

Java 物件導向

Bing & Liam

20170608

注意事項！！！！

1. 此次須包含三個檔案, 上傳前再次檢查
 - a. Assignment5.java
 - b. Clothing.java
 - c. Food.java
 - d. Product.java
 - e. ProductParser.java
2. 專案名稱為【學號_5】, 壓縮且上傳, 記得再次檢查
3. 此次作業期限為 6/15

今日目標

AACSB

作業六

AACSB 期中期末

填寫完畢才可以離開哦！

功能展示

A新增

```
-----
A      Add Product
C      Compute Total Costs
S      Search for Product
L      List Products
Q      Quit
?      Display Help

What action would you like to perform?

A
A
Please enter a product information to add:

Clothing/C0001/20/39.95/Small/White
What action would you like to perform?

A
A
Please enter a product information to add:

Food/F0002/300/0.05/Orange/0.091/10.07.2015
```

C計算 / L列出

```
What action would you like to perform?

C
C
Total costs computed.

What action would you like to perform?

L
L

Product ID:          C0001
Quantity:            20
Unit Price:          $39.95
Total Cost:          $799.0
Size:                Small
Color:               White

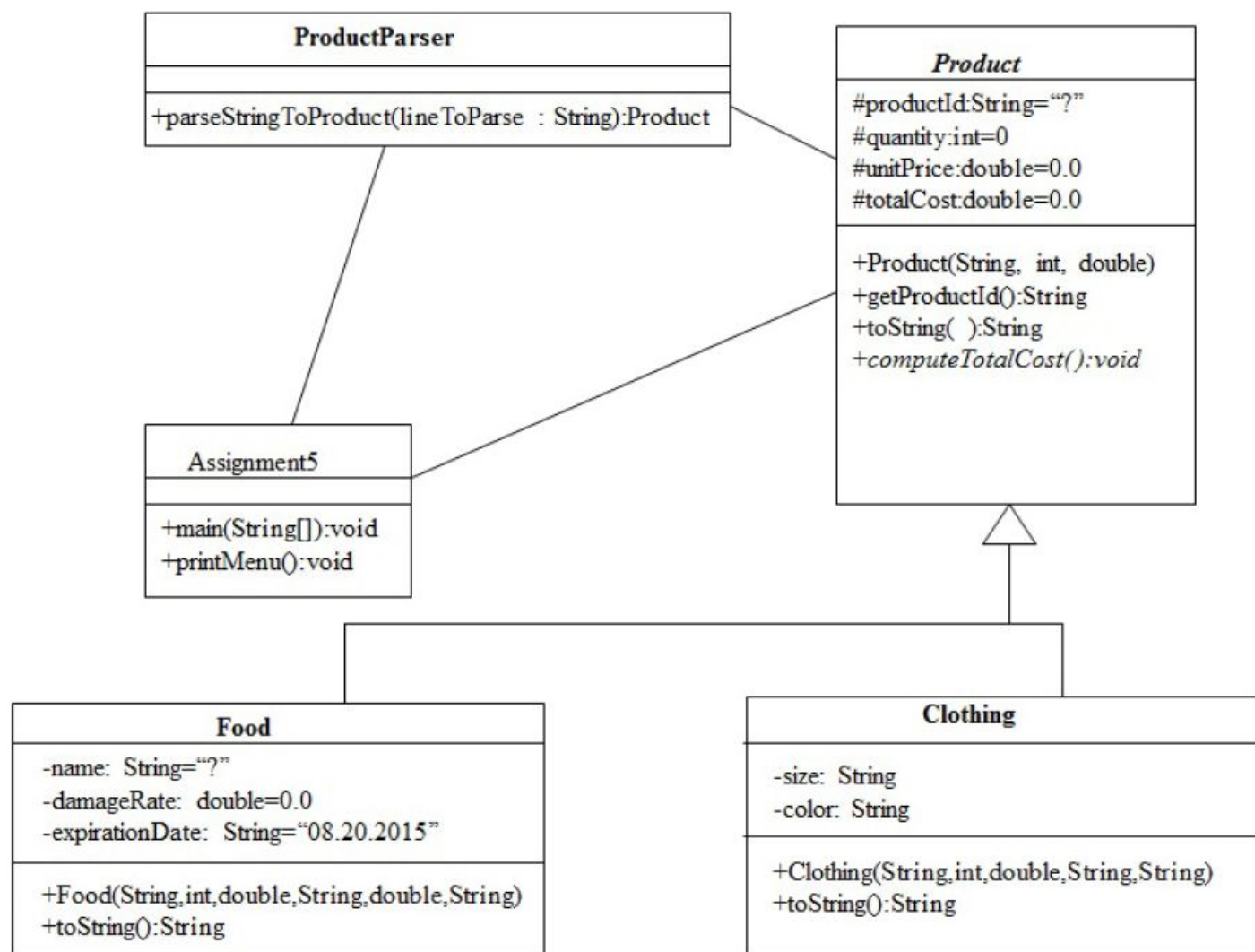
Product ID:          F0002
Quantity:            300
Unit Price:          $0.05
Total Cost:          $16.365
Food Name:           Orange
Damage Rate:         0.091
Expiration Date:      10.07.2015
```

S搜尋

```
What action would you like to perform?

S
S
Please enter a productID to search:

C0001
Product found.
```



