TIC TAC TOE APPLICATION

A PROJECT REPORT

Submitted in partial fulfillment of the requirements for the award of the degree of

Bachelor of Technology

IN

COMPUTER SCIENCE AND ENGINEERING

BY

21331A0514(B.SAI BALAJI)

21331A0547(G.SUSMITHA)

21331A0549(G.ANUSHA)

21331A0556(G.VARSHITH VARMA)

21331A0557(G.SAI HEMANTH KUMAR)

22335A0504(B.SRINIVAS SAI SARAN TEJA)

Under the Supervision of

Mr. ANURAG DE

Assistant Professor

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

MVGR COLLEGE OF ENGINEERING (Autonomous)

VIZIANAGARAM-535005, AP (INDIA)

(Accredited by NBA, NAAC, and Permanently Affiliated to Jawaharlal Nehru Technological University Kakinada)

CERTIFICATE

This is to certify that the project report entitled **TIC TAC TOE APPPLICATION** being submitted by B.Sai Balaji, **G.Susmitha, G.Anusha, G.Varshit Varma, G.Sai Hemanth Kumar and B.Srinivas Sai Saran Teja** bearing registered numbers **21331A0514, 21331A0547, 21331A0549, 21331A0556** , **21331A0557, 22335A0504** respectively, in partial fulfillment for the award of the degree of "**Bachelor of Technology" in Computer Science and Engineering** is a record of bonafide work done by them under my supervision during the academic year 2022-2023.

Dr. P Ravi Kiran Varma	**Mr.Anurag De**
Head of the Department	Assistant Professor
Dept. of Computer Science & Engg,	Dept. of Computer Science & Engg,

ACKNOWLEDGEMENTS

We place on record and warmly acknowledge the continuous encouragement, invaluable supervision, timely suggestions and inspired guidance offered by our guide **Mr. Anurag De** Asst. Professor, Department of Computer Science and Engineering MVGR College of Engineering in bringing this report to a successful completion.

We consider it out privilege to express our deepest gratitude to **Dr. P Ravi Kiran Varma**, Head of the Department for his valuable suggestions and constant motivation that greatly helped the project work to get successfully completed.

We are privileged to express our profound gratitude to **Mr. R Ravi Kumar** Asst. Professor for extending his utmost support and cooperation in providing all the provisions for the successful completion of the project. We sincerely thank all the members of the staff in the Department of Computer Science & Engineering for their sustained help in our pursuits. We thank all those who contributed directly or indirectly in successfully carrying out this work.

INDEX

Aim :

To implement Tic-Toc-Toe game with two real players using Data Structure in C.

Abstract :

Tic-Toc-Toe Game is a game played by two participants on the grid of 3 x 3. A special symbol('X' or 'O') is assigned to each participant to indicate that the slot is covered by the respective participant. The winner of the game is the participant who first cover a horizontal / a vertical / a diagonal row of the board having only their symbols.

RULES OF THE GAME :

The following are the Rules to win this game :

1. The player must occupy any 3 continueous positions which can be in the form of : \n");

    1.1. Horizontal

    1.2. Vertical

    1.3. Diagonal

2. If in case any user entered the occupied position as input, then it is an invalid move.\n But he will get another chance upto when he entered an unoccupied position as input.

3. If one user selected a position, then he must wait to get his chance unitl the other user selected his position.

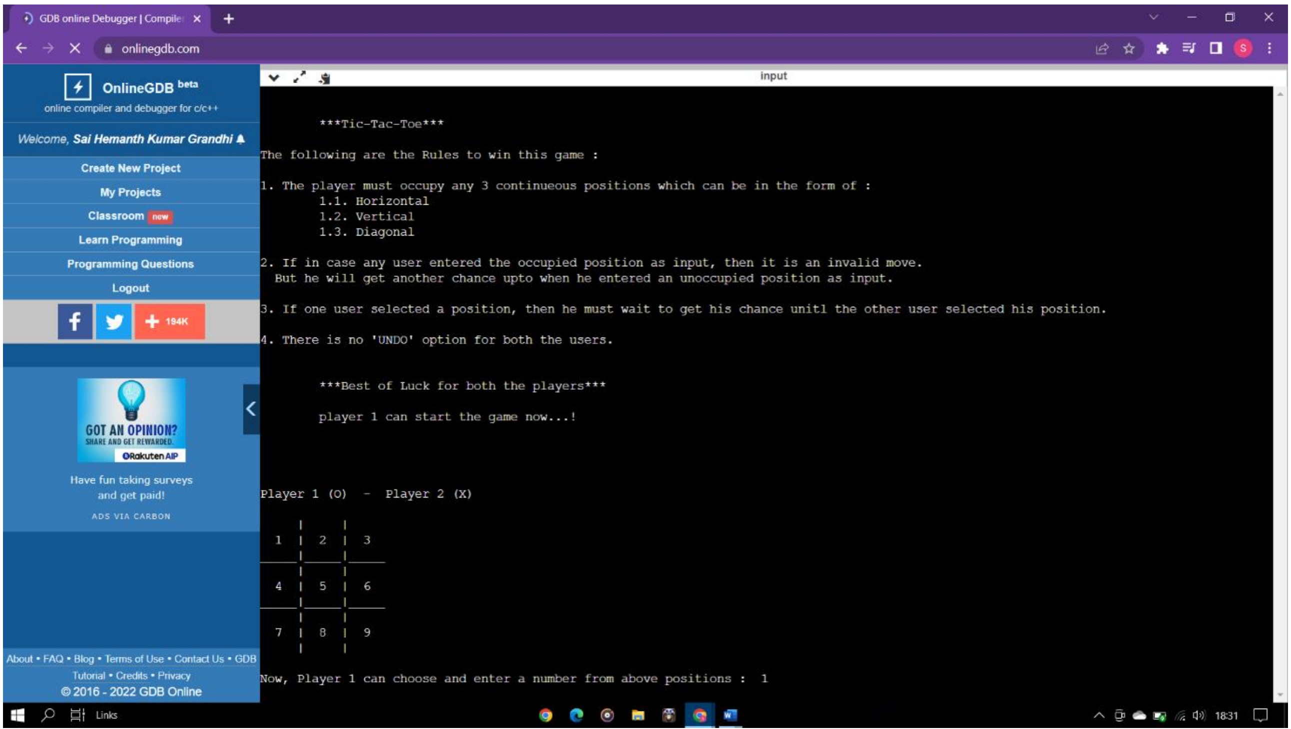
4. There is no 'UNDO' option for both the users.

