# TIC TAC TOE

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# ABSTRACT

The project is TIC TAC TOE game.

The libraries used are pygame, NumPy. NumPy is for creating a 3*3 grid for the TIC TAC TOE interface, pygame library from this we can control the logic and graphic to look even better.

With help of basic functions and concept of interface with NumPy, and algorithms for matching the boxes.

We believe that this project will definitely help us in improving our coding skills in python. Since both of us from our team are freshies and this is our first project, we chose this because it enables us to explore pygame library.

The other things learnt is game pygame libraries we had learnt computer graphics and some sound libraries and also advanced indexing, slicing concepts in the NumPy library.
Reference: https://www.youtube.com/watch?v=70KYthGq1zE

# Game rules(tic tac toe)

- The game is played on a grid that's 3 squares by 3 squares.
- You are X, your friend (or the computer in this case) is O. Players take turns putting their marks in empty squares.
- The first player to get 3 of her marks in a row (up, down, across, or diagonally) is the winner.
- When all 9 squares are full, the game is over.

# def drawing_lines():

This function is about drawing the line.

We are using the pygame library to draw the horizontal and vertical lines. They divide the screen board into 9 squares.

From this we get 3x3 grid for the tic tac toe interface.

# def drawing_figures():

We are using this function to draw figures(X,O).

Here we are using for loops, we are assigning the ‘O’ and ‘X’ to the player1 and player2 respectively.

Shapes are created using the pygame library.

# def check_win(player):

This function iterates all columns and passing through an if statement. It checks if all columns are matched. If yes, the function returns true.

If the above condition fails,the function checks the possibility of rows and diagonals.

# def draw_vertical_winning_line():

The purpose of this function is to draw a line if the three figures match vertically.

using pygame library, this function draws drawing the vertical line that matches the three figures

# def draw_horizontal_winning_line():

This function draws a line if three figures match in any of the rows.

Horizontal winning line is drawn using pygame library.

# def draw_ascending_line() & def draw_descending_line()

If any of the two figures match in the ascending and descending diagonal,this function draws the respective line.

## To restart the game:

Press 'r' key to restart the game.

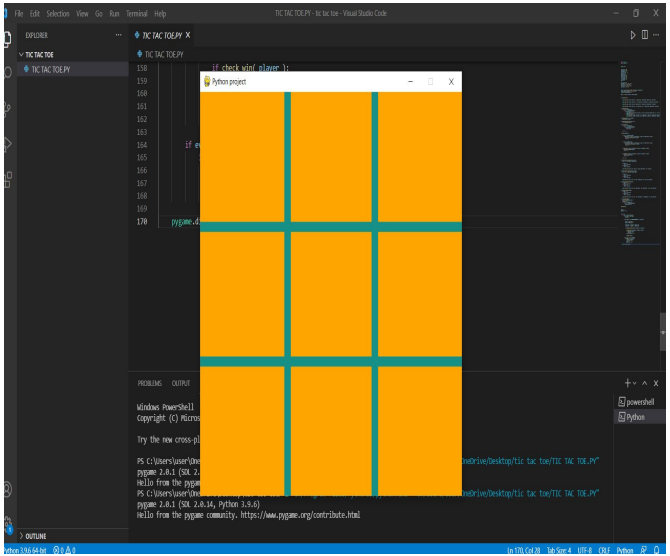
# Difficulties faced

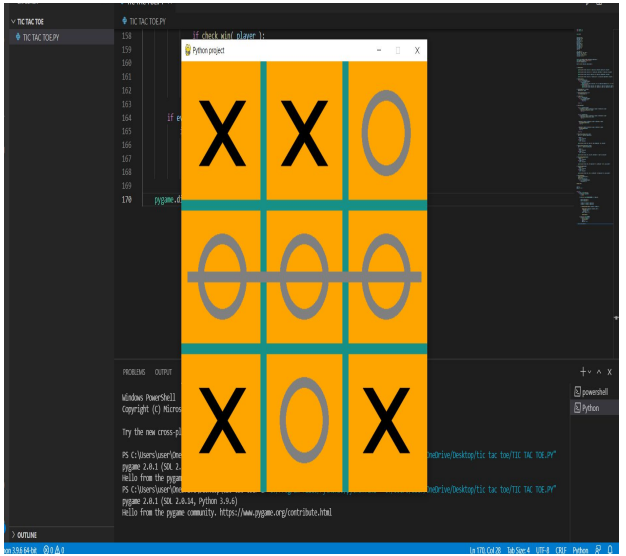
While doing this project,the main problem we faced is how to link the numpy array to the pygame interface.

But we overcome this challenge by taking proper support from the references.

Other than this , basic concepts such as functions and loops are used.

# SCREENSHOTS



# CONCLUSION

With this project, we got exposed to the different aspects of numpy and pygame library.

Python is very human friendly compared to C++ and it has wide range of applications like machine learning etc