OOP demonstration - Akash Gupta

demonstrating an implementation of basic Object Oriented Programming concepts.

```
class Stock(object):
    def __init__(self, name, price, expRet, num):
        self.name = name
        self.price = price
        self.expRet = expRet
        self.num = num

    def getName(self):
        return self.name
    def getPrice(self):
        return self.price
    def getExpRet(self):
        return self.expRet
    def getNum(self):
        return self.num
    def getValue(self):
        return (self.num * self.price)
    def __str__(self):
        return self.name

class Portfolio(Stock):
    def __init__(self):
        self.port = {}

    def addStock(self, stock):
        if stock in self.port:
            raise ValueError("duplicate entry")
        self.port[stock] = stock.getValue()

    def getPort(self):
        return self.port

    def calPortValue(self):
        return sum(self.port.values())

    def expReturn(self):
        total = 0
        for k,v in self.port.items():
            total += (v/self.port.calPortValue()) * (k.getExpRet())
        return total

stock1 = Stock("company a", 20, 0.10, 20)
stock2 = Stock("company b", 30, 0.08, 30)
stock3 = Stock("company c", 40, 0.07, 40)
stock4 = Stock("company d", 15, 0.20, 35)

portfolio1 = Portfolio()

stocks = [stock1, stock2, stock3, stock4]
for s in stocks:
    portfolio1.addStock(s)
```

```
print(portfolio1.calPortValue())
```

```
3425
```