

Introduction to Python

Feature Summary, Session 7

COMPLEX SORTING

- **sorted()** function: *return a sorted list of items from a container*
argument: any container
return value: a list of the same item values, sorted

```
x = [9.3, 2, 5]
y = sorted(x)
print(y)          # [2, 5, 9.3]
```
- sort a container of numbers: **sort numerically**
argument: any container of ints or floats
return value: a list of the same item values, sorted numerically

```
x = [9.3, 2, 5]
y = sorted(x)
print(y)          # [2, 5, 9.3]
```
- sort a container of strings: **sort by character**
argument: any container of strings
return value: a list of the same item values, sorted by character

```
x = ['ze', 'as', 'we']
y = sorted(x)
print(y)          # ['as', 'we', 'ze']
```
- use a builtin as a "sort helper function": **sort each item by the value returned when passed to the function**
argument: any container, key=helper function
return value: a list of the same item values, sorted

```
x = ['1', '100', '11']
y = sorted(x)
# ['1', '100', '11'] (strs)
z = sorted(x, int)
# ['1', '11', '100'] (ints)
```
- use a method as a "sort helper function" with a method: **sort each item by the value returned when passed to the function**
argument: any container, key=helper method
return value: a list of the same item values, sorted

```
x = ['ab', 'Zoe', 'greg']
y = sorted(x)
# ['Zoe', 'ab', 'greg']
z = sorted(y, str.lower)
# ['ab', 'greg', 'Zoe']
```
- use a user-defined function as a "sort helper function": **sort each item by the value returned when passed to the function**
argument: any container, key=helper function
return value: a list of the same item values, sorted

```
def by_last(name):
    return name.split()[1]
x = ['Ab Zoe', 'Zeb Apple']
y = sorted(x, key=by_last)
# ['Zeb Apple', 'Ab Zoe']
```
- **sorted()** with **key=dict.get**: *return a list of dict keys sorted by value*
arguments: dict, key=dictname.get (using dict name)
return value: a list of the keys from the dict, sorted by associated value

```
x = {'a': 10, 'z': 2}
y = sorted(x, key=x.get)
# ['z', 'a']
```