

## Data Bootcamp: Code Practice #1

Revised: January 26, 2016

*Answer each of the questions below. Answers should include any code you write. They can be handwritten, but they must be readable and look professional.*

1. Describe and explain what each of these expressions produces in basic Python:

```
2+5
2 + 5
2*5
2/5
2**5
```

2. What is the value of `x` after running these statements in order? Why?

```
x = 7
x = x + 3
```

3. What is the value of `y` after running these statements in order? Of `x`? Why?

```
x = 3
y = x
x = 10
```

4. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = 3
x = x/2
y = 'abc'
z = y + y
print(x, z)
```

5. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = 3
x = x/2
y = 'abc'
z = x + y
print(x, z)
```

6. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = 3
y = 24
z = y / x
print(x, y, z, sep=' | ')
```

7. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = 3
y = '24'
z = y / x
print(x, z)
```

8. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = "I am a #string" # Whoa, a string!
```

9. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = [1, 2, 3]
y = [42, 43]
z = x + y
print(z)
```

10. Does this code run without error? If so, what does it produce? If not, explain why.

```
x = [1, 2, 3]
y = 42
z = x + y
```

11. What “types” are

```
x1 = 12
x2 = 12.0
x3 = '12.0'
x4 = [12]
x5 = [12, 12.0, '12.0']
```

12. Explain the result of each line:

```
type(42)
type(42.0)
type('42.0')
type("42.0")
type("""42.0""")
type([1, 2])
type([1] + [2])
type(1 + 2)
type(print)
```

13. Describe and explain the result of this statement:

```
type(float(str(int('1234'))))
```

14. Describe and explain the result of this statement:

```
type(int(float('12.34')))
```

15. Explain each line:

```
len([1234])  
len("1234")  
len(1234)
```

16. What are the type and length of `x = []`?

17. Convert the string `x = 'abcde'` to a list. What does it look like?

18. *Challenging.* Consider the integer `x = 1234`.

- (a) Convert `x` to a floating point number.
- (b) Convert `x` to a string.
- (c) Convert `x` to the list

```
['1', '2', '3', '4']
```

19. *Challenging.* How would you convert `x` to “title case” (first letter of each word capitalized)? *Hint:* Use tab completion to find an appropriate method.

```
x = "luke, i am your father"
```

20. *Challenging.* Consider the string

```
x = "How many characters and words are in this string?"
```

- (a) How many characters does `x` contain?
- (b) Convert `x` to a list of individual characters.
- (c) Convert `x` to a list of individual words. *Hint:* Use tab completion to find a method that splits `x` into pieces.
- (d) How many words does `x` contain?