

DSA using Python

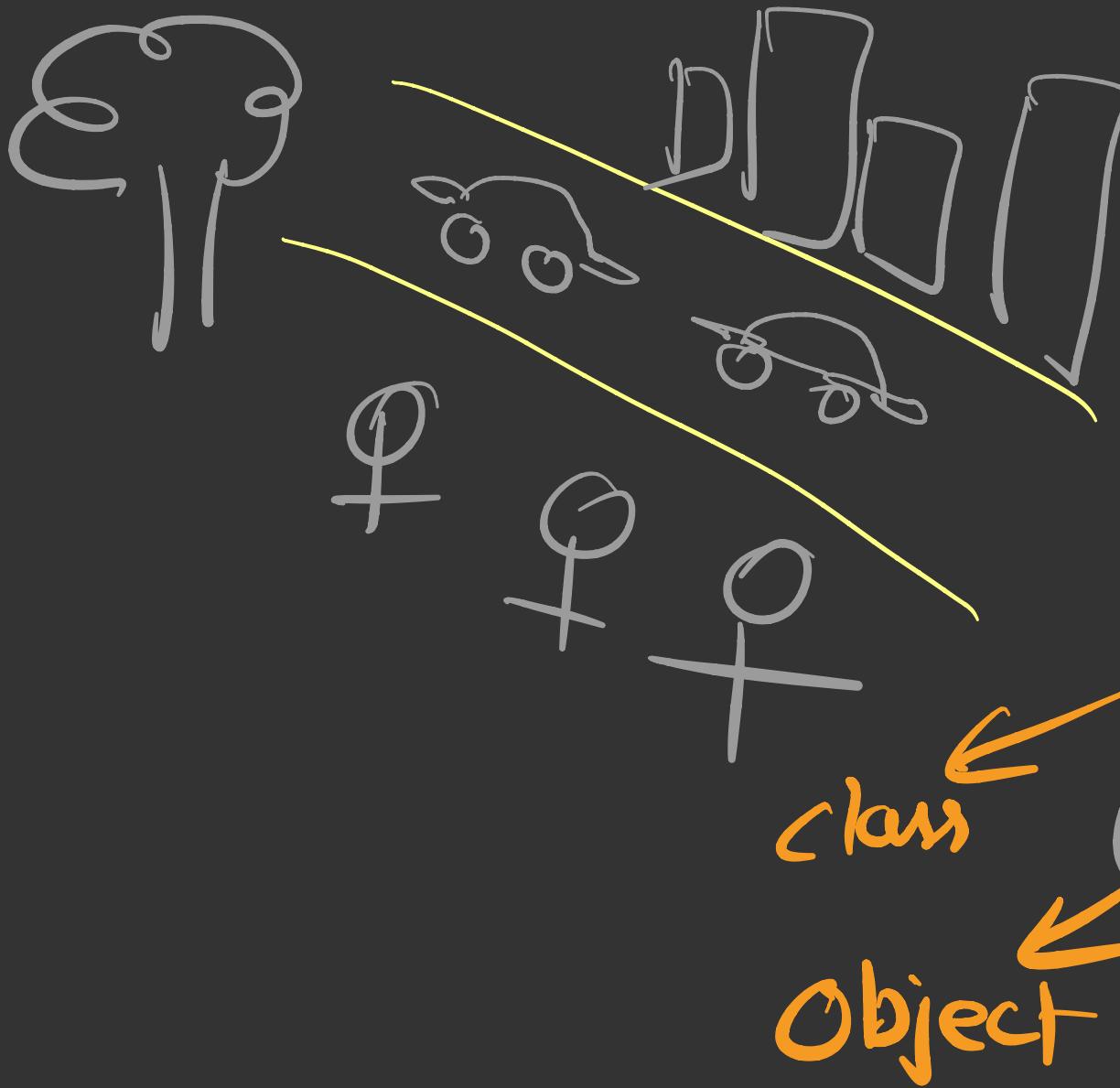
Classes and Objects



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Agenda

- ① Class
- ② Attributes
- ③ Objects
- ④ Class Object
- ⑤ `__init__()` method
- ⑥ Types of methods
- ⑦ Types of variables



Real
world

Noun

① Common Noun

② Proper Noun

Object

class

Encapsulation

An act of combining properties
and methods related same
object is known as Encapsulation
class in a way to implement
encapsulation

Class

- Class is a description of an object.

class Test :

attributes

- It defines various attributes of an object.

