2024/01/05 周作業

(3)利用內部類別、以及類別繼承方式，為一家百貨銷售商設計出一些類別，可以依照不同的顧客:一般顧客、會員、VIP，
　　(a)提供不同的貨品價格、
　　(b)以及享有不同的服務，例如：特定貨品只有會員以上、甚至VIP以上身份才可以預訂，參考附件的 products.txt 檔，寫出一個主程式來展示你的設計。

例如：
public class CustomEx {

```
public class CustomEx {
    public static void main(String[] args) throws Exception{
        final double MEMBER_DISCOUNT=0.95, VIP_DISCOUNT=0.9;
        DepartmentStore soGo = new DepartmentStore(MEMBER_DISCOUNT, VIP_DISCOUNT);
        DepartmentStore.Customer cs = soGo.new Customer();
        DepartmentStore.Member mb = soGo.new Member();
        DepartmentStore.VIP    vip = soGo.new VIP();

        System.out.println("--------- customer------------");
        cs.printProductList();
        System.out.println("--------- member -----------");
        mb.printProductList();
        System.out.println("--------- vip -----------");
        vip.printProductList();

        System.out.println("------- price query ---------");
        System.out.println("customer t-shirt:"+cs.getPrice("t-shirt"));
        System.out.println("member t-shirt:"+mb.getPrice("t-shirt"));
        System.out.println("vip t-shirt:"+vip.getPrice("t-shirt"));
    }
}
```

products.txt 檔案內容：

```
candy 10
t-shirt 250
hat 300
jean 1200
belt 800
limited_cup 500
limited_pen 800
limited_bottle 300
watch 10000
glass 15000
```

Customer
member
VIP

```
1  class t {
2      static int a=
3      int b=0;
4
5      static {a=2;}
6      t() { a=3; }
7      { b=2; }
8  }
9  public class st e
10     int c=2;
11     static { a=4;
12     st() { a=5;}
13     { c=3;        }
14     public static
15         st b=new st
16
17 }
```

