Tic-Tac-Toe Game – Project Prototype

**Objective:**

The objective of this project is to develop a two-player console-based Tic-Tac-Toe game using Python. Players take alternate turns to mark X or O on a 3x3 grid, with the goal of placing three of their marks in a row—horizontally, vertically, or diagonally. The game ends when a player wins or the board is full, resulting in a draw.

**Main components:**

* **Game Board**: A 3x3 grid, represented as a list of lists.
* **Input Handling**: System to collect and validate user input.
* **Game Logic**:
  + Turn alternation
  + Win checking
  + Draw detection
* **Display Logic**: Printing the current state of the board.
* **Game Loop**: Repeated execution until win or draw.
* **Restart Mechanism**: Option to replay the game.

**Outline of the project**:

**Step-by-step process:**

1. Display the empty 3x3 board with numbered positions (1–9).
2. Prompt **Player X** to choose a number corresponding to an empty square.
3. Validate input:
   * Is the input between 1 and 9?
   * Is the chosen square unoccupied?
4. Place the player's symbol (X or O) on the board.
5. Check if the current player has won:
   * If yes, display a win message and end the game.
6. Check if the board is full (draw):
   * If yes, display a draw message and end the game.
7. Switch to the other player.
8. Repeat steps 2–7 until the game ends.
9. Ask the users if they want to play again.

**Pseudocode :**

**Example Function Prototypes:**

def print\_board(board):

"""Displays the current game board in a 3x3 format."""

def check\_winner(board, player):

"""Returns True if the given player has a winning combination."""

def is\_draw(board):

"""Returns True if the board is full and no winner is found."""

def play\_game():

"""Main game loop to handle turns, input, and game logic."""

def reset\_board():

"""Returns a fresh board for a new game."""