

# THE PROGRAM

```
#include<iostream>

char board[]={ ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' ', ' '};

int O1[]={0,1,7,9,3,0,3,9,7,3}; // Positions Player1 should play after Player2's first move

int O2[][2]={0,0,0,0,9,7,0,0,9,3,7,3}; // Positions Player1 should play after Player2's second
move

int PosCheck(int pos){

    if(board[pos-2]=='O' || board[pos]=='O' || board[pos+2]=='O' || board[pos-4]=='O'){
        if(board[pos-2]!=' ' && board[pos-4]!=' ' && board[pos+2]!=' ' && board[pos+4]!=' '){
            return 0;
        }
        else
            return 1;
    }
    else
        return 0;
}

int check(int i, int j){
    int sum=0,pos,space=0;
    for(int k=0;k<3;k++){
        if(board[i+j*k-1]=='X')
            sum++;
        if(board[i+j*k-1]==' '){
            pos=i+j*k;
            space=1;
        }
    }

    }

    if(sum==2 && space==1)
        return pos;
    else
        return 0;
}

int winCheck(){

    int i;
```

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for(i=1;i<8;i=i+3)
    if(check(i,1)!=0){

        return check(i,1);
    }

for(i=1;i<4;i++)
    if(check(i,3)!=0){

        return check(i,3);
    }

if(check(1,4)!=0){

    return check(1,4);
}
else if(check(3,2)!=0){

    return check(3,2);
}
else
    return 0;
}

```

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void displayBoard(){
    std::cout<<"
    "<<board[0]<<"|" "<<board[1]<<"|" "<<board[2]<<"\n";
    std::cout<<"                                "<<"\n";
    std::cout<<"
    "<<board[3]<<"|" "<<board[4]<<"|" "<<board[5]<<"\n";
    std::cout<<"                                "<<"\n";
    std::cout<<"
    "<<board[6]<<"|" "<<board[7]<<"|" "<<board[8]<<"\n";
}

```

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int main(){

    std::cout<<"Hello there. Computer Player1 and Mark is 'X'. You are Player2 and Mark is
    'O'.\n\n";

    displayBoard();
    std::cout<<"\n\n";
    bool play=true;
}

```

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int pos2=1,moves=0,pos1;

board[0]='X';
do{

    std::cout<<"\n\nPlayer1 has put his mark in position "<<01[pos2]<<"\n\n";
    moves++;

    displayBoard();

    L1:
    std::cout<<"\nEnter position number where you wish to place mark(1-9)\n";
    std::cin>>pos2;

    if(moves==3||moves==5){
        if(PosCheck(pos2)==1){
            std::cout<<"\nFollow rules!!!!";
            goto L1;
        }
    }
    // IF PLAYER2'S FIRST MOVE IS IN THE CENTER THEN GOTO L1
    if(moves==1 && pos2==5){

        board[pos2-1]='O';
        goto L2;
    }

    if(board[pos2-1]=='X' || board[pos2-1]=='O'){
        std::cout<<"\nThis cell is already occupied. Place somewhere else\n";
        goto L1;
    }
    else{
        board[pos2-1]='O';
        moves++;
    }

    displayBoard();

    //CHECKING TO SEE IF A WINNING COMBINATION HAS BEEN ESTABLISHED
    if(winCheck()!=0){
        std::cout<<"\nPlayer1 wins by putting X at position "<<winCheck()<<"\n";
        board[winCheck()-1]='X'; //Putting X to show player2 the winning combination
        /**/displayBoard();
        play=false;
    }
}

```

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//PLAYER1'S SECOND MOVE CORRESPONDING TO PLAYER2'S FIRST MOVE
if(moves==2){
    board[01[pos2]-1]='X';
}

//PLAYER1'S THIRD MOVE CORRESPONDING TO PLAYER2'S SECOND MOVE
if(moves==4){
    if((board[1]=='0'&&board[3]=='0')||(board[2]=='0'&&board[4]=='0')){

        board[02[pos2][0]-1]='X';

    }
    else{
        board[02[pos2][1]-1]='X';
    }
}

}while(play==true);
goto L5;

//CASE WHEN PLAYER2'S FIRST MOVE IS IN THE MIDDLE

L2:

board[2]='X';
std::cout<<"\n\nPlayer1 has put his mark in position 3"<<"\n\n";
moves++;

/**/displayBoard();

L3:
std::cout<<"\nEnter position number where you wish to place mark3(1-9)\n";
std::cin>>pos2;

if(PosCheck(pos2)==1){
    std::cout<<"\nFollow rules!!!!";
    goto L3;
}

std::cout<<"\nPlayer1 wins by putting X at position "<<winCheck()<<"\n";
board[winCheck()-1]='X'; //Putting X to show player2 the winning combination

```

```
displayBoard();
```

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L5:
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```
return 0;
```

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}
```