Defining a class is creating
a data type

Attributes

Attributes are member variables
and member functions

class Test:

x = 5

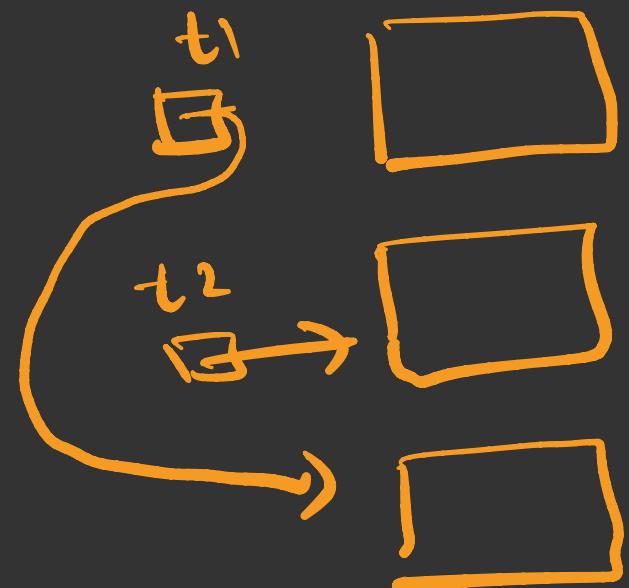
def f1():

some code

x and f1
are attributes

Objects

- Object is an instance of a class.
- Objects are of two types
 - class object
 - Instance object



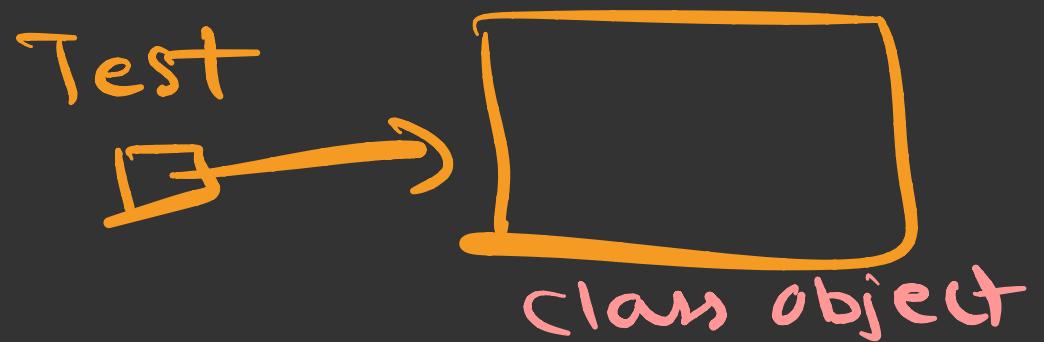
`t1 = Test()`

`t2 = Test()` `t1` and `t2` are instance

`t1 = Test()` objects of `Test` class

Class Object

Test vs Test()



One class has exactly one class object
but can have any number of instance objects

class Test :



