

# 02-Milestone Project 1 - Walkthrough Steps Workbook

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## 1 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
```

**1.1 Good Job!**