

Loop de loop

In this lab, you will be making lists, and using loops to execute your functions! If you have any questions about what lists are, or how to make a loop, go back to your readings or lectures to remind yourselves.

Step 1 - Make a List

This first step is about looking over the function called *makelist()* This function takes in one parameter, an integer. Within the function, it creates a new empty list. Then, there is a for loop that starts at 0 and ends at the parameter that was passed in. Every iteration of the for loop will be added to the empty list. Once the loop is done, it returns the list.

Examples:

```
makelist(10) # returns [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
makelist(3)  # returns [0, 1, 2]
```

Step 2 - Lift Off!

In this step, you will be writing function called *rocketcountdown()* and it will take in one parameter, an integer. In this function you will start by making an empty list, then you will make a for loop that counts **DOWN** from the parameter to 0 (But not including 0). You will be adding each number as it is passed through the for loop to your list and when it hits 0, you will add the string 'We have lift off!'

Examples:

```
rocketcountdown(10) # returns [10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 'We have lift off!']
rocketcountdown(2)  # returns [2, 1, 'We have lift off!']
```

Step 3 - Double Loop

In this step, you will create a function named *doubleloop()* that will take in 2 parameters, both ints. This function will also return a list of numbers.

You will want to make a nested loop for the list to parse through all the possible numbers between 0 and parameter one and between 0 and parameter two. You will pair them together with the use of string formatting and then separate them by a colon.

Examples:

```
doubleloop(2, 2) # returns ['0:0', '0:1', '1:0', '1:1']
doubleloop(3, 4) # returns ['0:0', '0:1', '0:2', '0:3', '1:0',
#                           '1:1', '1:2', '1:3', '2:0', '2:1', '2:2', '2:3']
```

Here's an example of a nested loop:

```
for i in range(num1):
    for j in range(num2):
        list.append('{}{}'.format(i,j))
```

Submissions:

1. .py document, with three functions:

- makelist()
- rocketcountdown()
- doubleloop()

2. Screenshots of the results:

```
makelist(10) # returns [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
makelist(3)  # returns [0, 1, 2]
```

```
rocketcountdown(10) # returns [10, 9, 8, 7, 6, 5, 4, 3, 2, 1, 'We have lift off!']
rocketcountdown(2)  # returns [2, 1, 'We have lift off!']
```

```
doubleloop(3, 3) # returns ['0,0', '0,1', '0,2', '1,0', '1,1', '1,2', '2,0',
#                           '2,1', '2,2']
doubleloop(3, 4) # returns ['0:0', '0:1', '0:2', '0:3', '1:0',
#                           '1:1', '1:2', '1:3', '2:0', '2:1', '2:2', '2:3']
```