Data Science with Python
Ticket Out the Door
Set 14: Functions Part 1

Name _____ Period _____

Skill 14.1 Exercise 1

How do functions handle the complexity of our programs?

Skill 14.2 Exercise 1

The code block below draws a tic-tac-toe board. Write a function called draw_board. In the body of the function include the code that draws the board.

```
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])
```

What is printed when the code above is run? Explain.

Skill 14.3 Exercise 1

Imagine that you manage an online store. When a customer places an order, you send them a thank you note. Let's create a function to complete this task.

(a) Define a function called *say_thanks*. In the function body of *say_thanks*, add code such that the function prints the following thank you message: 'Thank you for your purchase!'

(b) Functions can be called as many times as you need them. Imagine that three customers placed an order and you wanted to send each of them a thank you message. Update your code to call *say_thanks* three times.

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Skill 14.4 Exercise 1

Refer to the code bock below,

```
print("Checking the weather!")
def weather_check():
  print("Looks great outside!")
print("False Alarm, the weather changed!")
weather_check()
```

Indicate what is printed.

Skill 14.5 Exercise 1

You are writing a travel application that allows users to calculate the total expenses they may incur on a trip.

(a) Write a function called *calculate expenses* that has the following parameters,
- plane_price
- car_rate
- hotel_rate
- trip_time

(b) In the body of the function create a new variable called *car total* that is the product of *car rate* and *trip_time*

(c) Do the same as above for the *hotal_total*

(d) Create a variable called *trip_total* that sums the *car_total*, *hotel_total*, and *plane_price*

Call the function above with the following argument values,

plane_price = 200
par_rate = 100
hotel_rate = 100
trip_time = 5

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Skill 14.6 Exercise 1

In addition to calculating the cost of the trip, users should be able to plan their trip.

(b) Write a function called *trip_planner* that has the following parameters to represent the first, second, and final destination. Give the final a default value of "Boise".
- *first*
- *second*
- *final*

(b) In the body of the function print "Here is your trip!", followed by an itinerary in the following format,

First, we will stop in <first>, then <second>, and lastly <final>

Call the function above with the following argument values,

first = "France"
second = "Germany"
final = "Denmark"

Call the function *trip_planner()* again, but this time include the keyword arguments (e.g. first_destination):
first = "Iceland"
final = "Germany"
second = "Ireland"

Lastly, go ahead and call the function *trip_planner()* using only two positional arguments to see the default argument in action:

first = "Seattle"
second = "Portland"