Practical 1

Aim: Write a program to implement Tic-Tac-Toe game problem.

```cpp
#include <iostream>
using namespace std;
char square[10] = {'o','1','2','3','4','5','6','7','8','9'};
int checkwin();
void board();
int main()
{
     int player = 1,i,choice;
    char mark;
    do
    {
        board();
        player=(player%2)?1:2;
        cout << "Player " << player << ", enter a number:  ";
        cin >> choice;
        mark=(player == 1) ? 'X' : 'O';

        if (choice == 1 && square[1] == '1')

            square[1] = mark;
        else if (choice == 2 && square[2] == '2')

            square[2] = mark;
        else if (choice == 3 && square[3] == '3')

            square[3] = mark;
        else if (choice == 4 && square[4] == '4')

            square[4] = mark;
```

```cpp
        else if (choice == 5 && square[5] == '5')


            square[5] = mark;
        else if (choice == 6 && square[6] == '6')


            square[6] = mark;
        else if (choice == 7 && square[7] == '7')


            square[7] = mark;
        else if (choice == 8 && square[8] == '8')


            square[8] = mark;
        else if (choice == 9 && square[9] == '9')


            square[9] = mark;
        else
        {
            cout<<"Invalid move ";


            player--;
            cin.ignore();
            cin.get();

        }
        i=checkwin();


        player++;
    }while(i==-1);
    board();
    if(i==1)


        cout<<"==>\aPlayer "<<--player<<" win ";
    else
        cout<<"==>\aGame draw";
```

```cpp
    cin.ignore();

    cin.get();

    return 0;

}


/*-------------------------------------------------------------

    FUNCTION TO RETURN GAME STATUS

    1 FOR GAME IS OVER WITH RESULT

    -1 FOR GAME IS IN PROGRESS

    O GAME IS OVER AND NO RESULT

-----------------------------------------------------------*/


int checkwin()

{

    if (square[1] == square[2] && square[2] == square[3])


        return 1;

    else if (square[4] == square[5] && square[5] == square[6])


        return 1;

    else if (square[7] == square[8] && square[8] == square[9])


        return 1;

    else if (square[1] == square[4] && square[4] == square[7])


        return 1;

    else if (square[2] == square[5] && square[5] == square[8])


        return 1;

    else if (square[3] == square[6] && square[6] == square[9])


        return 1;

    else if (square[1] == square[5] && square[5] == square[9])
```

```cpp
        return 1;

    else if (square[3] == square[5] && square[5] == square[7])


        return 1;

    else if (square[1] != '1' && square[2] != '2' && square[3] !=
'3'

                    && square[4] != '4' && square[5] != '5' &&
square[6] != '6'

                && square[7] != '7' && square[8] != '8' &&
square[9] != '9')


        return 0;

    else

        return -1;

}




/*---------------------------------------------------------

    FUNCTION TO DRAW BOARD OF TIC TAC TOE WITH PLAYERS MARK

---------------------------------------------------------------*/



void board()
{

    system("cls");

    cout << "\n\n\tTic Tac Toe\n\n";


    cout << "Player 1 (X)  -  Player 2 (O)" << endl << endl;

    cout << endl;


    cout << "     |     |     " << endl;

    cout << "  " << square[1] << "  |  " << square[2] << "  |  " <<
square[3] << endl;


    cout << "_____|_____|_____" << endl;

    cout << "     |     |     " << endl;
```

```cpp
    cout << "   " << square[4] << "  |   " << square[5] << "  |   " <<
square[6] << endl;


    cout << "_____|_____|_____" << endl;
    cout << "     |     |     " << endl;


    cout << "   " << square[7] << "  |   " << square[8] << "  |   " <<
square[9] << endl;


    cout << "     |     |     " << endl << endl;

}
```

OUTPUT:

```
      |     |
Player 1, enter a number:  7

        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


      |     |
   X  |  O  |  3
 _____|_____|_____
      |     |
   4  |  X  |  O
 _____|_____|_____
      |     |
   X  |  X  |  O
      |     |

Player 2, enter a number:  3

        Tic Tac Toe

Player 1 (X)  -  Player 2 (O)


      |     |
   X  |  O  |  O
 _____|_____|_____
      |     |
   4  |  X  |  O
 _____|_____|_____
      |     |
   X  |  X  |  O
      |     |

==>Player 2 win _
```