第一題

```
/* 2024/01/05 楊育哲
 * 實作第三題：利用內部類別、以及繼承類別方式，為一家百貨銷售商設計出一些
 *             可以依照不同的顧客：一般顧客、會員、VIP。
 *                  a．提供不同的貨物價格
 *                  b．以及享有不同的服務。如:特定商品只有會員以上、甚至V
 *                  參考附件的probusts.txt檔，寫一個主程式來展現設計
 */
public class h1_0105_w {
    public static void main(String args[]){
        final double MEMBER_DISCOUNT=0.95, VIP_DISCOUNT=0.9;
```

```java
        DepartmentStore soGo = new DepartmentStore(MEMBER_DIS
        DepartmentStore.Customer cs = soGo.new Customer();
        DepartmentStore.Member   mb = soGo.new Member();
        DepartmentStore.VIP     vip = soGo.new VIP();
        System.out.println("-------customer-------");
        cs.printProductList();
        System.out.println("-------member-------");
        mb.printProductList();
        System.out.println("-------vip-------");
        vip.printProductList();
        System.out.println("-------price query-------");
        System.out.println("customer t-shirt: "+cs.getPrice("
        System.out.println("member   t-shirt: "+mb.getPrice("
        System.out.println("vip     t-shirt: "+vip.getPrice(
        System.out.println("-------reserve-------");//展現預
        mb.reserve("watch");// 權限不足，所以輸出reserve failed
        vip.reserve("watch");// 權限足夠，輸出reserve successful
    }
}
class Product{
    private String name;
    private int price, access, quantity;
    Product(String n, int p, int a, int q){ name=n;price=p;ac
    Product(String n, int p, int a){ name=n;price=p;access=a;
    public Product deepClone(){return new Product(name, price
    public String toString(int a, double discount){//權限a足夠
        if(a>=access){
            return name+" "+(int)(price*discount)+"\n";
        }return "";
    }
    public int get_price(String n){//依名稱回傳價格
        if(name==n)return price;
        return 0;
    }
    public boolean reserveProcess(String n, int a){//預定處理
        if(name==n){// 對應到產品名稱
            if(a>=access&&quantity>0){// 權限和數量足夠
                quantity--;
```

```java
                System.out.println("reserve successful.");
                return true;
            }else System.out.println("reserve failed.");
        }
        return false;// 沒對應到或權限、數量不足
    }
}
class DepartmentStore{
    private double memberDiscount, vipDiscount;
    private Product[] list = new Product[10];
    private int products;// 產品數量
    DepartmentStore(double md, double vd){
        memberDiscount=md;
        vipDiscount=vd;
        list[0]=new Product("condy", 10, 0);
        list[1]=new Product("t-shirt", 250, 0);
        list[2]=new Product("hat", 300, 0);
        list[3]=new Product("jean", 1200, 0);
        list[4]=new Product("belt", 800, 0);
        list[5]=new Product("limited_cup", 500, 1);
        list[6]=new Product("limited_pen", 800, 1);
        list[7]=new Product("limited_bottle", 300, 1);
        list[8]=new Product("watch", 100000, 2);
        list[9]=new Product("glass", 15000, 2);
        products=10;
    }
    class Customer{
        private Product[] reserveList;// 預定清單
        private int reserveProducts;// 預定數量
        private int userAccess=0;
        public void printProductList(){// 產品清單輸出
            for(int i=0; i<products; i++){
                System.out.print(list[i].toString(userAccess,
            }
        }
        public int getPrice(String item){//回傳對應商品的價格
            int price_=0;
            for(int i=0; i<products; i++){
```

```java
                price_+=list[i].get_price(item);
                if(price_>0) return price_;
            }
            return 0;
        }
        public void reserve(String item){//預定功能，會員及VIP才
            for(int i=0; i<products; i++){
                if(list[i].reserveProcess(item, userAccess)){
                    reserveList[reserveProducts++]=list[i].de
                    return;
                }
            }
            System.out.println("can't find product.");
        }
    }
    class Member extends Customer{
        Member(){ super.reserveList=new Product[10];super.res
        public void printProductList(){//多型，會員可購買的產品清
            for(int i=0; i<products; i++){
                System.out.print(list[i].toString(super.userA
            }
        }
        public int getPrice(String item){//多型，回傳價格乘上會員
            return (int)(super.getPrice(item)*memberDiscount)
        }
    }
    class VIP extends Customer{
        VIP(){ super.reserveList=new Product[10];super.reserv
        public void printProductList(){//多型，VIP可購買的產品清
            for(int i=0; i<products; i++){
                System.out.print(list[i].toString(super.userA
            }
        }
        public int getPrice(String item){//多型，回傳價格乘上VIP
            return (int)(super.getPrice(item)*vipDiscount);
        }
    }
}
```

輸出:

-------customer--------
condy 10
t-shirt 250
hat 300
jean 1200
belt 800
--------member--------
condy 9
t-shirt 237
hat 285
jean 1140
belt 760
limited_cup 475
limited_pen 760
limited_bottle 285
--------vip--------
condy 9
t-shirt 225
hat 270
jean 1080
belt 720
limited_cup 450
limited_pen 720
limited_bottle 270
watch 90000
glass 13500
--------price query--------
customer t-shirt: 250
member t-shirt: 237
vip t-shirt: 225
--------reserve--------
reserve failed.
can't find product.
reserve successful.

說明:

使用class Product內access變數，達到不同用戶不一定可取用本產品的功能。

如Member的權限為1，可以取用到三樣限量商品，而Customer權限為0，則無法取用。

接著member及VIP有各自的discount，呼叫多型方法getPrice獲取不同價碼。(乘上各自的discount)

reserve功能寫在customer裡，給Member和VIP extends。並以userAccess區分權限。

像輸出倒數三行那邊: reserve failed. 、 can't find product.為mb.reserve("watch");的輸出，因為它權限不足。而vip.reserve("watch");則輸出reserve successful，因為它權限足夠。