TIC TAC TOE

**Submitted by:**  **Submitted to:**

Subhajit Das Mrs. Shipra Sondhi Ranjan

Roll No.: (Computer Science Teacher)

D.A.V. Public School

Rajendra Nagar, Sahibabad

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***CERTIFICATE***

It is hereby certified that the Project Report of Computer Science entitled “Tic Tac Toe” is submitted by Subhajit Das, a student of PCM with Computer Science of DAV Public School. It has been found satisfactory and hereby approved for submission.

Mrs. Shipra Sondhi Ranjan.

Mrs. Shipra Sondhi Ranjan Date:18-11-2021

(Computer Science Teacher)

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5. ***INTRODUCTION:***

In past few years, covid has restricted the lives of people. It has been only the family board games and TV shows which unites us. One such game is Tic Tac Toe. We all have played it in our childhood. This project is also game of Tic Tac Toe. The python libraries used are: - pygame, sys, numpy, random, sqlite3.

This is a two-player game. Both players are required to choose a symbol either ‘X’ or ‘O’. Same symbol cannot be selected. This program assigns player 1 ‘X’ and player 2 ‘O’. The board consists of 9 squares. The basic menu to obtain scoreboard, reset the table, and exit appears every time in the output screen.

***Basic Rules***

1. Both players get a chance to mark their symbol on any square they desire.
2. The chance to mark square is given alternatively (that is firstly player 1 marks his/her square thereafter player 2 marks his/her square and then again player 1 and this continues).
3. The first player to have a row/column/diagonal with all his/her symbols wins the game.
4. ***OBJECTIVE:***
5. This project saves the effort to search for the pen and paper to play the game.
6. It can be used to play the multiple times and the table need not to be hand-drawn again and again.
7. The scoreboard is maintained by this program itself and reduces ones’ effort to remember it.
8. This program also can change the colour of the background of the board.
9. ***DATA STRUCTURE:***

Scoreboard-

This table contains the score of the played rounds in the program Tic Tac Toe.

|  |  |  |  |
| --- | --- | --- | --- |
| **Attribute** | **Data types** | **Size** | **Constraints** |
| S\_no | Integer | 4 bytes | Primary Key, Autoincrement |
| Player\_1 | Varchar | 4 bytes | Not null |
| Player\_2 | Varchar | 4 bytes | Not null |

1. ***PROCESS LOGIC:***

***Functions used:***

1. check\_win

Checking *columns with same symbols*

TRUE

Returns True

FALSE

Returns True

Checking *rows* with same symbols

TRUE

FALSE

Returns True

Checking *back diagonal* with same symbols

Checking *main diagonal*with same symbols

Returns False

FALSE

FALSE

TRUE

TRUE

Returns True

Returns True

Returns True

1. database\_eval

Winning player (i.e. either 1 or 2) is held by player variable.

Checking player (variable) value

False

If player equals to 2

Not possible

If player equals to 1

Writing ‘WIN’ in Table ‘Scoreboard’ under ‘player 2’ attribute

Writing ‘WIN’ in Table ‘Scoreboard’ under ‘player 1’ attribute

Returning the whole Table scoreboard

1. restart

Changing the background colour.

Drawing 4 lines to make a 3 X 3 square.

Setting value of player to 1.

Printing the menu

Setting all 9 values of array (i.e. Board) to 0

1. draw\_figures

Checking for 1 or 2 in array

Not possible as function is called only when either of 1 or 2 is written in array

If 1 found

If 2 found

Drawing ‘O’ at the same position on board as found in the array

Drawing ‘X’ at the same position on board as found in the array

***Main loop:***

A stack containing events of pygame is running

If EXIT button is clicked

Display Scoreboard

Deleting Scoreboard table

Checking if clicked square is occupied or not

If LEFT MOUSE button is clicked

Mark the square with respective shape (‘O’ or ‘X’)

No change is reflected

If TAB key is pressed

If SPACE key is pressed

Reset board

Check which key is pressed

Menu is displayed

***Biblography***

Used some code for referring from Coding Spot YouTube channel.

Link- https://www.youtube.com/@ codingspot