

Data Bootcamp: Code Practice #1

Revised: February 5, 2016

Answer each of the questions below. Include any code you write. What you hand in can be code or handwritten or something else, but it must be readable and professional. Hardcopy only.

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. 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?