Sumedh ahire
FYMCA-B 03
BATCH 1
ASSIGNEMT 5

CODE:

```
def display_board(board):
  """
  Prints the current state of the Tic-Tac-Toe board.
  """
  for i in range(3):
    for j in range(3):
      print(board[i * 3 + j], end=" ")
    print()

def is_valid_move(board, row, col):
  """
  Checks if a move is valid (empty space on the board).
  """
  return board[row * 3 + col] == " "

def make_move(board, player, row, col):
  """
  Places the player's mark on the board at the specified position.
  """
  board[row * 3 + col] = player

def has_won(board, player):
  """
  Checks if a player has won the game (three in a row, column, or diagonal).
  """
  # Check rows
  for i in range(3):
    if all(board[i * 3 + j] == player for j in range(3)):
      return True

  # Check columns
  for i in range(3):
    if all(board[j * 3 + i] == player for j in range(3)):
      return True

  # Check diagonals
  if all(board[i * 3 + i] == player for i in range(3)) or \
     all(board[i * 3 + 2 - i] == player for i in range(3)):
    return True

  return False

def is_board_full(board):
  """
  Checks if all spaces on the board are filled.
  """
  return all(cell != " " for cell in board)

def main():
```

```
  """
  Main game loop.
  """
  board = [" " for _ in range(9)]
  current_player = "X"

  while True:
    display_board(board)

    # Get user input for move
    while True:
      try:
        row = int(input(f"Player {current_player}, enter row (1-3): ")) - 1
        col = int(input(f"Player {current_player}, enter column (1-3): ")) - 1
        if 0 <= row <= 2 and 0 <= col <= 2 and is_valid_move(board, row, col):
          break
        else:
          print("Invalid move. Try again.")
      except ValueError:
        print("Invalid input. Please enter numbers only.")

    make_move(board, current_player, row, col)

    # Check for winner or draw
    if has_won(board, current_player):
      display_board(board)
      print(f"Player {current_player} wins!")
      break
    elif is_board_full(board):
      display_board(board)
      print("It's a draw!")
      break

    # Switch player
    current_player = "O" if current_player == "X" else "X"

if __name__ == "__main__":
  main()
```

OUTPUT:

```
Player X, enter row (1-3): 1
Player X, enter column (1-3): 1

 X


Player O, enter row (1-3): 2
Player O, enter column (1-3): 2

 X
 O

Player X, enter row (1-3): 2
Player X, enter column (1-3): 1

 X
 X
 O

Player O, enter row (1-3): 3
Player O, enter column (1-3): 1

 X
 X
 O

Player X, enter row (1-3): 3
Player X, enter column (1-3): 3

 X
 X
 O
X

Player X wins!
```