

Tic Tac Toe AI Approach

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Roll No.: 66

Code:

```
#include <iostream>
using namespace std;

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

char current_marker;
int current_player = 1;

void display()
{
    cout << "      " << board[0][0] << " | " << board[0][1] << " | " <<
board[0][2] << endl;
    cout << "      ----- \n";
    cout << "      " << board[1][0] << " | " << board[1][1] << " | " <<
board[1][2] << endl;
    cout << "      ----- \n";
    cout << "      " << board[2][0] << " | " << board[2][1] << " | " <<
board[2][2] << endl;
    cout << "      =====\n\n\n";
}

bool placeMarker(int slot)
{
    int row = slot / 3;
    int col;

    if (slot % 3 == 0)
    {
        row = row - 1;
        col = 2;
    }
    else
        col = (slot % 3) - 1;
```

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    if (board[row][col] != 'X' && board[row][col] != 'O')
    {
        board[row][col] = currenr_marker;
        return true;
    }
    else
        return false;
}

int winner()
{
    for (int i = 0; i < 3; i++)
    {
        if (board[i][0] == board[i][1] && board[i][1] == board[i][2])
            return current_player;
        if (board[0][i] == board[1][i] && board[1][i] == board[2][i])
            return current_player;
    }
    if (board[0][0] == board[1][1] && board[1][1] == board[2][2])
        return current_player;
    if (board[0][2] == board[1][1] && board[1][1] == board[2][0])
        return current_player;

    return 0;
}

void swapPlayer()
{
    if (currenr_marker == 'X')
        currenr_marker = 'O';
    else
        currenr_marker = 'X';

    if (current_player == 1)
        current_player = 2;
    else
        current_player = 1;
}

```

```

void start()
{

    int won;
    cout << "Select your Agent( X || O): ";
    char markp1;
    cin >> markp1;

    currenr_marker = markp1;

    display();

    for (int i = 0; i < 9; i++)
    {
        cout << "Its Player " << currenr_marker << "'s turn. Enter your
position: ";
        int pos;
        cin >> pos;
        if (pos < 1 || pos > 9)
        {
            cout << "\n\n\nSike That's the Wrong Number!!!\n\n\n";
            i--;
            continue;
        }
        if (!placeMarker(pos))
        {
            cout << "\n\n\nSike That's the Wrong Number!!!\n\n\n";
            i--;
            continue;
        }
        display();
        won = winner();

        if (won == 1)
        {
            cout << "Congrates!, Player " << currenr_marker << "
Won!!!\n\n\n";
            break;
        }
        if (won == 2)

```

```

        {
            cout << "Congrates!, Player " << currenr_marker << "
Won!!!\n\n\n";
            break;
        }
        swapPlayer();
    }

    if (won == 0)
        cout << "XO DRAW!!!\n\n\n";
}

int main()
{
    start();
    return 0;
}

```

Output:

```

bhavin@predator:~/VIT/CS3202 ARTIFICIAL INTELLIGENCE/Assignment No.1$ ./Non-AI-main
Select your Agent( X || O): X
  1 | 2 | 3
  ---
  4 | 5 | 6
  ---
  7 | 8 | 9
  =====

Its Player X's turn. Enter your position: 5
  1 | 2 | 3
  ---
  4 | X | 6
  ---
  7 | 8 | 9
  =====

Its Player O's turn. Enter your position: 1
  0 | 2 | 3
  ---
  4 | X | 6
  ---
  7 | 8 | 9
  =====

Its Player X's turn. Enter your position: 3
  0 | 2 | X
  ---
  4 | X | 6
  ---
  7 | 8 | 9
  =====

Its Player O's turn. Enter your position: 4

```

Its Player X's turn. Enter your position: 3

```
0 | 2 | X
-----
4 | X | 6
-----
7 | 8 | 9
=====
```

Its Player O's turn. Enter your position: 4

```
0 | 2 | X
-----
0 | X | 6
-----
7 | 8 | 9
=====
```

Its Player X's turn. Enter your position: 7

```
0 | 2 | X
-----
0 | X | 6
-----
X | 8 | 9
=====
```

Congrates!, Player X Won!!!

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