

class

#类的名字应该用大写字母

```
class Employee:
```

```
    #给一些定义
```

```
    """ define a class for all employee
    instances in a company """
```

```
    #没啥 内容就 写pass
```

```
    pass
```

#创建一个实体

```
variable_name = Employee()
```

Attributes

instance attributes 是每个实体都有自己的

```
# Provide attributes and assign values to the
instances
```

```
empl.first_name = "Maria"
```

```
empl.last_name = "Ren a"
```

```
empl.basic_salary = 12000
```

```
empl.allowance = 5000
```

class attributes belong to the class itself, and are thus shared among all instances of the class

如果先声明instance attribute, 再声明class attribute。那不会覆盖原来的instance attribute。

但如果原来在类里声明了一个class attribute, 在后面再修改, 那原来的值确实会被覆盖

obj.__dict__ 返回【实体】和它的所有方法

class.__dict__ 返回【类】的所有方法和属性

Methods

instance method是自定义的

```
class Employee:
```

```
    bonus_percent = 0.2
```

```
    # Define an instance method that takes no
    arguments
```

```
    def calculate_bonus(self):
```

```
        return self.salary * Employee.bonus_percent
```

如何更改bonus_percent的默认值? 用类的调用来改

```
Employee.bonus_percent=0.3
```

Constructor & Destructor Method 是内置的建立和销毁函数

Methods (cont)

```
> __init__, __del__, __str__
```

使用默认参数初始化实例

#这段代码有条件才执行, 如果不执行的话这个实例四个attribute都不会有

```
def __init__(self, first = None, last = None,
salary = None, allowances = None):
```

```
    if first!= None and last!= None and salary!=
None and allowances!= None:
```

```
        self.first_name = first
```

```
        self.last_name = last
```

```
        self.salary = salary
```

```
        self.allowances = allowances
```

```
    print("Object initialized with
supplied values")
```

写入和加载obj

```
import pickle as cpickle
```

```
class stock:
```

```
    def __init__(self, name, lots):
```

```
        self.name = name
```

```
        self.lots = lots
```

```
    def __str__(self):
```

```
        return f'{self.name}=> {self.lots}'
```

#写入

```
s1 = stock("Apple", 1500)
```

```
s2 = stock("Google", 2000)
```

```
with open("stock.obj", "wb") as f:
```

```
    cpickle.dump([s1, s2], f)
```

#加载

```
with open("stock.obj", "rb") as f:
```

```
    s1 = cpickle.load(f)
```

```
    print(s1)
```

```
with open("stock.obj", "rb") as f:
```

```
    data = cpickle.load(f)
```

```
    for each in data:
```

```
        print(each)
```

self.variable和class.variable的区别

```
class employee:
    count=5
    def __init__(self, x):
        self.x=x
        self.count+=1
        print("this method is executed")
        print(self.count)
        print(employee.count)

empl=employee("John")
empl.count+=1
print(empl.count)
print(employee.count)
```

结果是6, 5, 7, 5。self.variable 显示的是这个obj自己当前的值, class.variable 显示的是他们共用的初始值

JSON data (json , dict和obj可以互相转化)

```
#把obj放进json再取出来
import json
from json import JSONEncoder
class stock(object):
    def __init__(self, name, lots):
        self.name = name
        self.lots = lots
    def __str__(self):
        return f'{self.name}=>{self.lots}'
class StockEncoder(JSONEncoder):
    def default(self, o):
        return o.__dict__
s1 = stock("Apple", 1500)
# encode Object it
s1Json = json.dumps(s1, cls=StockEncoder,
indent=4)
'''
json.loads() method can be used to parse a valid
JSON string and convert it into a Python Dictionary.
'''
```

JSON data (json , dict和obj可以互相转化) (cont)

```
> resultDict = json.loads(s1Json)
s1Obj = stock(**resultDict)
#json data写入/存储
with open("stockPrettyPrint.json", "w") as write_file:
    json.dump(s1, write_file, cls=StockEncoder, indent=4)
with open("stockPrettyPrint.json", "r") as read_file:
    s = json.load(read_file)
    PrettyJson = json.dumps(s, indent=4, separators=(',', ': '), sort_keys=True)
#Json, Dictionary, object
import json
from json import JSONEncoder
class stock(object):
    def __init__(self, name, lots):
        self.name = name
        self.lots = lots
    def __str__(self):
        return f'{self.name}=>{self.lots}'
class StockEncoder(JSONEncoder):
    def default(self, o):
        return o.__dict__
    def StockDecoder(obj):
        if '__type__' in obj and obj['__type__'] == 'stock':
            return stock(obj['name'], obj['lots'])
        return obj
s2Obj = json.loads('{"__type__": "stock", "lots":2000, "name": "Google"}', object_hook=StockDecoder)
with open("stockPrettyPrint.json", "w") as write_file:
    json.dump([s2Obj], write_file, cls=StockEncoder, indent=4))
with open("stockPrettyPrint.json", "r") as read_file:
    print("Read JSON file")
    s = json.load(read_file)
    for each in s:
        each = stock(**each)
        print(each)
```

JSON data (json , dict和obj是可以互转)

```
#把obj放进json再取出来
import json
from json import JSONEncoder
class stock( object):
    def __init__( self, name, lots):
        self.name = name
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    s = json.load(read_file)
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#Json, Dictionary, object
import json
from json import JSONEncoder
class stock( object):
    def __init__( self, name, lots):
        self.name = name
        self.lots = lots
```

JSON data (json , dict和obj是可以互转) (cont)

```
> def __str__(self):
    return f'{self.name}=>{self.lots}'
class StockEncoder(JSONEncoder):
    def default(self, o):
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    def StockDecoder(obj):
        if '__type__' in obj and obj['__type__'] == 'stock':
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with open("stockPrettyPrint.json", "r") as read_file:
    print("Read JSON file")
    s = json.load(read_file)
    for each in s:
        each = stock(**each)
    print(each)
```