GE-103
Tic-Tac-Toe

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I. INTRODUCTION

Our project is to recreate the most famous Tic-Tac-Toe game using the python programming language. We made use of pygame module in this project to create a user-friendly interface.

Basically, our Tic-Tac-Toe game is a traditional player Vs player (PVP) game that displays the required output accordingly as the game ends. Tic-Tac-Toe is a classic 3x3 board game and players are assigned one of the symbols from 'O' and 'X'. The player who succeeds in placing 3 of their assigned symbols in a horizontal, vertical, or diagonal row first is the winner and the game will be drawn if no player could win before they fill the entire board

II. OBJECTIVE

Our objective is to recreate our childhood memories on a computer using python and it could be even used by children to create their own memories right now. Actually, these games are just created to cure our boredom.

The Tic-Tac-Toe game actually contributes to children's developmental growth in various ways like unde1rstanding predictability, problem-solving, hand-eye coordination, turn-taking, and making strategies.

III. THE GAME

In our game, we've designated the symbol 'O' to the player-1 and the symbol 'X' to the player 2. By default, we give the first chance to the player-1 for every new match.

A. *Procedure:*
- Player-1 must select a box out of 9 boxes and his respective 'O' symbol inside the selected box.
- Now, player-2 gets a chance and the symbol 'X' is drawn in the box he/she selected.
- Both the players must play in a way to match their symbols along any row, column, or diagonal fashion.
- The player who manages to match his symbols first is considered to be the winner of that game.
- A screen will be shown up accordingly depending upon who won the game.
- If no player won the game i.e., all the squares are filled then it will be considered as the "Draw".
- Accordingly, a suitable screen will be shown up. So, the game gets over when a player won or game is drawn.
- The player will be asked to press any key on the keyboard to restart the game.

B. *Pseudo code:*
- Create a user-friendly interface according to the requirements. (we used pygame module to get this job done).
- Create an empty game board and store the user's move in some form of input.
- Make sure the move is valid and check whether the player won the game or not.
- Change the player's turn and allow the next player to make his move.
- Draw the symbols('O' & 'X') in the boxes according to the player who tapped in them.
- Repeat this until the game gets over (a player won or game is drawn).
- Show up a screen showing how the game got over.

C. *Prerequisite: The user must have installed pygame module in order to play this game.*

IV. Conclusions

We could conclude that the code that we've written is working fine by testing the code in several test cases.
The test cases for our code are,

A. *A player winning the game:*
    1) *Player-1 winning the game:* We've tested this case by matching player-1's symbol in horizontal, vertical, and diagonal fashion.
    2) *Player-2 winning the game: We've tested this case same as in the way that we've tested for player-1.*

B. *Game getting drawn: We've tested this case by filling the board in a way that no player wins the game.*

Acknowledgment

References

[1] pygame.org