

Practical 01&02

Program:

```
//to prepare toc tac toe game
```

```
#include<iostream>
```

```
using namespace std;
```

```
int row, column;
```

```
char choice,turn='O' ;
```

```
void display_board();
```

```
bool Draw = false;
```

```
char board[3][3]={{'1','2','3'},{'4','5','6'},{'7','8','9'}};
```

```
void display_board()
```

```
{
```

```
cout<<"\n"<<"\n\t"<<
```

```
board[0][0]<<"|"<<board[0][1]<<"|"<<board[0][2]<<"\n\t_____\n\t"<<board[1][0]<<"|"<<board[1][1]<<  
"|"<<board[1][2]<<"\n\t_____"<<"\n\t"<<board[2][0]<<"|"<<board[2][1]<<"|"<<board[2][2]<<"\n"<<  
"\n\t"<<endl;
```

```
}
```

```
void turn_order()
```

```
{
```

```
    //cout<<turn;
```

```
    if(turn=='X')
```

```
    {
```

```
        turn='O';
```

```
    }
```

```

        else if(turn=='O')
        {
            turn='X';
        }

        // cout<<turn;

    }

void player_turn()
{
    if(turn=='X')
    {
        cout<<"Player 1[X]"<<endl;
    }

    else if(turn=='O')
    {
        cout<<"Player 2[O]"<<endl;
    }

    cin>>choice;

    switch(choice)
    {
        case '1': row=0; column=0;

        break;

        case '2': row=0; column=1;

        break;

        case '3': row=0;column=2;

```

```
        break;

    case '4': row=1; column=0;

        break;

    case '5': row=1;column=1;

        break;

    case '6': row=1;column=2;

        break;

    case '7': row=2 ;column=0;

        break;

    case '8': row=2 ;column=1;

        break;

    case '9': row=2;column=2;

        break;

    default:cout<<"invalid case"<<endl;

}

if(turn=='X'&& board[row][column]!='X'&& board[row][column]!='O')

{

    board[row][column]='X';

}

else if(turn=='O'&& board[row][column]!='O'&& board[row][column]!='X')

{

    board[row][column]='O';

}

else

{
```

```

        cout<<"Position is already filled"<<endl;

        display_board();

        player_turn();
    }

}

bool game_over()
{
    for( int i=0;i<3;i++)
    {
        if(board[i][0]==board[i][1] && board[i][0]==board[i][2] || board[0][i]==board[1][i] &&
board[0][i]==board[2][i])

            return false;
    }

    if(board[0][0]==board[1][1] && board[0][0]==board[2][2] || board[0][3]==board[1][1] &&
board[0][3]==board[2][1])

        return false;

    for (int i=0;i<3;i++)
    {
        for (int j=0;j<3;j++)
        {
            if (board[i][j]!='O' && board[i][j]!='X')

                return true;
        }
    }
}

```

```
        }  
    }  
    Draw=true;  
    return false;  
}
```

```
int main()  
{  
    while(game_over())  
    {  
        display_board();  
        turn_order();  
        player_turn();  
    }  
    if(turn=='X' && Draw==false)  
    {  
        cout<<"Player 1 is winner"<<endl;  
    }  
    else if(turn=='O' && Draw==false)  
    {  
        cout<<"Player 2 is winner"<<endl;  
    }  
    else  
    {
```

```

        cout<<"Draw"<<endl;
    }
    return 0;
}

```

Output:

```

      1|2|3
      ----
      4|5|6
      ----
      7|8|9

Player 1[X]
5

      1|2|3
      ----
      4|X|6
      ----
      7|8|9

Player 2[O]
7

      1|2|3
      ----
      4|X|6
      ----
      O|8|9

Player 1[X]
8

      1|2|3
      ----
      4|X|6

```

```

Player 2[O]
2

      1|O|3
      ----
      4|X|6
      ----
      O|X|9

Player 1[X]
1

      X|O|3
      ----
      4|X|6
      ----
      O|X|9

Player 2[O]
4

      X|O|3
      ----
      O|X|6
      ----
      O|X|9

Player 1[X]
9
Player 1 is winner

```