Python les-materialen

# Milestone Project 1: Walkthrough Steps Workbook

Below is a set of steps for you to follow to try to create the Tic Tac Toe Milestone Project game!

#### Some suggested tools before you get started:

To take input from a user:

player1 = input("Please pick a marker 'X' or 'O'")

Note that input() takes in a string. If you need an integer value, use

position = int(input('Please enter a number'))

To clear the screen between moves:

from IPython.display import clear\_output  
clear\_output()

Note that clear\_output() will only work in jupyter. To clear the screen in other IDEs, consider:

print('\n'\*100)

This scrolls the previous board up out of view. Now on to the program!

**Step 1: Write a function that can print out a board. Set up your board as a list, where each index 1-9 corresponds with a number on a number pad, so you get a 3 by 3 board representation.**

from IPython.display import clear\_output  
  
def display\_board(board):  
   
 pass

**TEST Step 1:** run your function on a test version of the board list, and make adjustments as necessary

test\_board = ['#','X','O','X','O','X','O','X','O','X']  
display\_board(test\_board)

**Step 2: Write a function that can take in a player input and assign their marker as ‘X’ or ‘O’. Think about using *while* loops to continually ask until you get a correct answer.**

def player\_input():  
   
 pass

**TEST Step 2:** run the function to make sure it returns the desired output

player\_input()

**Step 3: Write a function that takes in the board list object, a marker (‘X’ or ‘O’), and a desired position (number 1-9) and assigns it to the board.**

def place\_marker(board, marker, position):  
   
 pass

**TEST Step 3:** run the place marker function using test parameters and display the modified board

place\_marker(test\_board,'$',8)  
display\_board(test\_board)

**Step 4: Write a function that takes in a board and a mark (X or O) and then checks to see if that mark has won.**

def win\_check(board, mark):  
   
 pass

**TEST Step 4:** run the win\_check function against our test\_board - it should return True

win\_check(test\_board,'X')

**Step 5: Write a function that uses the random module to randomly decide which player goes first. You may want to lookup random.randint() Return a string of which player went first.**

import random  
  
def choose\_first():  
 pass

**Step 6: Write a function that returns a boolean indicating whether a space on the board is freely available.**

def space\_check(board, position):  
   
 pass

**Step 7: Write a function that checks if the board is full and returns a boolean value. True if full, False otherwise.**

def full\_board\_check(board):  
   
 pass

**Step 8: Write a function that asks for a player’s next position (as a number 1-9) and then uses the function from step 6 to check if it’s a free position. If it is, then return the position for later use.**

def player\_choice(board):  
   
 pass

**Step 9: Write a function that asks the player if they want to play again and returns a boolean True if they do want to play again.**

def replay():  
   
 pass

**Step 10: Here comes the hard part! Use while loops and the functions you’ve made to run the game!**

print('Welcome to Tic Tac Toe!')  
  
#while True:  
 # Set the game up here  
 #pass  
  
 #while game\_on:  
 #Player 1 Turn  
   
   
 # Player2's turn.  
   
 #pass  
  
 #if not replay():  
 #break

## Good Job!