A Sample Class

class is a reserved word that defines a template for making objects

Each PartyAnimal object has a bit of code

Tell the an object to run the party() code within it

```
class PartyAnimal:

  def __init__(self):
    self.x = 0

  def party(self) :
    self.x = self.x + 1
    print("So far",self.x)

an = PartyAnimal()

an.party()
an.party()
an.party()
```

When the object is constructed, a specially named method is called to allocate and initialize attributes.

Construct a PartyAnimal object and store in an

PartyAnimal.party(an)

```
class PartyAnimal:

  def __init__(self):
    self.x = 0

  def party(self) :
    self.x = self.x + 1
    print("So far",self.x)

an = PartyAnimal()

an.party()
an.party()
an.party()
```

$ python party2.py

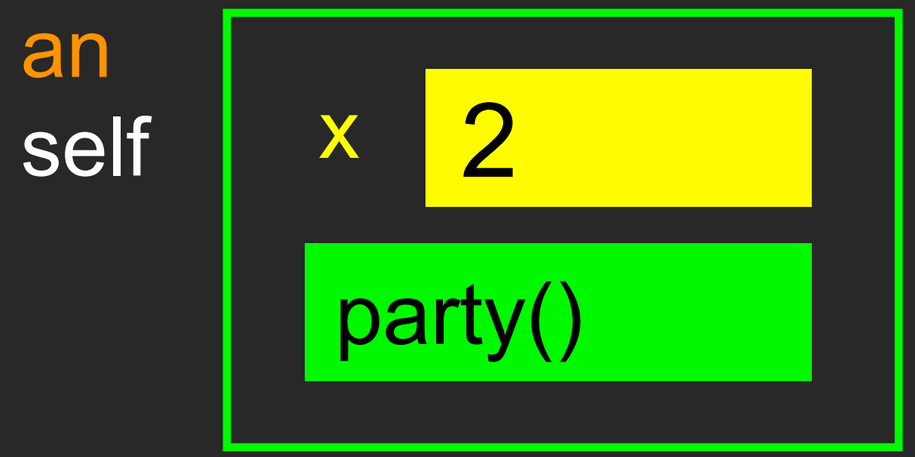
```
class PartyAnimal:

  def __init__(self):
    self.x = 0

  def party(self) :
    self.x = self.x + 1
    print("So far",self.x)

an = PartyAnimal()

an.party()
an.party()
an.party()
```

$ python party2.py

an

```
class PartyAnimal:

  def __init__(self):
    self.x = 0

  def party(self) :
    self.x = self.x + 1
    print("So far",self.x)

an = PartyAnimal()

an.party()
an.party()
an.party()
```

```
$ python party2.py
So far 1
So far 2
So far 3
```



Playing with dir() and type()

A Nerdy Way to Find Capabilities

The dir() command lists capabilities

Ignore the ones with underscores - these are used by Python itself

The rest are real operations that the object can perform

It is like type() - it tells us something *about* a variable

```
>>> y = list()
>>> type(y)
<class 'list'>
>>> dir(y)
['__add__', '__class__',
'__class_getitem__',
'__contains__', '__delattr__',
'__delitem__', '__dir__',
'__doc__', '__eq__', ...
'append', 'clear', 'copy',
'count', 'extend', 'index',
'insert', 'pop', 'remove',
'reverse', 'sort']
>>>
```

```
class PartyAnimal:

    def __init__(self):
      self.x = 0

    def party(self) :
      self.x = self.x + 1
      print("So far",self.x)

an = PartyAnimal()

print("Type", type(an))
print("Dir ", dir(an))
print ("Type", type(an.x))
print ("Type", type(an.party))
```

We can use dir() to find the “capabilities” of our newly created class.

```
$ python party3.py
Type <class '__main__.PartyAnimal'>
Dir  ['__class__', ... 'party', 'x']
Type <class 'int'>
Type <class 'method'>
```

party3.py

Try dir() with a String

```
>>> x = 'Hello there'
>>> dir(x)
['__add__', '__class__', '__contains__', '__delattr__', '__dir__', '__doc__',
'__eq__', '__format__', '__ge__', '__getattribute__', '__getitem__',
'__getnewargs__', '__gt__', '__hash__', '__init__', '__iter__', '__le__',
'__len__', '__lt__', '__mod__', '__mul__', '__ne__', '__new__', '__reduce__',
'__reduce_ex__', '__repr__', '__rmod__', '__rmul__', '__setattr__',
'__sizeof__', '__str__', '__subclasshook__', 'capitalize', 'casefold',
'center', 'count', 'encode', 'endswith', 'expandtabs', 'find', 'format',
'format_map', 'index', 'isalnum', 'isalpha', 'isdecimal', 'isdigit',
'isidentifier', 'islower', 'isnumeric', 'isprintable', 'isspace', 'istitle',
'isupper', 'join', 'ljust', 'lower', 'lstrip', 'maketrans', 'partition',
'replace', 'rfind', 'rindex', 'rjust', 'rpartition', 'rsplit', 'rstrip',
'split', 'splitlines', 'startswith', 'strip', 'swapcase', 'title',
'translate', 'upper', 'zfill']
```

Object Lifecycle

http://en.wikipedia.org/wiki/Constructor_(computer_science)

Acknowledgements / Contributions

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