Worksheet: Lists
COSC 101, 2018-02-28

1) Warm-up
Write a function called pirate that takes a string as an argument and for each occurrence of ‘ar’ in the string, the ‘r’ is repeated four times. For example:

- pirate('arching') returns 'arrarrchng'
- pirate('ardvark') returns 'arrrdvarrrrk'
- pirate('iron') returns 'iron'

2) Indexing and slicing
Assume you are given the following assignment statements.

```
a = [13, 42, 99]
b = ['the', 5, 'statements are', True]
c = [6, [4, 2], 0]
d = []
e = ['a', ['b'], ['c', 'd'], ['e', 'f', 'g']]
```

What is the result of the following expressions? If an error occurs, describe what is wrong.

a) len(a)
b) len(b)
c) len(d)
d) a[1]
e) e[2]
f) d[0]
g) b[-2]
h) c[1][1]
i) b[2][0]
3) Operations on lists
Assume you are given the following assignment statements.
\[
x = [5, 15] \\
y = [10, 20, 30, 40] \\
z = ['a', ['b', 'c']] \\
\]
What is the output of the following expressions? If an error occurs, describe what is wrong.

a) \([1, 2] + [3, 4]\)

b) \([5, 6] + x\)

c) \(x + y[1:3]\)

d) \(x + 25\)

e) \(x + ['a']\)

f) \([7, 8] * 2\)

g) \(x * 3\)

h) \(y * 0\)

i) \(x * 2 + y\)

j) \(5 \in x\)

k) 'b' \in z

l) ['b', 'c'] \in z
4) Modifying a list

What is the output of each of the following programs?

a) `days = ['Mon', 'Tues', 'Wed', 'Fri']`
   `days[2] = 'Thurs'`
   `days[-1] = 'Sat'`
   `days [0:2] = ['Sun', 'Mon']`
   `print(days)`

b) `primes = [2, 3, 5, 7]`
   `primes[2:2] = [11, 13]`
   `primes[0] = [17, 19]`
   `primes[5:] = []`
   `print(primes)`

c) `letters = ['a','e','h','m']`
   `letters[2:2] = ['h']`
   `letters[:] = ['q', 'r', 's']`
   `del letters[2:4]`
   `print(letters)`