抽象類別

抽象類別(Abstract class)

抽象方法(Abstract method): 等著其他class去擴充他

多型(polymorphism):運用類別 (class) 間繼承 (inherit) 的關係, 使父類別 (superclass) 可以當成子類別 (subclass) 的通用型態。

Product.java

```
1 public abstract class Product {
2     protected String productId = "?";
3     protected int quantity = 0;
4     protected double unitPrice = 0.0;
5     protected double totalCost = 0.0;
6     public Product(String productIdValue, int quantityValue, double unitPriceValue){
7         productId = productIdValue;
8         quantity = quantityValue;
9         unitPrice = unitPriceValue;
10    }
11    public String getProductId(){
12        return productId;
13    }
14    public abstract void computeTotalCost();
15    public String toString(){
16        String reString = "\nProduct ID:\t\t"+productId;
17        reString += "\nQuantity:\t\t"+quantity;
18        reString += "\nUnit Price:\t\t$"+unitPrice;
19        reString += "\nTotal Cost:\t\t$"+totalCost+"\n";
20        return reString;
21    }
22 }
```


Clothing.java

```
1 public class Clothing extends Product{
2     public String size;
3     public String color;
4     public Clothing(String productIdValue, int quantityValue, double unitPriceValue, String sizeValue, String colorValue){
5         super(productIdValue, quantityValue, unitPriceValue);
6         size = sizeValue;
7         color = colorValue;
8     }
9     @Override
10    public void computeTotalCost() {
11        totalCost = unitPrice * quantity;
12    }
13    public String toString(){
14        String reString = "\nClothing:\n";
15        reString = "\nProduct ID:\t\t"+productId;
16        reString += "\nQuantity:\t\t"+quantity;
17        reString += "\nUnit Price:\t\t$"+unitPrice;
18        reString += "\nTotal Cost:\t\t$"+totalCost;
19        reString += "\nSize:\t\t"+size;
20        reString += "\nColor:\t\t"+color;
21        return reString;
22    }
23 }
```

測試看看

```
Product c = new Clothing("C0001", 20, 39.95, "Small", "White");  
System.out.println(c.toString());
```

Product ID: C0001

Quantity: 20

Unit Price: \$39.95

Total Cost: \$0.0

Size: Small

Color: White

ProductPaser.java

```
public static Product parseStringToProduct(String lineToParse){ 實做它 }
```

實做：

1. 將lineToParse依【/】分解，存入陣列(split)
2. 將第一個位置(Food或Clothing)轉成小寫(toLowerCase)
3. 比對字串(if + equals)
4. new Food or Clothing(參數視情況轉成double or int)
5. return Product object

ProductPaser.java

輸入字串

切割字串

判別類型

新增物件

回傳物件

"Clothing/C0001/20/39.95/Small/
White"

array =
["Clothing","C0001","20","39.95" ...]

if equals clothing
else if equals food

Product p = new Clothing("C0001",20,...)
or
Product p = new Food("C0001",20,...)

return product

測試看看

```
String lineToParse1 = "Clothing/C0001/20/39.95/Small/White";  
String lineToParse2 = "Food/F0002/300/0.05/Orange/0.091/10.07.2015";  
ArrayList<Product> productList = new ArrayList<Product>();  
  
productList.add(ProductParser.parseStringToProduct(lineToParse1));  
productList.add(ProductParser.parseStringToProduct(lineToParse2));  
for(Product p : productList){  
    System.out.println(p.toString());  
}
```

Assignment5.java

1. 事件操作, 建議可以修改作業三(switch case)
2. 操作A:
 - a. 讀入字串(scanner.nextLine)
 - b. 執行ProductParser.parseStringToProduct
 - c. 加進arrayList(arrayList.add)
3. 操作C:
 - a. 執行每個product.computeTotalCost()
4. 操作S:
 - a. 讀入ID字串(scanner.nextLine)
 - b. 從arrayList裡找符合的ID(Product.getProductId().equals(ProductID))
5. 操作L:
 - a. 執行每個product.toString()

測試看看

A

Clothing/C0001/20/39.95/Small/White

A

Food/F0002/300/0.05/Orange/0.091/10.07.2015

C

L

S

C0001

功能展示

A新增

```
-----
A      Add Product
C      Compute Total Costs
S      Search for Product
L      List Products
Q      Quit
?      Display Help

What action would you like to perform?

A
A
Please enter a product information to add:

Clothing/C0001/20/39.95/Small/White
What action would you like to perform?

A
A
Please enter a product information to add:

Food/F0002/300/0.05/Orange/0.091/10.07.2015
```

C計算 / L列出

```
What action would you like to perform?

C
C
Total costs computed.

What action would you like to perform?

L
L

Product ID:          C0001
Quantity:            20
Unit Price:          $39.95
Total Cost:          $799.0
Size:                Small
Color:               White

Product ID:          F0002
Quantity:            300
Unit Price:          $0.05
Total Cost:          $16.365
Food Name:           Orange
Damage Rate:         0.091
Expiration Date:      10.07.2015
```

S搜尋

```
What action would you like to perform?

S
S
Please enter a productID to search:

C0001
Product found.
```


END

AACSB 期中期末

填寫完畢才可以離開哦！

快解脫了，期末考加油！