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CSE 20 11-30-21

- Quiz 5: today 6pm-2am
 - final exam: Mon Dec. 6, 12-8pm
 - Pat: ext. 1 last day: Thur Dec. 2
(when posted on gradescope?)
 - SETs (student evaluation of teaching)
-

continue ... Vector example

Ex. vector.py Vector class ←
vector-test.py test code for

note: built-in for str()
implicitly calls __str__()

Exercise:

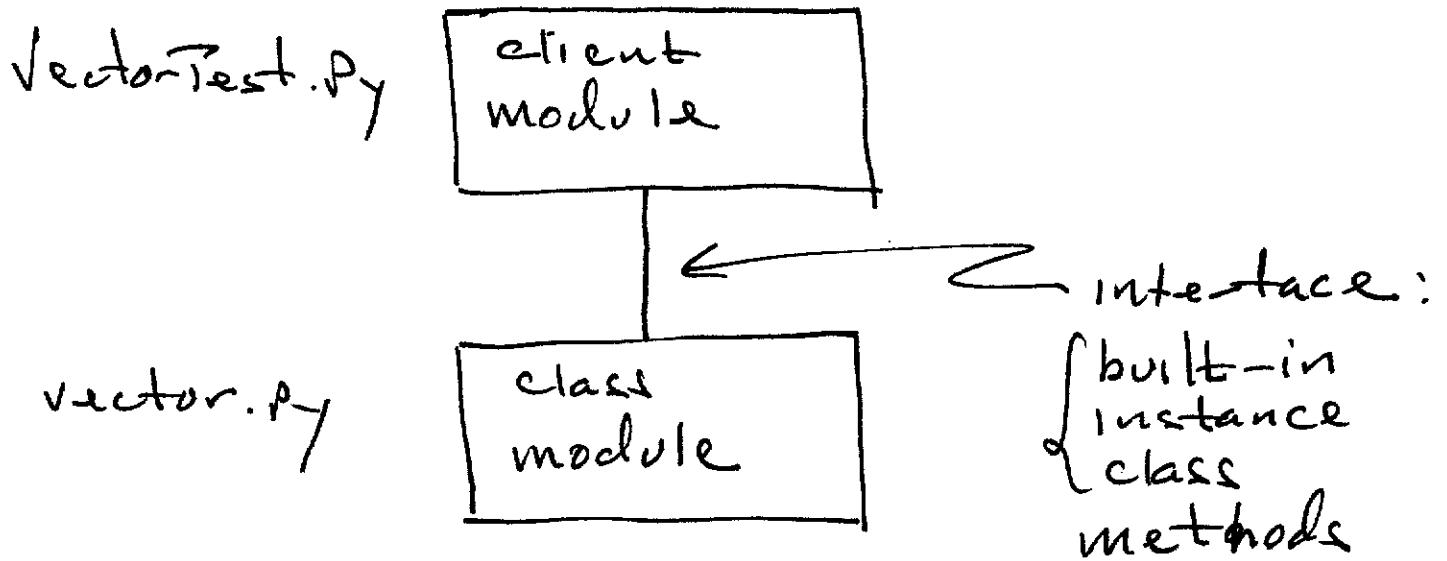
re-write Vector class using each of the other representations

- 3 attributes: x_{comp}
 y_{comp}
 z_{comp}
- list $[x, y, z]$ (1 attribute)
- tuple (x, y, z) (1 attribute)

Exercise:

write a new Vector class representing n -dimensional vectors, use dictionary.
leave out cross product.

OOP in Picture



we say class module exports its service (operations) through the interface (methods).

Exercise

Write a new client module called 'vectorIdentity.py' that verifies common algebraic formulas:

Wikipedia: [vector-algebra-relations](#)

New data type : set

$S = \{1, 2, 'a', 'b', 3, 4\}$
immutable objects

Print(S) $\neq \{ \dots \}$

Think of a set a dictionary with
 keys only, no values.

note that:

over-loaded operators:

$==, <, <=, >, >=$.

these are defined in a class by
 defining:

```
--lt--()
--le--()
--gt--()
--ge--()
--eq--()
```

more: operators in documentation

Next time:

- List comprehensions

[exp for x in iterable if cond]
optional

[x**2 for x in range(1,6)]



[1, 4, 9, 16, 25]

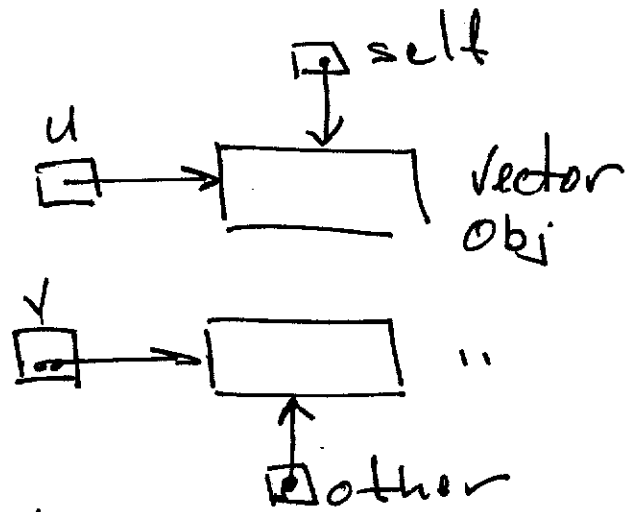
- Generator objects

instance method call :

instance_of_class.name_of_fcn(...)

Ex. Vector class

$u.add(v)$



class method call :

name_of_class.name_of_fcn(...)

Ex. Vector class

$Vector.randVector(a, b)$