

TIC – TAC – TOE



Team - 02

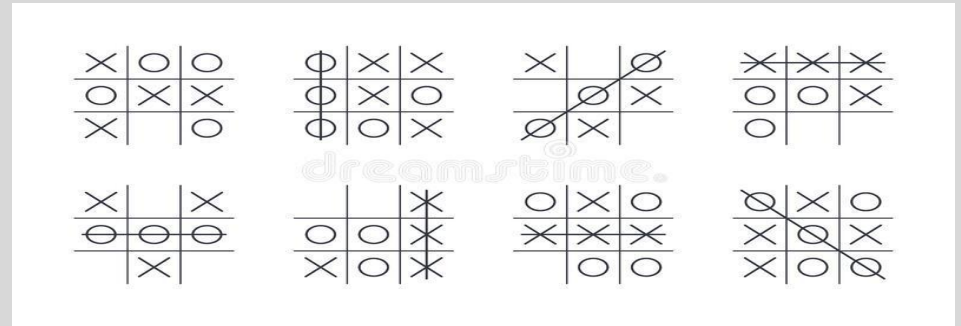
Members

- ❖ Divya Bhupatbhai Lakhani
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- ❖ Kushani Lakshika Gimhani Abeykoon Mayandige

Why we choose this game?

- **Easy to learn:** Tic Tac Toe is a simple game that can be learned in minutes. Players need only know the basic rules of the game.
- **Enhances strategic thinking:** Despite its simplicity, Tic Tac Toe requires players to think ahead and develop strategies to win.
- **Improves cognitive abilities:** Playing Tic Tac Toe can help improve cognitive abilities such as memory, attention, and visual perception.
- **Promotes social interaction:** Tic Tac Toe is a fun game that can be played with friends or family members. It promotes social interaction, communication, and teamwork.

How to play the game?



Tic Tac Toe is a simple two-player game. Here are the steps to play the game:

1. There is a board with 3x3 grid.
2. One player chooses an X and the other player chooses an O.
3. The first player places their symbol in any empty square on the grid.
4. The second player places their symbol in any remaining empty square on the grid.
5. Players take turns placing their symbols until one player has three in a row (horizontally, vertically or diagonally), or all squares are filled.
6. If a player gets three in a row, they win the game. If all squares are filled and no player has three in a row, the game ends in a tie.

Creating Code

Step 1 - Import Libraries.

```
import random  
import itertools
```

Step 2 - Create Board.

```
board = list(range(1, 10))
```

Creating Code

Step 3 - Create function to print board.

```
def show_board(board):  
    print(str(board[0]) + ' | ' + str(board[1]) + ' | ' + str(board[2]))  
    print('-----')  
    print(str(board[3]) + ' | ' + str(board[4]) + ' | ' + str(board[5]))  
    print('-----')  
    print(str(board[6]) + ' | ' + str(board[7]) + ' | ' + str(board[8]))
```

Step 4 - Create function to determine winner.

```
def find_winner(board):  
    combos = ((0,1,2),(3,4,5),(6,7,8),(0,3,6),(1,4,7),(2,5,8),(0,4,8),(2,4,6))  
    for player in ['X','O']:  
        positions = [i for i, x in enumerate(board) if x == player]  
        for combo in combos:  
            win = True  
            for pos in combo:  
                if pos not in positions:  
                    win = False  
            if win == True:  
                return player  
    return None
```


Creating code

Step 5 - Create function to take input from players.

```
def take_input(player_token):
    valid = False
    while not valid:
        player_answer = input('Player %s, please enter your move: (1-9) ' % player_token)
        try:
            player_answer = int(player_answer)
        except:
            print('Invalid input, please try again.')
            continue
        if player_answer >= 1 and player_answer <= 9:
            if (str(board[player_answer-1]) not in 'XO'):
                board[player_answer-1] = player_token
                valid = True
            else:
                print("Invalid move, please try again")
        else:
            print("Invalid move, please try again")
```

Step 6 - Create function to switch player.

```
def switch_player(player_token):
    if player_token == 'X':
        return 'O'
    else:
        return 'X'
```

Creating code

Step 7 - Create main function to run the game.

