

1. Implementation of Tic Tac Toe game here, the player needs to take turns marking the spaces in a 3x3 grid with their own marks, if 3 consecutive marks (Horizontal, Vertical, Diagonal) are formed then the player who owns these moves get won. Noughts and Crosses or X's and O's abbreviations can be used to play.

```
import os
turn = 'X'
win = False
spaces = 9
def draw(board):
    for i in range(6, -1, -3):
        print(' ' + board[i] + '|' +
              board[i+1] + '|' + board[i+2])
def takeinput(board, spaces, turn):
    pos = -1
    print(turn + "'s turn:")
    while pos == -1:
        try:
            print("Pick position 1-9:")
            pos = int(input())
            if(pos < 1 or pos > 9):
                pos = -1
            elif board[pos - 1] != ' ':
                pos = -1
        except:
            print("enter a valid position")
    spaces -= 1
    board[pos - 1] = turn
    if turn == 'X':
        turn = 'O'
    else:
        turn = 'X'
    return board, spaces, turn
def checkwin(board):
    # could probably make this better
    for i in range(0, 3):
        r = i*3
        if board[r] != ' ':
            if board[r] == board[r+1] and board[r+1] == board[r+2]:
                return board[r]
    # columns
        if board[i] != ' ':
            if board[i] == board[i+3] and board[i] == board[i+6]:
                return board[i]
    # diagonals
        if board[0] != ' ':
            if (board[0] == board[4] and board[4] == board[8]):
```

```

        return board[0]
    if board[2] != ' ':
        if (board[2] == board[4] and board[4] == board[6]):
            return board[2]
    return 0
board = [' ']*9
while not win and spaces:
    draw(board)
    board, spaces, turn = takeinput(board, spaces, turn)
    win = checkwin(board)
    os.system('cls')
draw(board)
if not win and not spaces:
    print("draw")
elif win:
    print(f'{win} wins')
    input()

```

output:

```

| |
| |
| |
X's turn:
Pick position 1-9:
1
| |
| |
X| |
O's turn:
Pick position 1-9:
9
| |O
| |
X| |
X's turn:
Pick position 1-9:
4
| |O
X| |
X| |
O's turn:
Pick position 1-9:
7
O| |O
X| |
X| |
X's turn:
Pick position 1-9:
3
O| |O
X| |

```

```

X| |X
O's turn:
Pick position 1-9:
8
O|O|O
X| |
X| |X
O wins
2
```