

# CSC108H Lecture 25

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# Methods

- ▶ Methods are actions that can be performed by an object
- ▶ We have used many str, list, dict, and file methods and now we're writing our own
- ▶ Methods are similar to functions, but
  - ▶ Different calling syntax: `a.add_gold(10)` instead of `add_gold(a, 10)`
  - ▶ First parameter is always `self`, but we don't include `self` when calling the method
  - ▶ When we call `a.add_gold(10)`, `self` will refer to `a`
- ▶ If a method takes two parameters, it is defined to have three (`self` and the two “real ones”)

# ConceptTest

```
class Thing(object):  
  
    def do_it(self, a, b, c):  
        ...
```

t is an object of class Thing and d, e, and f are defined. What is the proper way to call do\_it?

- ▶ A. do\_it(d, e, f)
- ▶ B. do\_it(self, d, e, f)
- ▶ C. do\_it(t, d, e, f)
- ▶ D. t.do\_it(d, e, f)
- ▶ E. t.do\_it(t, d, e, f)

# ConcepTest

```
class Thing(object):  
  
    def do_it(self, a):  
        ...
```

t is an object of class Thing and d is defined. What is the proper way to call do\_it?

- ▶ A. do\_it(d)
- ▶ B. t.do\_it(d)
- ▶ C. do\_it(self, d)
- ▶ D. do\_it(t, d)
- ▶ E. t.do\_it(t, d)

# Objects as Strings

- ▶ By default, `print` on some object gives you a memory address, not a useful representation of the object
- ▶ But all of the built-in objects print nicely. How?
- ▶ The trick is to add a `__str__` method that returns a string representation of the object
- ▶ String concatenation, string formatting, `str`, etc. can be used
- ▶ Make use of object attributes to build the string
- ▶ The information to include in the string depends on the object type (e.g. `Account`, `Point`)

## Example: Methods

Add the following methods to the `Point` class:

- ▶ `__str__` that prints a string like `(2, 8)` giving the `x` and `y` coordinates for the point
- ▶ `translate` that moves the `Point` a certain `x` distance and certain `y` distance
- ▶ `distance` that returns the distance between this point and another point

Write a `Segment` class for representing line segments

- ▶ Include `translate` and `length` methods