

行为型模式-命令模式

概述：
命令模式是将一次完整的业务处理拆成了提出业务和处理业务两部分，这个模式把提出业务称为发起命令 处理业务称为执行命令。把提出业务与处理业务进行解耦。

- 特点：
- 1) 将发出请求的对象和执行请求的对象解耦
 - 2) 通过command对象连接请求调用者与被调用者
 - 3) 通过setCommand()方法改变调用者具体的执行体
 - 4) 不同的command对象可以拥有不同的执行实体
 - 5) 宏命令方式可以动态处理一系列的请求
 - 6) 支持undo撤销
- 可以发现，命令模式主要涉及 5 个参与者：
- 1) Command：声明执行操作的接口
 - 2) ConcreteCommand：将一个 Receiver对象和一个操作进行绑定
 - 3) Client：创建ConcreteCommand对象并设定其接收对象
 - 4) Invoker：要求该ConcreteCommand执行这个请求
 - 5) Receiver：要知道如何实施与执行一个请求相关的操作

示例代码：

```
In [1]: #coding:utf8
from abc import ABCMeta, abstractmethod

class Invoke:
    def set_command(self, command):
        self._command = command

    def issue_command(self):
        self._command.stock_buy()

    def undo_command(self):
        self._command.stock_sell()

class Receiver:
    @abstractmethod
    def buy(self):
        pass

    @abstractmethod
    def sell(self):
        pass

class tencent_receiver(Receiver):
    def buy(self):
        print('buy tencent stock!')

    def sell(self):
        print('cancel buy tencent stock!')

class alibaba_receiver(Receiver):
    def buy(self):
        print('buy alibaba stock!')

    def sell(self):
        print('cancel buy alibaba stock')

class Command:
    def __init__(self, receiver):
        self.receiver = receiver

    @abstractmethod
    def stock_buy(self):
        pass

    def stock_sell(self):
        pass

class tencent_stock_command(Command):
    def stock_buy(self):
        self.receiver.buy()

    def stock_sell(self):
        self.receiver.sell()

class alibaba_stock_command(Command):
    def stock_buy(self):
        self.receiver.buy()

    def stock_sell(self):
        self.receiver.sell()

if __name__ == '__main__':
    zhangsan = Invoke()
    tencent_rcv = tencent_receiver()
    alibaba_rcv = alibaba_receiver()

    cmd1 = tencent_stock_command(tencent_rcv)
    zhangsan.set_command(cmd1)
    zhangsan.issue_command()
    zhangsan.undo_command()
    print('#' * 20)
    cmd2 = alibaba_stock_command(alibaba_rcv)
    zhangsan.set_command(cmd2)
    zhangsan.issue_command()
    zhangsan.undo_command()

buy tencent stock!
cancel buy tencent stock!
#####
buy alibaba stock!
cancel buy alibaba stock
```

```
In [ ]:
```