

## Tic Tac Toe

```
char square[10] = {'0', '1', '2', '3', '4', '5', '6', '7', '8', '9'};
int choice, player // variable declared globally.
```

```
int checkForWin();
void displayBoard();
void markBoard(char mark);
```

// functions are declared globally.

choice	1, 2, 3, 4	player	1, 2, 3, 4, 7, 8, 9
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## Int main

game status	-1, -2, -3, -4, -5, -6, -7, -8, -9	mark	X, O, X, O, X	Player	1, 2, 3, 4, 7, 8, 9
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displayBoard(); do loop

Tic Tac Toe

Player 1 (X) - Player 2 (O)

0)

1 | 2 | 3

4 | 5 | 6

7 | 8 | 9

// initially 1)  
this is  
displayed

X | 2 | 3

4 | 5 | 6

7 | 8 | 9

1 2)

player = (player % 2) ? 1 : 2

player = (1 % 2) ? 1 : 2

player == 0 X

(does not satisfy condition)

Player 1 enter a number

scanf("%d", &amp;choice);

choice = 1

mark = (player == 1) ? 'X' : 'O';

mark = 'X'

Player++ : Player == 2



2)  $\begin{array}{|c|c|c|c|} \hline X & 1 & 0 & 1 & 3 \\ \hline 4 & 1 & 5 & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 4 & 1 & 5 & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline X & 1 & 0 & 1 & 3 \\ \hline \end{array}$

3)  $\begin{array}{|c|c|c|c|} \hline 4 & 1 & X & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

4)  $\begin{array}{|c|c|c|c|} \hline X & 1 & 0 & 1 & 0 \\ \hline 4 & 1 & X & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 4 & 1 & X & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 7 & 1 & 8 & 1 & 9 \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline X & 1 & 0 & 1 & 0 \\ \hline \end{array}$

5)  $\begin{array}{|c|c|c|c|} \hline 4 & 1 & X & 1 & 6 \\ \hline 7 & 1 & 8 & 1 & X \\ \hline \end{array}$

$\begin{array}{|c|c|c|c|} \hline 7 & 1 & 8 & 1 & X \\ \hline \end{array}$

Player 1 wins

Player 2 enter a number

2) choice = 2

mark = (2 == 1) & 2 != 1 hence  
mark = 'O', Player++ ∴ Player = 3

3) Player = (3 % 2) = 1

Player 1 enter a number

choice = 5

mark = (5 == 1) = 'X'

Player++ ∴ Player = 2

4) Player = (2 % 2) = 0

(does not satisfy condition)

∴ Player = 2

Player 2 enter a number

choice = 3

mark = (3 == 1) = 'O'  
(condition not satisfied)

Player++ ∴ Player = 3

5) Player = (3 % 2) = 1

Player 1 enter a number

choice = 9

mark = (9 == 1) = 'X'

function > void markBoard(char mark)

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

square[1] = mark ✓

2) if (choice == 2 && square[2] == '2')

square[2] = mark ✓

3) if (choice == 5 && square[5] == '5')

square[5] = mark ✓

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

square[3] = mark ✓

5) if (choice == 9 && square[9] == '9'), square[9] = mark ✓



int checkForWin()

return value

Int

returnValue

<del>0</del> , <del>1</del> , <del>1</del> , <del>1</del> , <del>1</del>
1

- 1) return return Value = -1 ✓
- 2) return return Value = -1 ✓
- 3) return return Value = -1 ✓
- 4) return return value = -1 ✓
- 5) if (square[1] == square[5]  
&& square[5] == square[9])  
return Value = +1 ✓

while (game status == -1);

1) ✓, 2) ✓, 3) ✓, 4) ✓

5) Player 1 win ✓