

## Final Task (Project)

### Simple Game: Create a basic game like a Tic-Tac-Toe

#### Source Code:

```
def print_board(board):
    for row in board:
        print(" | ".join(row))
        print("-----")

def check_win(board, player):
    for row in board:
        if all([cell == player for cell in row]):
            return True

    for col in range(3):
        if all([board[row][col] == player for row in range(3)]):
            return True

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

    return False

def is_board_full(board):
    return all([cell != " " for row in board for cell in row])

def tic_tac_toe():
    board = [[" " for _ in range(3)] for _ in range(3)]
    current_player = 'X'
    print("Welcome to Tic-Tac-Toe!")
```

```
while True:

    print_board(board)

    row = int(input(f"Player {current_player}, enter row (0, 1, 2): "))
    col = int(input(f"Player {current_player}, enter column (0, 1, 2): "))

    if board[row][col] == " ":
        board[row][col] = current_player
        if check_win(board, current_player):
            print_board(board)
            print(f"Player {current_player} wins!")
            break
        elif is_board_full(board):
            print_board(board)
            print("It's a draw!")
            break
        else:
            current_player = 'O' if current_player == 'X' else 'X'
    else:
        print("That space is already taken. Try again.")

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

## Output:

```

#BENJAMIN: C:/Users/MI/Desktop/Python/variables
Welcome to Tic-Tac-Toe!
  |  |
-----
  |  |
-----
  |  |
-----
Player X, enter row (0, 1, 2): 0
Player X, enter column (0, 1, 2): 0
X |  |
-----
  |  |
-----
  |  |
-----
Player O, enter row (0, 1, 2): 1
Player O, enter column (0, 1, 2): 0
X |  |
-----
O |  |
-----
  |  |
-----
Player X, enter row (0, 1, 2): 2
Player X, enter column (0, 1, 2): 2
X |  |
-----
O |  |
-----
  |  | X
Player X, enter row (0, 1, 2): 2
Player X, enter column (0, 1, 2): 2
X |  |
-----
O |  |
-----
  |  | X
Player O, enter row (0, 1, 2): 1
Player O, enter column (0, 1, 2): 1
X |  |
-----
O | O |
-----
  |  | X
Player X, enter row (0, 1, 2): 2
Player X, enter column (0, 1, 2): 1
X |  |
-----
O | O |
-----
  | X | X
Player O, enter row (0, 1, 2): 2
Player O, enter column (0, 1, 2): 1
That space is already taken. Try again.
```

```
X |  | 
-----
```

```
O | O | 
-----
```

```
  | X | X 
-----
```

```
Player O, enter row (0, 1, 2): 1
```

```
Player O, enter column (0, 1, 2): 2
```

```
X |  | 
-----
```

```
O | O | O 
-----
```

```
  | X | X 
-----
```

```
Player O wins!
```