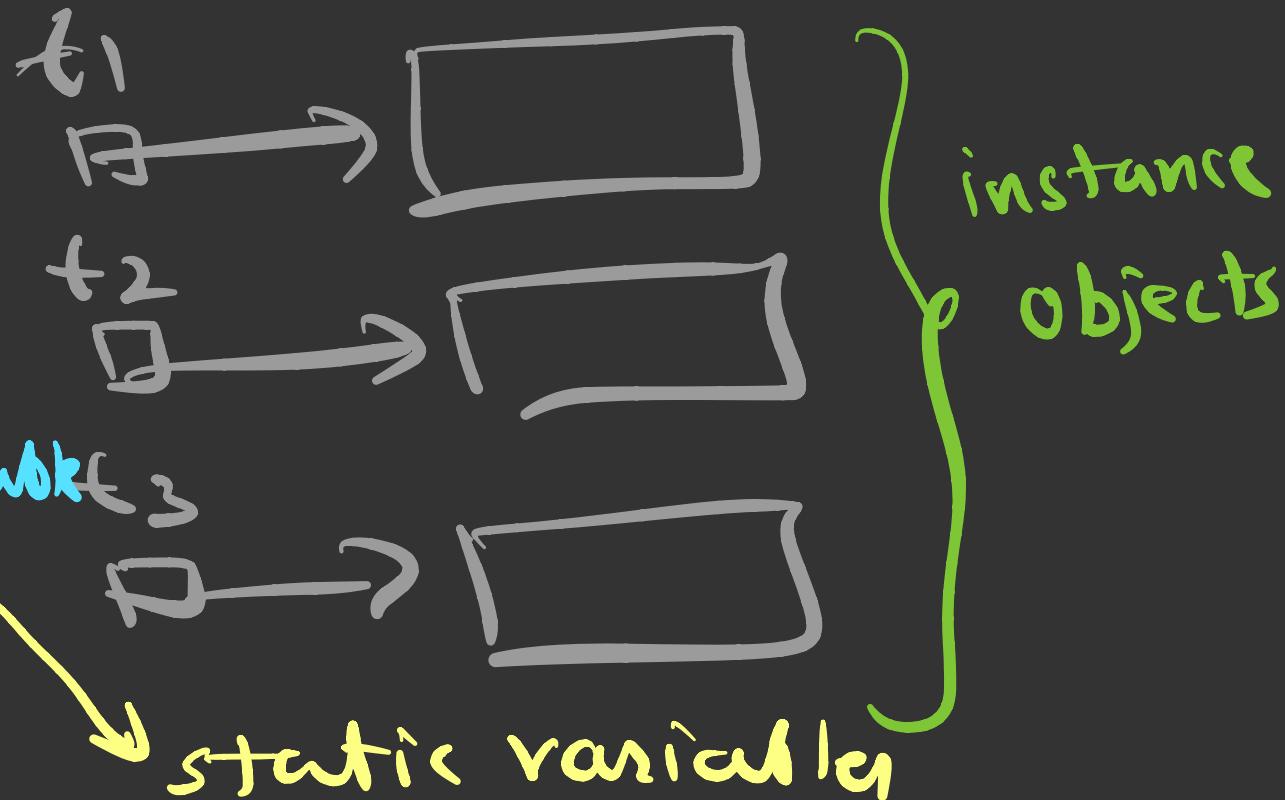
`t1 = Test()`

`t2 = Test()`

`t3 = Test()`

① class object variables

② instance object variables

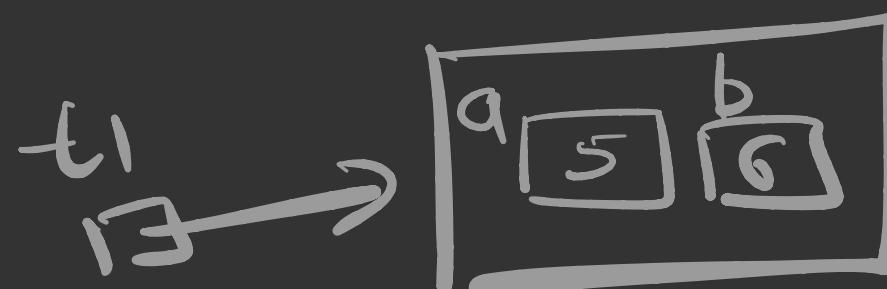


__init__() Method

class Test:

```
def __init__(self):  
    self.a = 5  
    self.b = 6
```

t1 = Test() → # __init__(t1)