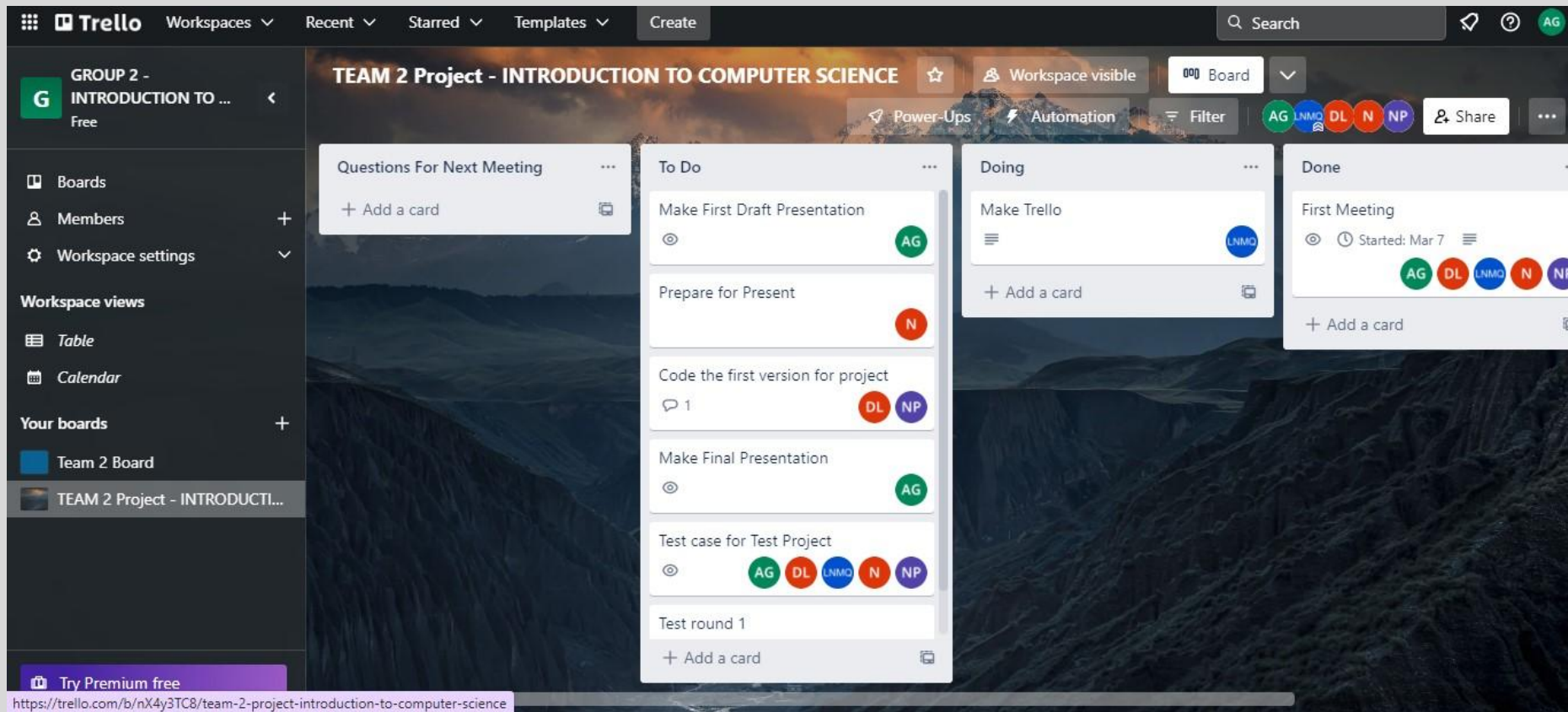
```
def play_game():  
    show_board(board)  
    player_token = 'X'  
    winner = None  
    while not winner:  
        take_input(player_token)  
        show_board(board)  
        winner = find_winner(board)  
        player_token = switch_player(player_token)  
    if winner == 'X' or winner == 'O':  
        print('Player %s wins!' % winner)  
    else:  
        print('Tie Game!')
```

Step 8 - Run the game.

```
play_game()
```


About Teamwork

- Firstly, we created WhatsApp group including all team members.
- Using WhatsApp group, we Scheduled Zoom meeting.
- During the 1st Zoom meeting we decided how to do this task as a team & chose the project topic
- After the 1st Zoom meeting, we create new board in Trello for list down our works.
- In the 2nd Zoom meeting, we tested our code and prepared for the presentation.



Achievements

- Developed strong communication skills.
- Plan and manage time.
- Break complex tasks into parts and steps.
- Refine understanding through discussion and explanation.
- Learned academic things from peers (Python, GitHub, Trello).

Links

□ Trello Board:

- <https://trello.com/invite/b/nX4y3TC8/ATTI34cb560d3bd2f0f1893e5a392948c7747279C669/team-2-project-introduction-to-computer-science>

□ Github:

- <https://github.com/o0akin0o/INTRODUCTION-TO-COMPUTER-SCIENCE>

THANK YOU!