PROGRAM :

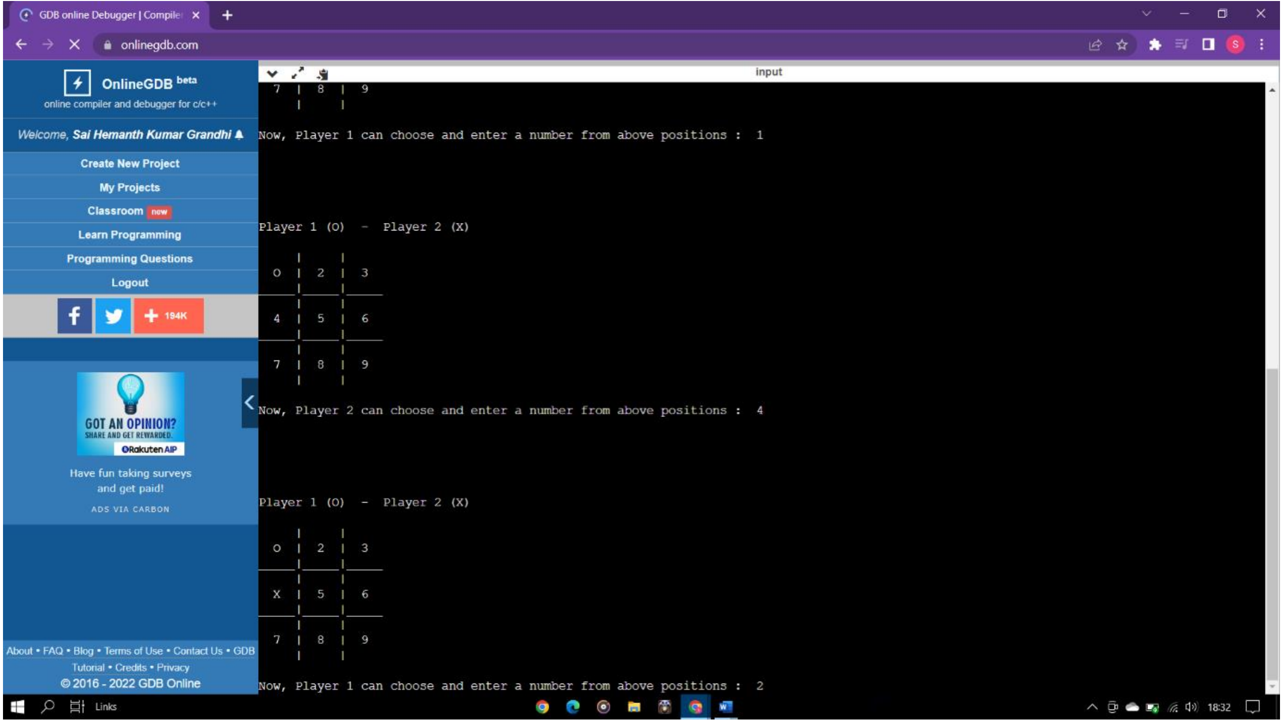
```
#include <stdio.h>

#include <conio.h>

char square[10] = {'0', '1', '2', '3', '4', '5', '6', '7', '8', '9' };

int checkwin();

void board();

void main() {

  int player = 1, i, choice;

  char mark;

  printf("\n\n\t***Tic-Tac-Toe***\n\n");

  printf("The following are the Rules to win this game : \n");

  printf("\n1. The player must occupy any 3 continueous positions which can be in the form of : \n");

  printf("\t1.1. Horizontal\n\t1.2. Vertical\n\t1.3. Diagonal\n");

  printf("\n2. If in case any user entered the occupied position as input, then it is an invalid move.\n
But he will get another chance upto when he entered an unoccupied position as input.\n");

  printf("\n3. If one user selected a position, then he must wait to get his chance unitl the other user
selected his position.\n");

  printf("\n4. There is no 'UNDO' option for both the users.\n");

  printf("\n\n\t***Best of Luck for both the players***\n\n");

  printf("\tplayer 1 can start the game now...!");

  do {

    board();

    player = (player % 2) ? 1 : 2;

    printf("Now, Player %d can choose and enter a number from above positions :  ", player);

    scanf("%d", &choice);

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

    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;
    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 {
        printf("\n'%d' is an Invalid move!\nPlease try again with another position.",choice);
        player--;
    }
    i = checkwin();
    player++;
}while (i ==  - 1);
board();
printf("Match has completed.\nThe result is : \n\n");
if (i == 1) {
    printf("Sorry for saying this.\n==>Player '%d' lost the match.\n\n",player);
    printf("Congratulations Player '%d'\n", --player);
    printf("==>Player %d Wins the match.\n", player);
}
else {   //i == 0
    printf("==>Game draw");
    printf("Both players gave tough compition.");
    }
}
/*  The following are the condition explaination for checkwin() :
    1. '1' for game is over with win result
    2. '-1' for game is in progress
    3. 'O' for game is draw    */
int checkwin() {
    if ( square[1] == square[2] && square[2] == square[3] || square[4] == square[5] && square[5] ==
square[6] || square[7] == square[8] && square[8] == square[9] || square[1] == square[4] &&
square[4] == square[7] || square[2] == square[5] && square[5] == square[8] || square[3] ==
square[6] && square[6] == square[9] || square[1] == square[5] && square[5] == square[9] ||
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;
}
void board() {
    printf("\n\n\n\n\nPlayer 1 (O)  -  Player 2 (X)\n\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c \n", square[1], square[2], square[3]);
    printf("_____|_____|_____\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c \n", square[4], square[5], square[6]);
    printf("_____|_____|_____\n");
    printf("     |     |     \n");
    printf("  %c  |  %c  |  %c \n", square[7], square[8], square[9]);
    printf("     |     |     \n\n");
}
```

OUTPUT :

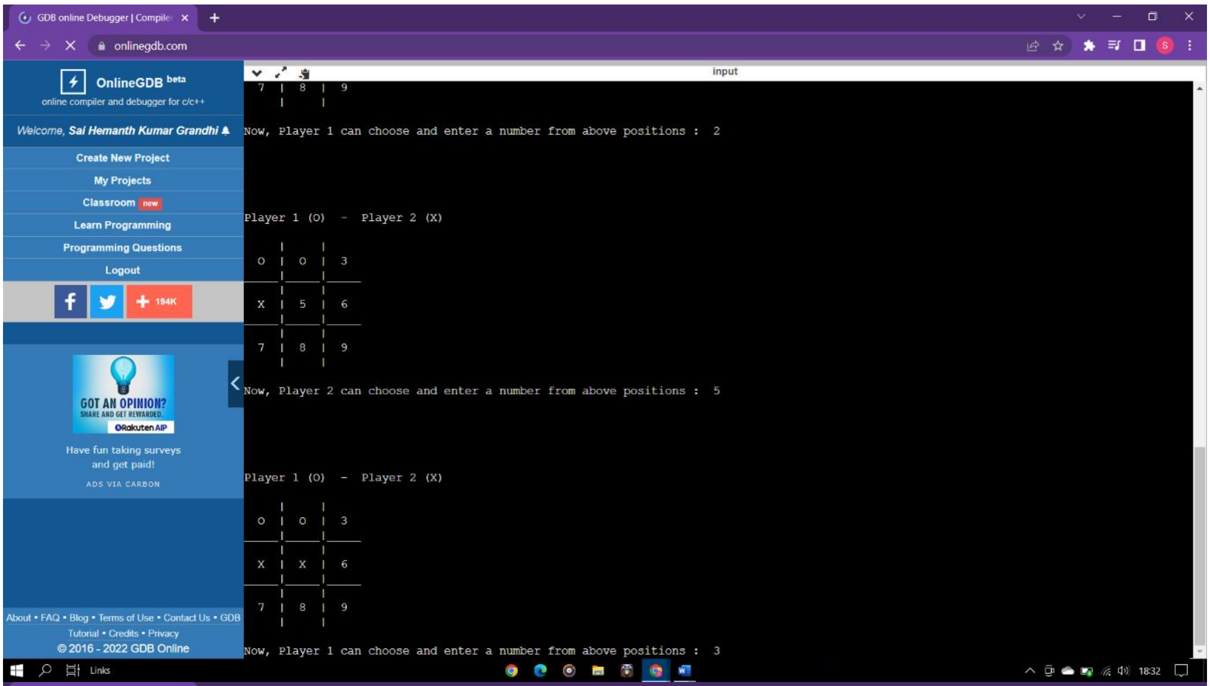
CASE-1 : ‘O’ wins!


GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED. Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:31

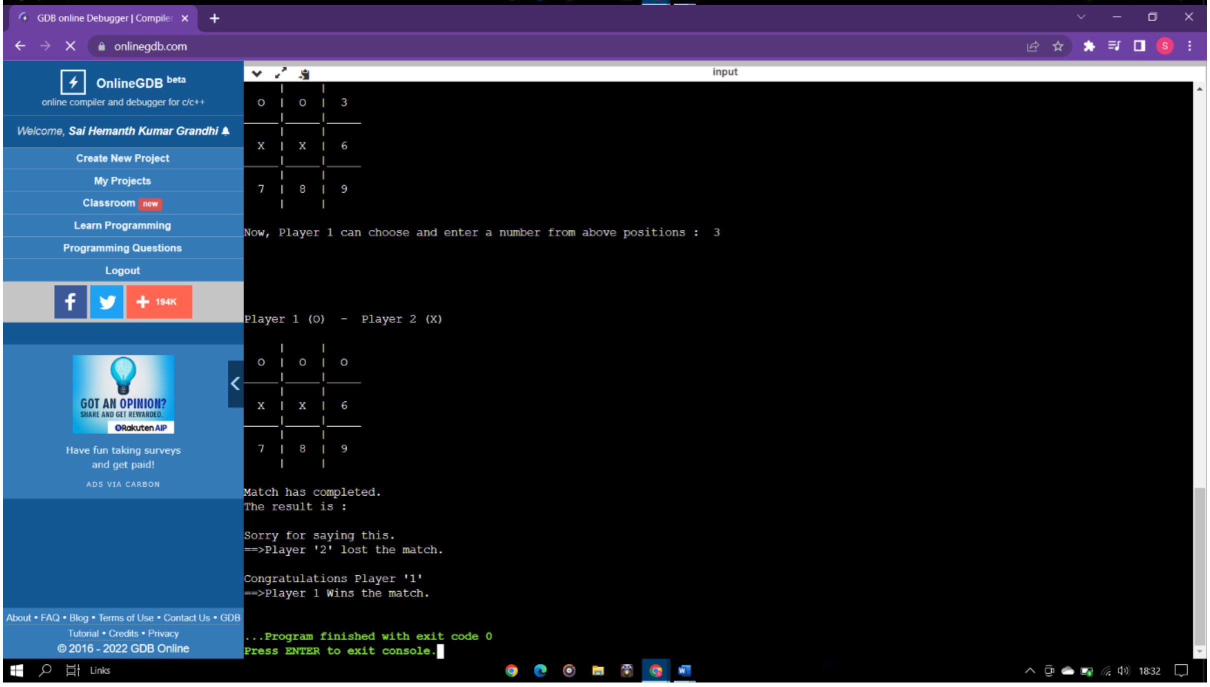
```
        ***Tic-Tac-Toe***

The following are the Rules to win this game :

1. The player must occupy any 3 continuous positions which can be in the form of :
        1.1. Horizontal
        1.2. Vertical
        1.3. Diagonal

2. If in case any user entered the occupied position as input, then it is an invalid move.
  But he will get another chance upto when he entered an unoccupied position as input.

3. If one user selected a position, then he must wait to get his chance unitl the other user selected his position.

4. There is no 'UNDO' option for both the users.


        ***Best of Luck for both the players***

        player 1 can start the game now...!



Player 1 (O)  -  Player 2 (X)

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

Now, Player 1 can choose and enter a number from above positions :  1
```


GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED. Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:32

```
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  1



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  4  |  5  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  4



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  5  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  2
```