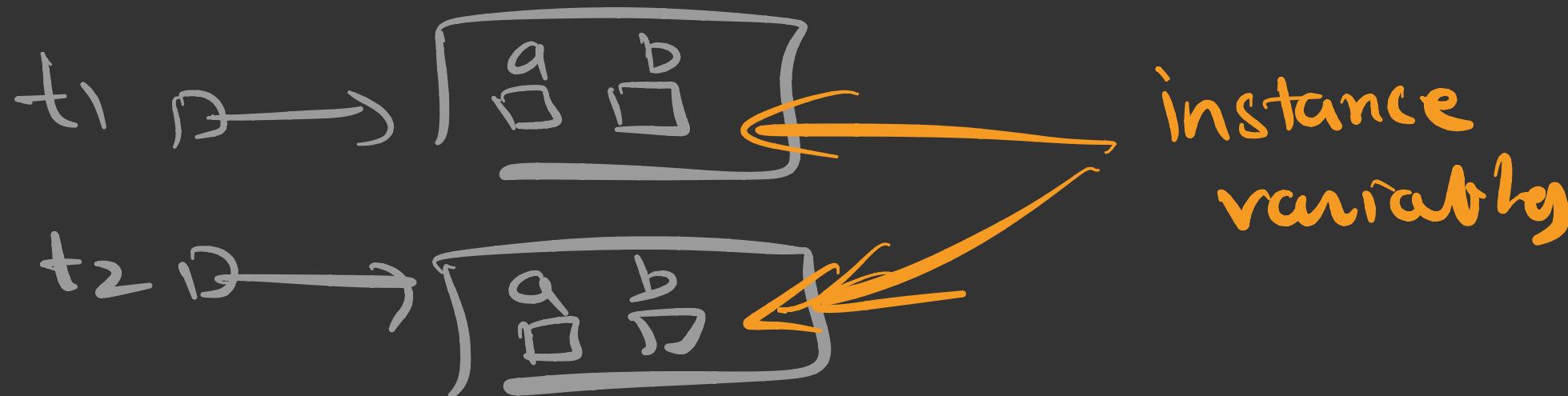
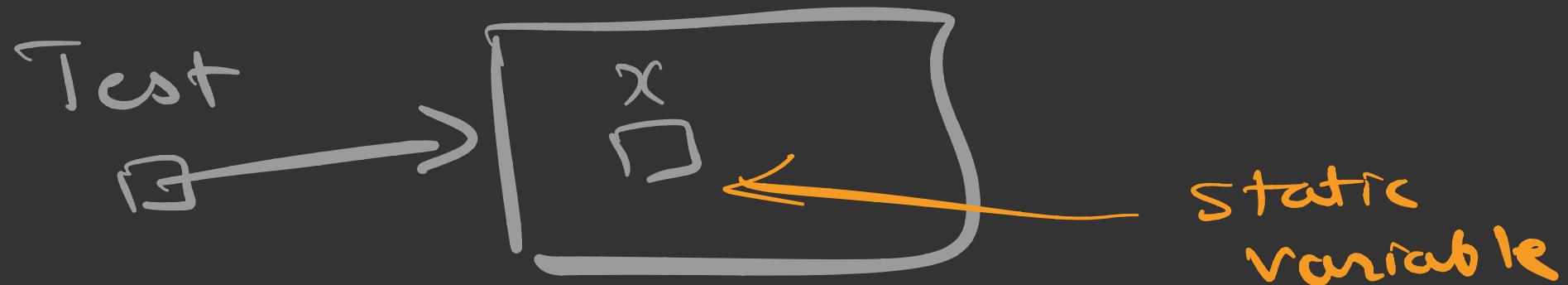


a and b are instance object variables

Methods

- Instance method
- static method
- class method

Static variables and instance variables



Create a class Employee with
attributes empid, name, salary
and also define methods to
access properties of Employee.