Tic Tac Toe

Rules:

1. Each player must choose whether they are naughts or crosses
2. Player 1 starts by placing their symbol in one of the 9 squares
3. Player 2 then choses where to place their symbol in one of the 8 remaining squares
4. This continues until one of the players has got 3 in a row, OR all of the squares are full with neither players winning
5. The game then restarts
6. Player 2 begins this time and process repeats

Plan:

Variables, Constants And Their Types

grid = [" ", " ", " ", " ", " ", " ", " ", " ", " ",]

> The grid will be written as a list. Each item in the list will be blank which means the players can then choose what space they want to play, and the item in the list will then be overwritten.

player1 = input("Player x enter your name: ")
player2 = input("Player o enter your name: ")

> These are variables for each player. Each user inputs their name which is then stored in the variable as a string.

x = not x

> This variable changes the x value which was originally a boolean variable value set as true, to false which allows the players turn to switch every time.

Use Of Data Structures And Files

grid = [" ", " ", " ", " ", " ", " ", " ", " ", " ",]
A list is the only data structure used. This stores the players turns each time they chose a number depending on what space they want in the grid. The list works as the gameboard in naughts and crosses with each of the items representing a space in the grid.

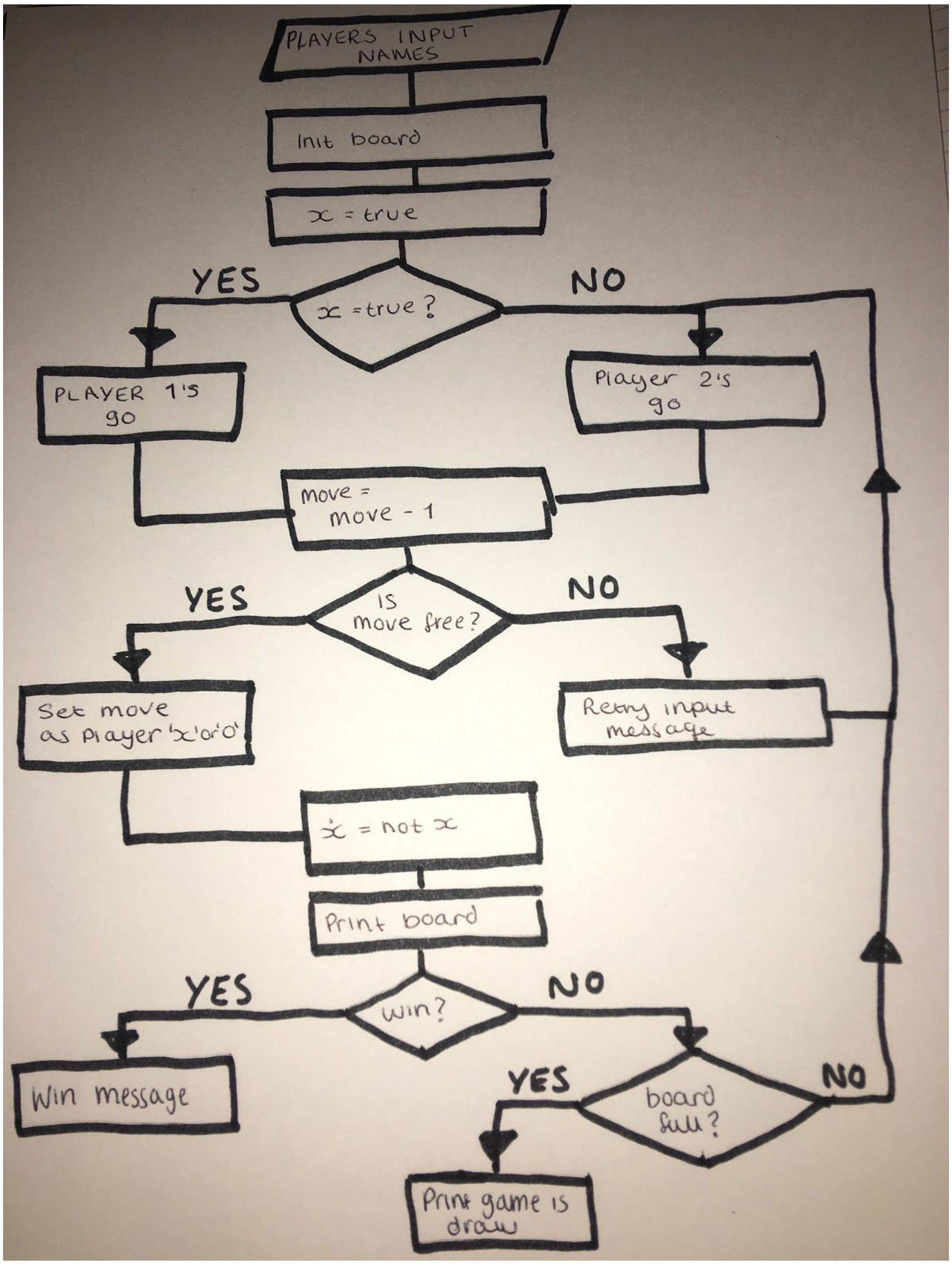
User Interface

The user is asked to input their name so for each turn their name can be used to inform them that it is their turn.

Each turn the user will be asked to choose a number from 0-8 (as python uses 0-based indexing) with each number representing a space on the 9x9 grid. Once the user has inputted their number the grid will be shown with either a ‘o’ or ‘x’ in the place of the grid they have chosen, depending on what player they are.

If the number has already been chosen previously in the game, the user is asked to input another number.

Algorithm:



Test Plan:

Test Num	Description of Test	Test Data	Expected Outcome
1	Test out of range data to see if the invalid input message is displayed	20	"The data you inputted is not valid”
2	Test out of range data to see if the invalid input message is displayed	-2	"The data you inputted is not valid”
3	Test data within range to see if the correct grid is marked.	3	Players selected grid is marked
4	Test data within range to see if the correct grid is marked.	7	Players selected grid is marked
5	Test data of incorrect data type to see if invalid input message is displayed	“eight”	"The data you inputted is not valid”
6	Test data of incorrect data type to see if invalid input message is displayed	“two”	"The data you inputted is not valid”
7	Test ‘Across’ win to see if win message is displayed 1/3		“_player is the winner!”
8	Test ‘Across’ win to see if win message is displayed 2/3		“_player is the winner!”
9	Test ‘Across’ win to see if win message is displayed 3/3		“_player is the winner!”
10	Test ‘Down’ win to see if win message is displayed 1/3		“_player is the winner!”
11	Test ‘Down’ win to see if win message is displayed 2/3		“_player is the winner!”
12	Test ‘Down’ win to see if win message is displayed 3/3		“_player is the winner!”
13	Test ‘Horisontal’ win to see if win message is displayed 1/2		“_player is the winner!”
14	Test ‘Horisontal’ win to see if win message is displayed 2/2		“_player is the winner!”
15	Test a game resulting in a tie to see if ‘tie’ message is displayed		"there is no winner, this game was a tie! "