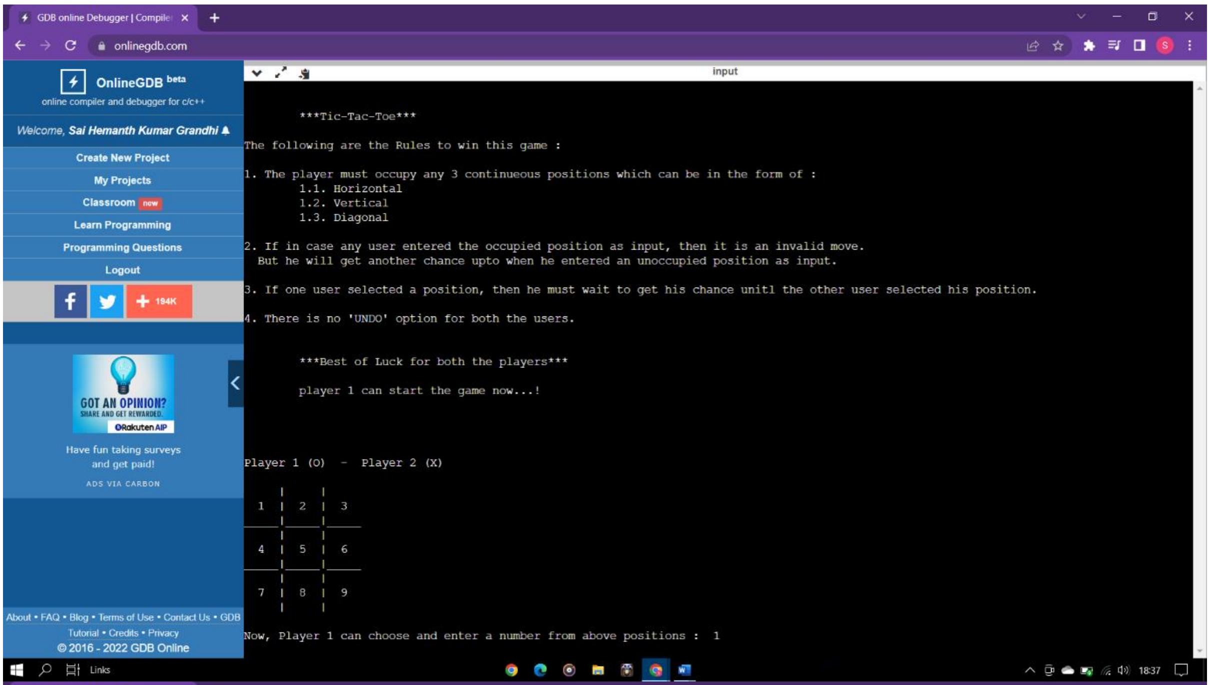

GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:32

```
 7  |  8  |  9
    |     |

Now, Player 1 can choose and enter a number from above positions :  2



Player 1 (O)  -  Player 2 (X)

    |     |
 O  |  O  |  3
____|_____|_____
    |     |
 X  |  5  |  6
____|_____|_____
    |     |
 7  |  8  |  9
    |     |

Now, Player 2 can choose and enter a number from above positions :  5



Player 1 (O)  -  Player 2 (X)

    |     |
 O  |  O  |  3
____|_____|_____
    |     |
 X  |  X  |  6
____|_____|_____
    |     |
 7  |  8  |  9
    |     |

Now, Player 1 can choose and enter a number from above positions :  3
```

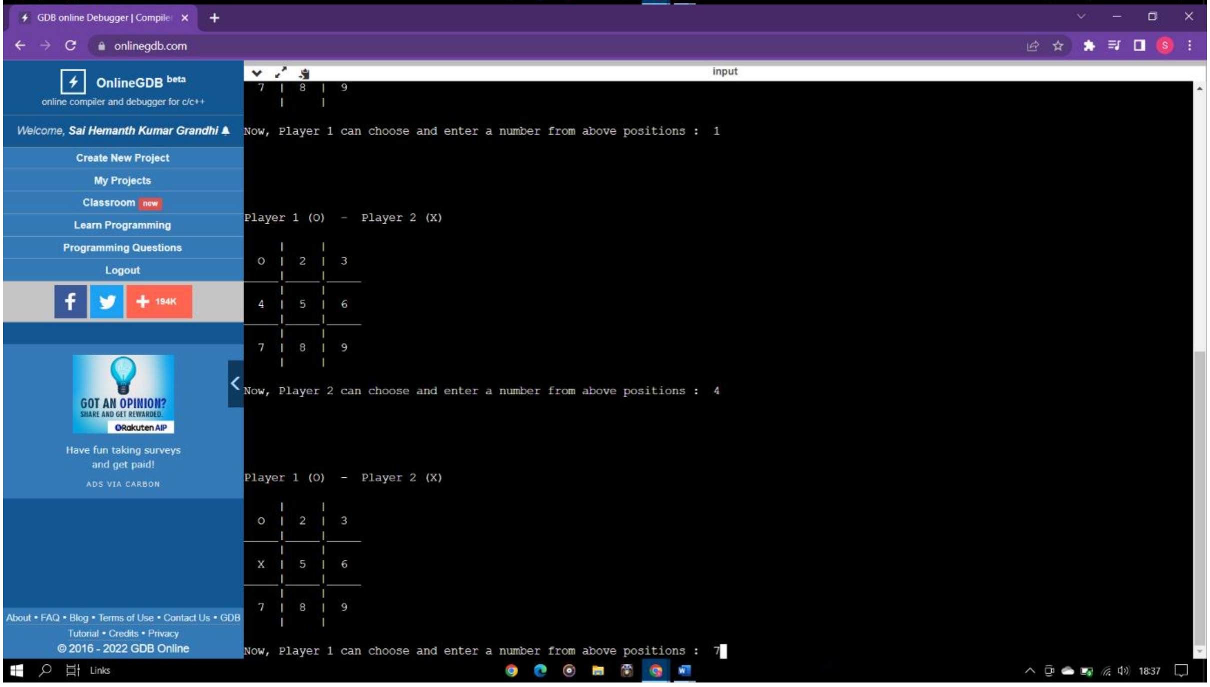

GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:32

```
    |     |
 O  |  O  |  3
____|_____|_____
    |     |
 X  |  X  |  6
____|_____|_____
    |     |
 7  |  8  |  9
    |     |

Now, Player 1 can choose and enter a number from above positions :  3



Player 1 (O)  -  Player 2 (X)

    |     |
 O  |  O  |  O
____|_____|_____
    |     |
 X  |  X  |  6
____|_____|_____
    |     |
 7  |  8  |  9
    |     |

Match has completed.
The result is :

Sorry for saying this.
==>Player '2' lost the match.

Congratulations Player '1'
==>Player 1 Wins the match.


...Program finished with exit code 0
Press ENTER to exit console.
```

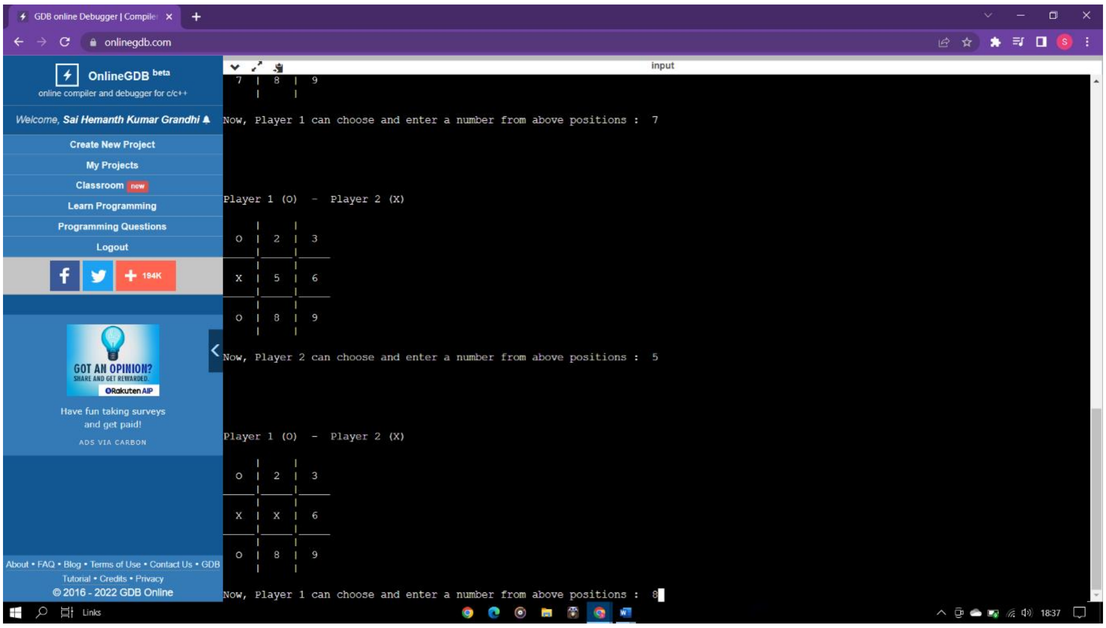
CASE-2: ‘X’ wins!



