

Programming Fundamentals Project

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Project Code

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//Header File

#include<iostream>

//Using namespace std for differentiating b/w two similar names
using namespace std;

//Declaration of variable
char matrix[3][3]={{'1', '2', '3'},{'4', '5', '6'},{'7', '8', '9'}};
char player= 'X';

//User Defined Funtion 'Draw'
void Draw()
{
    //using clear screen comand
    system("cls");

    cout<<"Tic Tac Toe"<<endl;

    //using nested for loop for matrix formation
    for(int i=0; i<3; i++)
    {
        for(int j=0; j<3; j++)
```

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        {
            cout<<matrix[i][j]<<" ";
        }
        cout<<endl;
    }
}

//user defined function 'Input'
void Input()
{
    int a;
    cout<<"Press the number of the field : ";
    cin>>a;
    if(a==1)
    {
        matrix[0][0]=player;
    }
    else if(a==2)
    {
        matrix[0][1]=player;
    }
    else if(a==3)
    {
        matrix[0][2]=player;
    }
    else if(a==4)
    {
        matrix[1][0]=player;
    }
    else if(a==5)

```

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    {
        matrix[1][1]=player;
    }
    else if(a==6)
    {
        matrix[1][2]=player;
    }
    else if(a==7)
    {
        matrix[2][0]=player;
    }
    else if(a==8)
    {
        matrix[2][1]=player;
    }
    else if(a==9)
    {
        matrix[2][2]=player;
    }
    else
    {
        cout<<"You Entered Incorrect Field Number";
    }
}

//user defined function'TogglePlayer'
void TogglePlayer()
{
    //using if else statement to toggle players
    if(player=='X')

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    {
        player='O';
    }
else
{
    player='X';
}
}

char Win()
{
    //First Player
    //checking all possibilities of winning using if statements
    if(matrix[0][0]=='X' && matrix[0][1]=='X' && matrix[0][2]=='X')
        return 'X';
    if(matrix[1][0]=='X' && matrix[1][1]=='X' && matrix[1][2]=='X')
        return 'X';
    if(matrix[2][0]=='X' && matrix[2][1]=='X' && matrix[2][2]=='X')
        return 'X';

    if(matrix[0][0]=='X' && matrix[1][0]=='X' && matrix[2][0]=='X')
        return 'X';
    if(matrix[0][1]=='X' && matrix[1][1]=='X' && matrix[2][1]=='X')
        return 'X';
    if(matrix[0][2]=='X' && matrix[1][2]=='X' && matrix[2][2]=='X')
        return 'X';

    if(matrix[0][0]=='X' && matrix[1][1]=='X' && matrix[2][2]=='X')
        return 'X';
    if(matrix[2][2]=='X' && matrix[1][1]=='X' && matrix[0][2]=='X')

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        return 'X';

//Second Player
//checking all possibilities of winning using if statements
if(matrix[0][0]=='O' && matrix[0][1]=='O' && matrix[0][2]=='O')
    return 'O';
if(matrix[1][0]=='O' && matrix[1][1]=='O' && matrix[1][2]=='O')
    return 'O';
if(matrix[2][0]=='O' && matrix[2][1]=='O' && matrix[2][2]=='O')
    return 'O';

if(matrix[0][0]=='O' && matrix[1][0]=='O' && matrix[2][0]=='O')
    return 'O';
if(matrix[0][1]=='O' && matrix[1][1]=='O' && matrix[2][1]=='O')
    return 'O';
if(matrix[0][2]=='O' && matrix[1][2]=='O' && matrix[2][2]=='O')
    return 'O';

if(matrix[0][0]=='O' && matrix[1][1]=='O' && matrix[2][2]=='O')
    return 'O';
if(matrix[2][2]=='O' && matrix[1][1]=='O' && matrix[0][2]=='O')
    return 'O';

return '/';
}

//main function
int main()
{
    //calling user defined function 'Draw'

```

```

Draw();
while (1)
{
    //calling user defined function 'Input'
    Input();
    //calling user defined function 'Draw'
    Draw();
    //If statement
    if(Win()=='X')
    {
        //output statement
        cout<<"\n X Wins ! ";
        //Break statement
        break;
    }
    //Else Statement
    else if(Win()=='O')
    {
        //output statement
        cout<<"\n O Wins ! ";
        //Break statement
        break;
    }
    //calling user defined function 'Toggle Player'
    TogglePlayer();
}

system("pause");
//Return Statement

```

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return 0;
```

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}
```