == player && dis[1][i] == player && dis[2][i] == player))

      Return true;
```

```
    If((dis[0][0] == player && dis[1][1] == player && dis[2][2] == player)||

  (dis[0][2] == player && dis[1][1] == player && dis[2][0] == player))

     Return true;



  Return false;

}

  }

Int main(){cout << “    WELLCOM TO THE GAME “ << endl;

Cout<<endl;

Char dis[3][3]={{‘1’,’2’,’3’},{‘4’,’5’,’6’},{‘7’,’8’,’9’}};

Const char x=’x’,o=’o’;

Char player1;

Char player2;
```

```
Char currentplayer =player1;

Int position;

Bool win= false;



Cout << “Player 1 enter the position from ‘x’or’y’” << endl;

Cin >> player1;

While(player1!=x&&player1!=o){

Cout << “please enter a letter from ‘x’or ‘y’” << endl;

Cin >> player1;}

If(player1==x){

Player2=o;

Cout << “player 1 is x” << endl;

Cout << “player 2 is o” << endl;
```

```
Currentplayer=x;}

Else if(player1==o){

Player2=x;

Cout << “player 1 is o” << endl;

Cout << “player 2 is x” << endl;

Currentplayer=o;}

Cout << “  Good luck” << endl;

For(int turn=0;turn<9;turn++){

Cout << “   |  |   “ << endl;

Cout <<” “<<dis[0][0]<< “ | “<<dis[0][1]<<” | “<<dis[0][2]<<” “ << endl;

Cout << “___|___|___” << endl;

Cout << “   |  |   “ << endl;

Cout <<” “<<dis[1][0]<< “ | “<<dis[1][1]<<” | “<<dis[1][2]<<” “ << endl;
```

```
Cout << “___|___|___” << endl;

Cout << “   |   |   “ << endl;

Cout <<” “<<dis[2][0]<< “ | “<<dis[2][1]<<” | “<<dis[2][2]<<” “ << endl;

Cout << “   |   |   “ << endl;

//this is optional if you want we can jump code this but our program have a problem

/*while(true) {

        Cout << “Player “ << (currentplayer == player1 ? “1” : “2”) << “, enter position (1-9): “;



        If(!(cin >> position)) { // If input fails (non-number)

           Cin.clear(); // Clear error flag

           Cin.ignore(numeric_limits<streamsize>::max(), ‘\n’); // Discard bad input

           Cout << “Please enter a number between 1-9!\n”;

           Continue;
```

```
}



If(position < 1 || position > 9) {

   Cout << “Position must be between 1-9!\n”;

   Continue;

}



Int row = (position – 1) / 3;

Int col = (position – 1) % 3;



If(dis[row][col] == x || dis[row][col] == o) {

   Cout << “Position already taken!\n”;

   Continue;
```

```
        }



        Break; // Valid input

    }*/

Cout << “pleyer “ << (currentplayer == player1?”1”:”2”)<<” ,enter the position:\n”;

Cin>>position;

While(position < 1 || position > 9) {

        Cout << “Invalid position. Please enter 1-9: “;

        Cin >> position;}



 Int row = (position – 1) / 3;

 Int col = (position – 1) % 3;

 While(dis[row][col] == x || dis[row][col] == o) {
```

```
        Cout << “Position already taken. Choose another: “;

        Cin >> position;

        Row = (position – 1) / 3;

        Col = (position – 1) % 3; }



Dis[row][col]=currentplayer;

 If(checkWin(dis, currentplayer)) {

        Cout << “\n  |  |  “ << endl;

        Cout << “ “ << dis[0][0] << “ | “ << dis[0][1] << “ | “ << dis[0][2] << “ “ << endl;

        Cout << “___|___|___” << endl;

        Cout << “ “ << dis[1][0] << “ | “ << dis[1][1] << “ | “ << dis[1][2] << “ “ << endl;

        Cout << “___|___|___” << endl;

        Cout << “ “ << dis[2][0] << “ | “ << dis[2][1] << “ | “ << dis[2][2] << “ “ << endl;
```

```
        Cout << “   |  |   “ << endl;




        Cout << “CONGRATULATIONS! Player “ << (currentplayer == player1 ? “1” : “2”) << “ (“ <<
currentplayer << “) wins!\n”;

        Win = true;

        Break;

      }

  Currentplayer=(currentplayer==player1)? Player2:player1;

}




   If(!win) {

      Cout << “\n   |  |   “ << endl;

      Cout << “ “ << dis[0][0] << “ | “ << dis[0][1] << “ | “ << dis[0][2] << “ “ << endl;

      Cout << “___|___|___” << endl;
```

```
    Cout << " " << dis[1][0] << " | " << dis[1][1] << " | " << dis[1][2] << " " << endl;

    Cout << "___|___|___" << endl;

    Cout << " " << dis[2][0] << " | " << dis[2][1] << " | " << dis[2][2] << " " << endl;

    Cout << "   |   |   " << endl;



    Cout << "The game is a draw!\n";

  }

Return 0;}
```