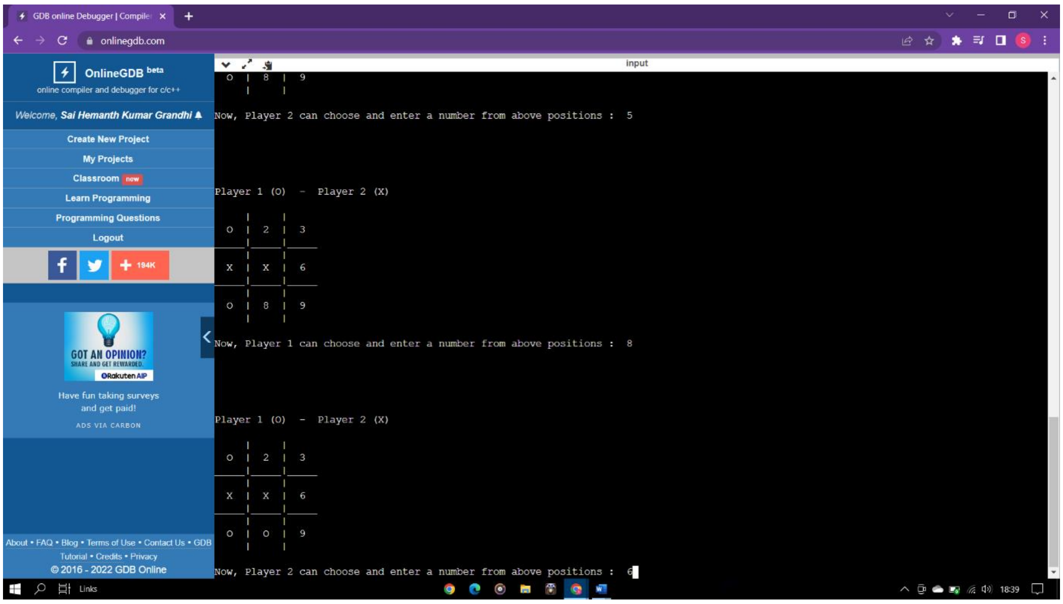
```
        ***Tic-Tac-Toe***

The following are the Rules to win this game :

1. The player must occupy any 3 continuous positions which can be in the form of :
        1.1. Horizontal
        1.2. Vertical
        1.3. Diagonal

2. If in case any user entered the occupied position as input, then it is an invalid move.
  But he will get another chance upto when he entered an unoccupied position as input.

3. If one user selected a position, then he must wait to get his chance unitl the other user selected his position.

4. There is no 'UNDO' option for both the users.


        ***Best of Luck for both the players***

        player 1 can start the game now...!



Player 1 (O)  -  Player 2 (X)

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

Now, Player 1 can choose and enter a number from above positions :  1
```



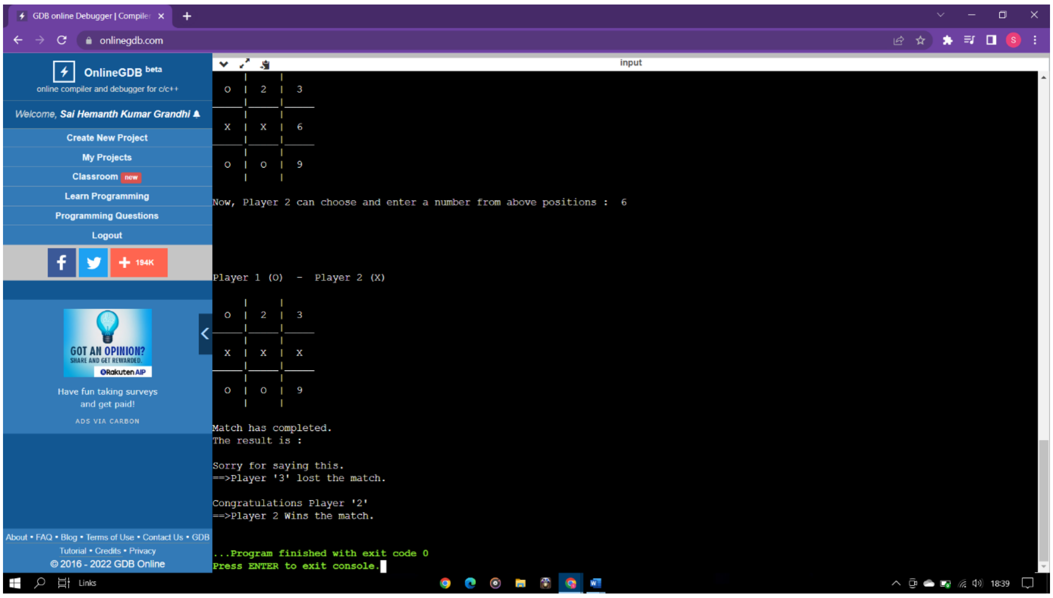
```
 7 | 8 | 9
   |   |

Now, Player 1 can choose and enter a number from above positions :  1



Player 1 (O)  -  Player 2 (X)

   |   |
 O | 2 | 3
___|___|___
   |   |
 4 | 5 | 6
___|___|___
   |   |
 7 | 8 | 9
   |   |

Now, Player 2 can choose and enter a number from above positions :  4



Player 1 (O)  -  Player 2 (X)

   |   |
 O | 2 | 3
___|___|___
   |   |
 X | 5 | 6
___|___|___
   |   |
 7 | 8 | 9
   |   |

Now, Player 1 can choose and enter a number from above positions :  7
```



```
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  7



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  5  |  6
_____|_____|_____
     |     |
  O  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  5



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  O  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  8
```

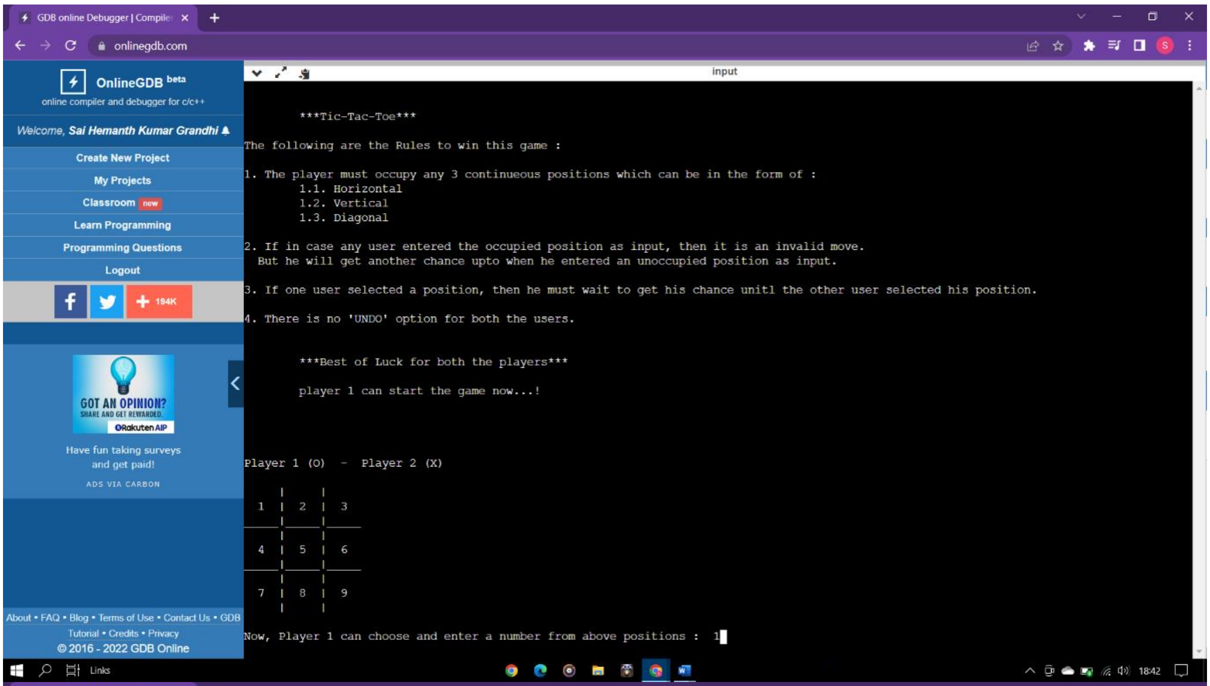


```
  O  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  5



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  O  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  8



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  O  |  O  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  6
```

