Data Science with Python
Ticket Out the Door
Set 13: Functions Part 2

Name _____ Period _____

Skill 13.1 Exercise 1

We were provided a list of prices for some gift shop items,

- T-shirt: 9.75
- Shorts: 15.50
- Mug: 5.99
- Poster: 2.00

Create a list using the prices above.

Create a variable called *max_price* and call the built-in function max() with the variables of prices to get the maximum price.

Using the same set of prices, create a new variable called *min_price* and use the built-in function min() with the variables of prices to get the minimum price.

Use the built-in function round() to round the price of the variable *tshirt_price* by one decimal place.
Save the result to a variable called *rounded_price.*

Skill 13.2 Exercise 1

Refer to the code block below,

```
def print_count_locations():
  favorite_locations = ["Paris", "Norway", "Iceland"]
  print(len(favorite_locations))

# This function will print the favorite locations
def show_favorite_locations():
  print("Your favorite locations are: " + str(favorite_locations))

print_count_locations()
show_favorite_locations()
```

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What is printed when the code above is run? Explain.
How might you fix the code so that it runs as expected.

Skill 13.3 Exercise 1

The code segment below assigns the player as *x* and the computer as *o*.

We want to allow the player to choose what they would like to be and reassign the player and computer as necessary.

Create a function called *start_game*. In the body of the function prompt the player whether they want to be x or or o.

If the user indicates o, reassign the computer to x.

```
player = "x"
computer = "o"
```

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Skill 13.4 Exercise 1

In the body of *start_game* we also need to determine who goes first and second. The code segment below can be used to calculate a random integer, 0 or 1. We will let 0 represent the computer and 1 represent the player.

```
random.randint(0,1)
```

Create a new variable called turn in *start_game* and assign the expression above to this variable. Return *turn* so we can use this variable later in our program.

Call the function above and assign the result to a global variable *turn*.

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Skill 13.4 Exercise 2

The code segment below, creates a list called *game_board*. The function *draw_board* can be used to draw the *game_board*.

```
game_board = [""]+[" "]*9

def draw_board(board):
    # This function prints out the board that it was passed.
    # "board" is a list of 10 strings representing the board (ignore index 0)
    print("*************************************************")
    print('   |   | ')
    print(' ' + board[7] + ' | ' + board[8] + ' | ' + board[9])
    print('   |   | ')
    print('-----------')
    print('   |   | ')
    print(' ' + board[4] + ' | ' + board[5] + ' | ' + board[6])
    print('   |   | ')
    print('-----------')
    print('   |   | ')
    print(' ' + board[1] + ' | ' + board[2] + ' | ' + board[3])
    print('   |   | ')
```

Call *draw_board* so it prints the *game_board*

Each time a player moves we need to check whether or not we have a winner. The *check_win* function has been defined below. In the body of *check_win*, write code to check whether there is a win in either diagonal direction. If there is a win return *True* otherwise return *False*.

```
def checkWin(board):
```

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Skill 13.5 Exercise 1

The function below defines the top three tourist locations in Italy. Add a return statement to return the values of *first, second, and third*.

```
def top_loc():
  first = "Rome"
  second = "Venice"
  third = "Florence"
```

Call *top_loc* and store the result in a variable called *top_italy_loc*

Print each location on a separate line.