

Python Review -- Data Types

You are now experts at **five different types** of data in Python:

Data Type	Functionality
	Stores a single number
	Stores a series of characters (eg: a word or many words)
	Stores a CSV-like structure with rows (observations) and columns (variables)
	Stores a collection of (usually similar) values
	Stores a collection of (usually related) key/value pairs

We will begin working with Lists and Dictionaries in more advanced ways. Let's explore them both a bit more now that you have used them in simulations:

1. A list and a dictionary are both **collections**:
2. A list and a dictionary can be both be **initialized as an empty collection**:
3. A list and a dictionary can both be **initialized with a collection of elements**:
4. We can **add new items** to both a list and a dictionary:
5. We can **look items up** from both a list and a dictionary:

Examples of Lists and Dictionaries in Use in Python

In this series of examples, consider this to be several cells in a single notebook:

	Code	Output
1 2 3	<pre>d = {} d['waf'] = 'Wade' d</pre>	
4 5	<pre>d['kflan'] = 'Karle' d</pre>	
6	<pre>d['waf']</pre>	
7 8	<pre>nums = [107, 207, 307] nums</pre>	
9 10	<pre>nums.append(407) nums</pre>	
11	<pre>nums[1]</pre>	
12	<pre>nums[0]</pre>	
13 14 15 16	<pre>netids = [] netids.append('waf') netids.append('kflan') netids</pre>	
17	<pre>netids[0 + 1]</pre>	
18	<pre>d[netids[0]]</pre>	
19 20 21 22	<pre>blue = random.randint(1, 6) red = random.randint(1, 6) dice = { 'blue': blue, 'red': red } dice</pre>	
23 24	<pre>data = [dice] data</pre>	
25 26 27	<pre>import pandas as pd df = pd.DataFrame(data) df</pre>	
28	<pre>df['blue']</pre>	

Lists and Loops

Let's explore for-loops in the same way:

	Code	Output
1 2	<pre>letters = ['A', 'B', 'C', 'D'] letters[2]</pre>	
3 4	<pre>letters.append('E') letters</pre>	
5 6 7	<pre>print(letters[2]) print(letters[0]) print(letters[1])</pre>	
8 9	<pre>for i in range(10): print(i)</pre>	
10	<pre>len(letters)</pre>	
11 12	<pre>for i in range(len(letters)): print(i)</pre>	
13 14	<pre>for i in range(len(letters)): print(letters[i])</pre>	
15 16	<pre>for i in range(len(letters)): print(letters[i + 1])</pre>	