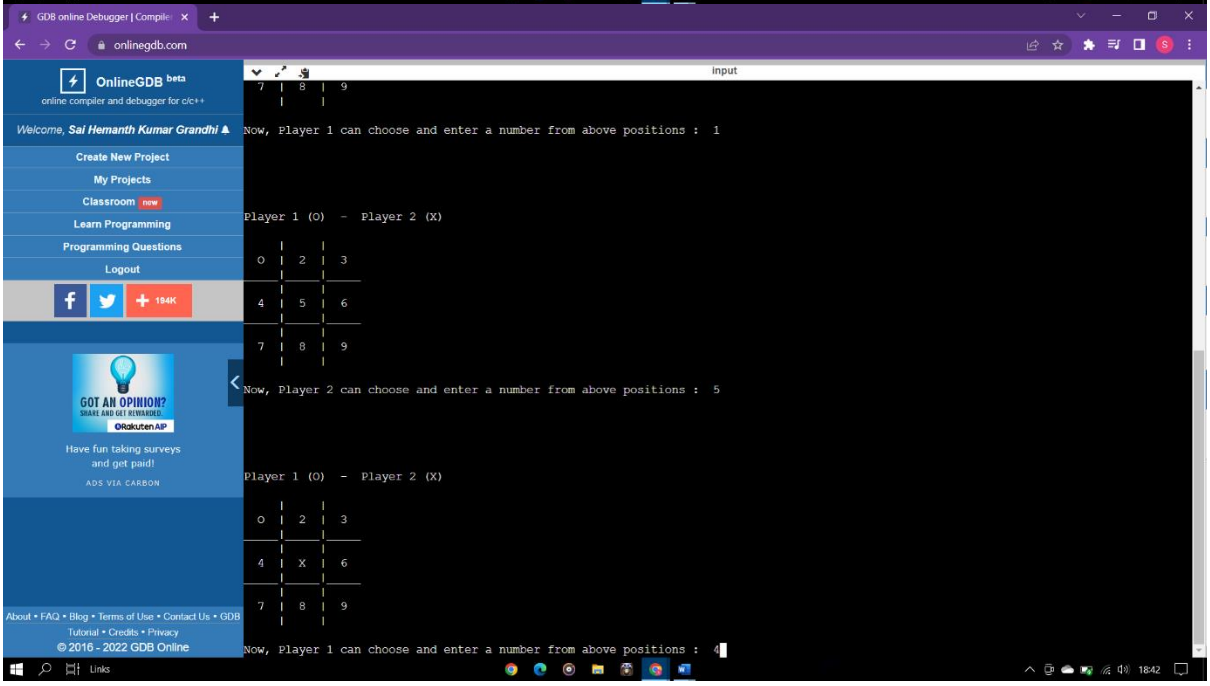


```
     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  X  |  6
_____|_____|_____
     |     |
  O  |  O  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  6



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  X  |  X  |  X
_____|_____|_____
     |     |
  O  |  O  |  9
     |     |

Match has completed.
The result is :

Sorry for saying this.
==>Player '3' lost the match.

Congratulations Player '2'
==>Player 2 Wins the match.


...Program finished with exit code 0
Press ENTER to exit console.
```

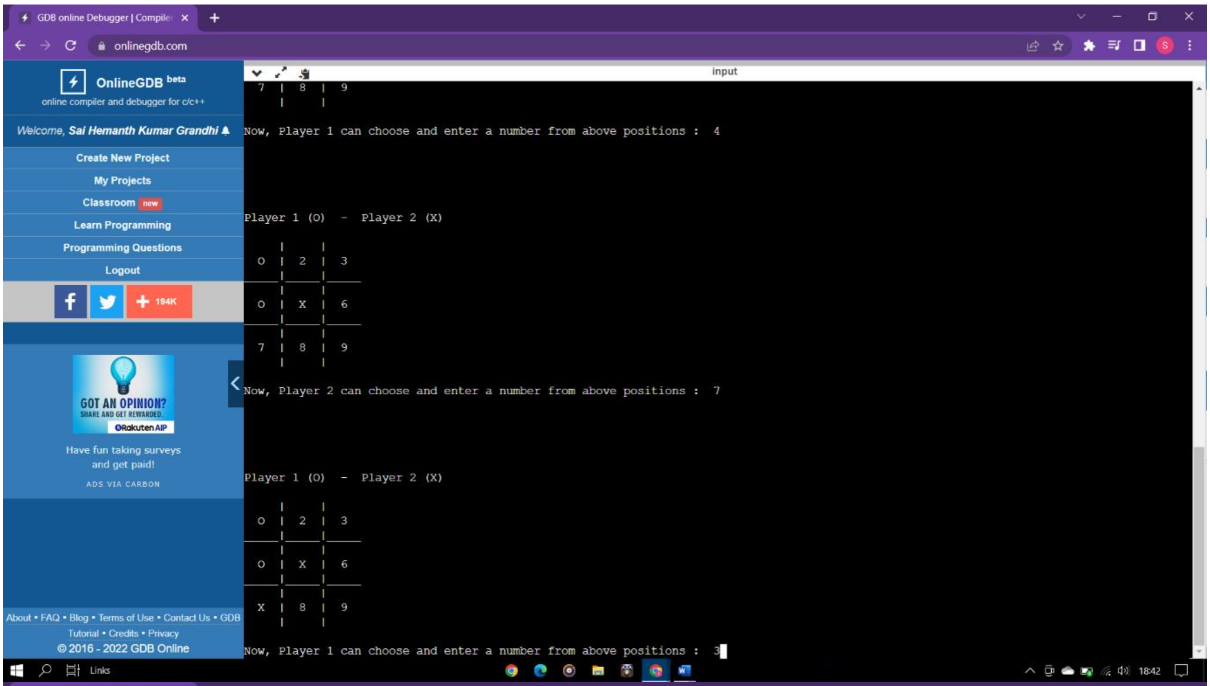
CASE-3 : Tie for both!


GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom
Learn Programming
Programming Questions
Logout
input
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
18:42

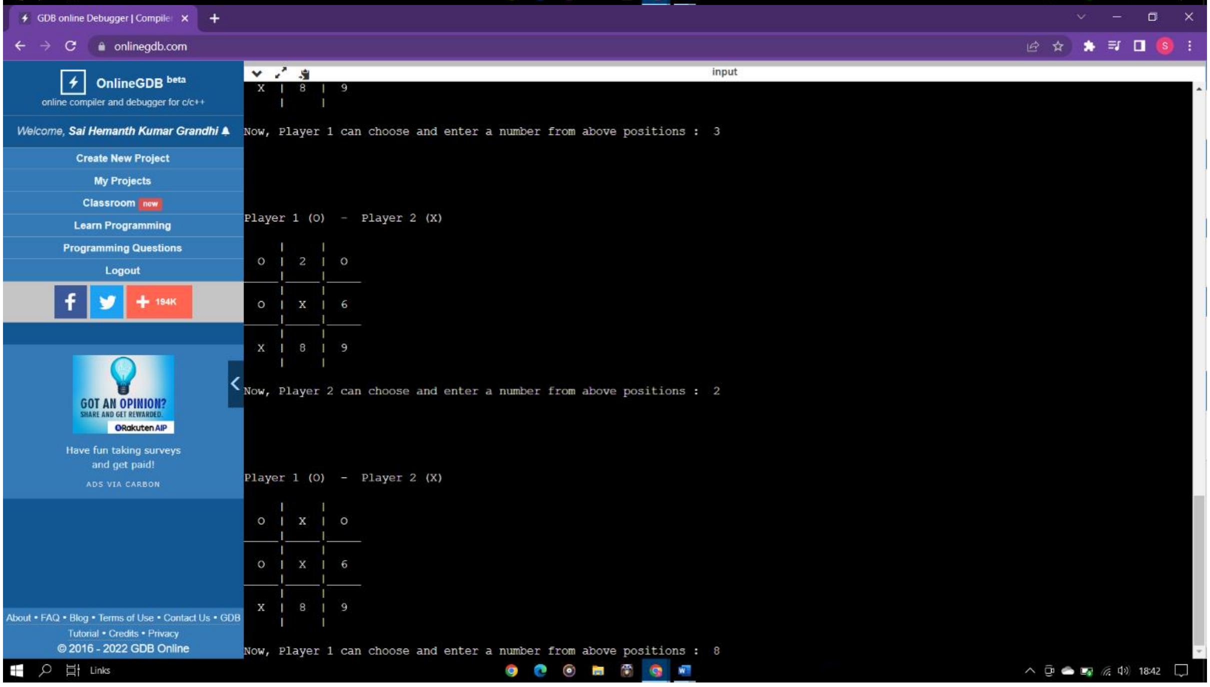
```
        ***Tic-Tac-Toe***

The following are the Rules to win this game :

1. The player must occupy any 3 continueous positions which can be in the form of :
        1.1. Horizontal
        1.2. Vertical
        1.3. Diagonal

2. If in case any user entered the occupied position as input, then it is an invalid move.
  But he will get another chance upto when he entered an unoccupied position as input.

3. If one user selected a position, then he must wait to get his chance unitl the other user selected his position.

4. There is no 'UNDO' option for both the users.


        ***Best of Luck for both the players***

        player 1 can start the game now...!



Player 1 (O)  -  Player 2 (X)

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

Now, Player 1 can choose and enter a number from above positions :  1
```


GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom
Learn Programming
Programming Questions
Logout
input
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
18:42

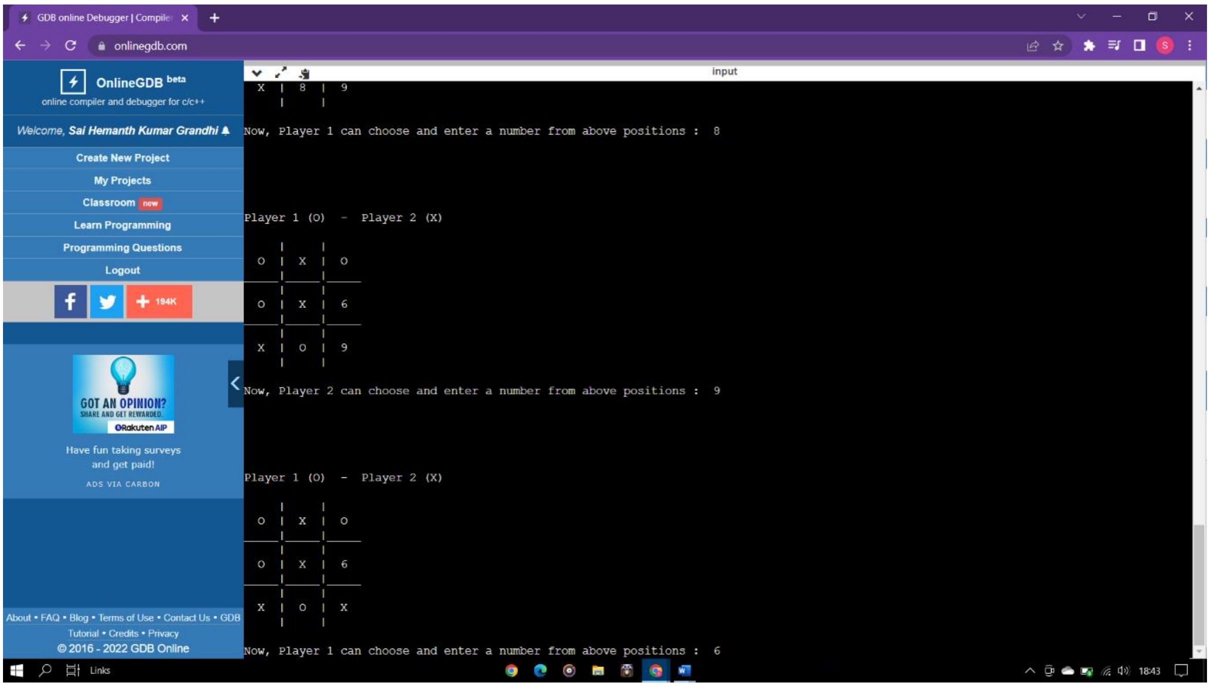
```
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  1



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  4  |  5  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  5



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  4  |  X  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  4
```


GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:42

```
  7  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  4



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  O  |  X  |  6
_____|_____|_____
     |     |
  7  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  7



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  3
_____|_____|_____
     |     |
  O  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  3
```

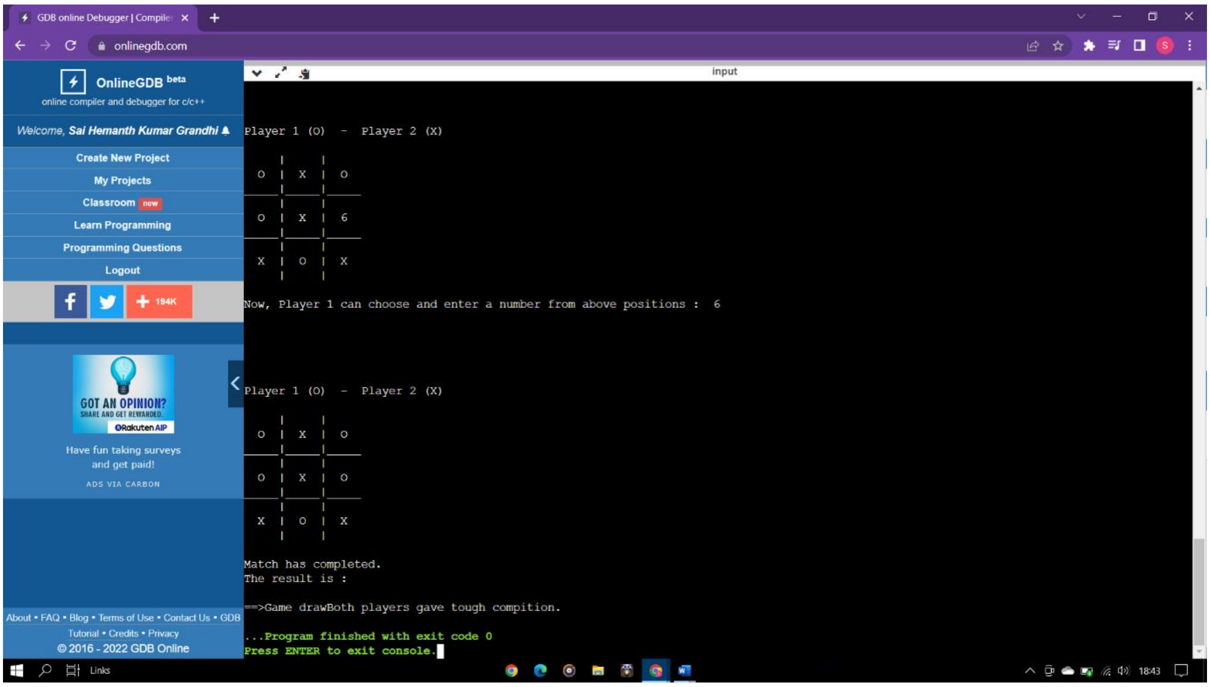

GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:42

```
  X  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  3



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  2  |  O
_____|_____|_____
     |     |
  O  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |

Now, Player 2 can choose and enter a number from above positions :  2



Player 1 (O)  -  Player 2 (X)

     |     |
  O  |  X  |  O
_____|_____|_____
     |     |
  O  |  X  |  6
_____|_____|_____
     |     |
  X  |  8  |  9
     |     |

Now, Player 1 can choose and enter a number from above positions :  8
```



GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:43

```
   X  |  8  |  9
      |     |

Now, Player 1 can choose and enter a number from above positions :  8



Player 1 (O)  -  Player 2 (X)

      |     |
   O  |  X  |  O
 _____|_____|_____
      |     |
   O  |  X  |  6
 _____|_____|_____
      |     |
   X  |  O  |  9
      |     |

Now, Player 2 can choose and enter a number from above positions :  9



Player 1 (O)  -  Player 2 (X)

      |     |
   O  |  X  |  O
 _____|_____|_____
      |     |
   O  |  X  |  6
 _____|_____|_____
      |     |
   X  |  O  |  X
      |     |

Now, Player 1 can choose and enter a number from above positions :  6
```



GDB online Debugger | Compiler
onlinegdb.com
OnlineGDB beta
online compiler and debugger for c/c++
Welcome, Sai Hemanth Kumar Grandhi
Create New Project
My Projects
Classroom new
Learn Programming
Programming Questions
Logout
194K
GOT AN OPINION? SHARE AND GET REWARDED.
Rakuten AIP
Have fun taking surveys and get paid!
ADS VIA CARBON
About • FAQ • Blog • Terms of Use • Contact Us • GDB Tutorial • Credits • Privacy
© 2016 - 2022 GDB Online
input
Links
18:43

```


Player 1 (O)  -  Player 2 (X)

      |     |
   O  |  X  |  O
 _____|_____|_____
      |     |
   O  |  X  |  6
 _____|_____|_____
      |     |
   X  |  O  |  X
      |     |

Now, Player 1 can choose and enter a number from above positions :  6



Player 1 (O)  -  Player 2 (X)

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

Match has completed.
The result is :

==>Game drawBoth players gave tough compition.

...Program finished with exit code 0
Press ENTER to exit console.
```

INFERENCE :

For Tic-tac-toe, a simple upper bound for the size of the state space is 39 = 19,683. (There are three states for each cell and nine cells.) This count includes many illegal positions, such as a position with five crosses and no noughts, or a position in which both players have a row of three. A more careful count, removing these illegal positions, gives 5,478. And when rotations and reflections of positions are considered identical, there are only 765 essentially different positions.To bound the game tree, there are 9 possible initial moves, 8 possible responses, and so on, so that there are at most 9! or 362,880 total games. However, games may take less than 9 moves to resolve, and an exact enumeration gives 255,168 possible games. When rotations and reflections of positions are considered the same, there are only 26,830 possible games. The computational complexity of tic-tac-toe depends on how it is generalized. A natural generalization is to m,n,k-games: played on an *m* by *n* board with winner being the first player to get *k* in a row.

OBSERVATION :

While making a Tic Tac Toe game using C language, it is important to make use of arrays. The Xs and Os are kept in different arrays, and they are passed between several functions in the code to keep track of how the game goes. With the code here you can play the game choosing either X or O against the computer. This Tic Tac Toe C game is such that you will have to input a numerical character, from 1 to 9, to select a position for X or O into the space you want. For example: if you are playing with O and you input 2, the O will go to first row – second column. If you want to place O in third row – first column, you have to enter 7. And, it is similar for the other positions. This has been done this way because it is just a console application without graphics designed in C language. The gotoxy function has been used to print text in any part of the screen.

REFERENCE :

- http://www.cprogrammingnotes.com/question/tic-tac-toe-game.html
- http://www.java2s.com/Code/C/Data-Type/AsimpleTicTacToegame.htm
- https://stackoverflow.com/questions/53057883/creating-a-tic-tac-toe-program-using-a-2-d-array-and-functions-in-c
- https://stackoverflow.com/questions/54675993/tic-tac-toe-in-c-using-a-2d-character-array
- https://stackoverflow.com/questions/39945881/java-tic-tac-toe-game-using-2-dimensional-array
- https://www.mathcounts.org/sites/default/files/Tic-Tac-Toe.pdf
- https://www.geeksforgeeks.org/minimax-algorithm-in-game-theory-set-3-tic-tac-toe-ai-finding-optimal-move/