```java
1  package edu.cpp.cs5800;
2
3  import java.util.ArrayList;
4  import java.util.List;
5
6  public class Order {
7      private static int orderNo = 0;
8      private double totalPrice;
9      private final List<FoodItem> orderItems = new ArrayList<>();
10
11     public Order() {
12         orderNo++;
13     }
14
15     public int addItem(FoodItem item) {
16         this.totalPrice += item.getPrice();
17         orderItems.add(item);
18         return orderItems.size();
19     }
20
21     public double getTotalPrice() {
22         return this.totalPrice;
23     }
24
25     public String getOrderDetails() {
26         String itemDivider = "---------------\n";
27         String orderDivider = "-------------------------\n";
28         StringBuilder details = new StringBuilder();
29         details.append(orderDivider);
30         details.append("Order No: #").append(orderNo).append("\n");
31         details.append(orderDivider);
32         for (FoodItem item : this.orderItems) {
33             details.append(item.getDescription());
34             details.append(itemDivider);
35         }
36         details.append(Formatter.format("Total", this.getTotalPrice()));
37         details.append(orderDivider);
38         return details.toString();
39     }
40 }
41
```

```
 1 package edu.cpp.cs5800;
 2
 3 import edu.cpp.cs5800.addons.CheeseDecorator;
 4 import edu.cpp.cs5800.addons.LettuceDecorator;
 5 import edu.cpp.cs5800.addons.PicklesDecorator;
 6 import edu.cpp.cs5800.addons.TomatoDecorator;
 7 import edu.cpp.cs5800.customer.Customer;
 8 import edu.cpp.cs5800.customer.GoldCustomer;
 9 import edu.cpp.cs5800.customer.PlatinumCustomer;
10 import edu.cpp.cs5800.customer.SilverCustomer;
11
12 public class Driver {
13     public static void main(String[] args) {
14         Order o1 = new Order();
15         Customer c1 = new PlatinumCustomer();
16         o1.addItem(new TomatoDecorator(new CheeseDecorator(new ChickenBurger())));
17         o1.addItem(new PicklesDecorator(new VeggieBurger()));
18         System.out.print(o1.getOrderDetails());
19         System.out.println(c1.applyLoyaltyDiscount(o1.getTotalPrice()));
20
21         Order o2 = new Order();
22         Customer c2 = new GoldCustomer();
23         o2.addItem(new LettuceDecorator(new CheeseDecorator(new TomatoDecorator(new
   FishBurger()))));
24         System.out.print(o2.getOrderDetails());
25         System.out.println(c2.applyLoyaltyDiscount(o2.getTotalPrice()));
26
27         Order o3 = new Order();
28         Customer c3 = new SilverCustomer();
29         o3.addItem(new ChickenBurger());
30         System.out.print(o3.getOrderDetails());
31         System.out.println(c3.applyLoyaltyDiscount(o3.getTotalPrice()));
32     }
33 }
34
```

```
1 package edu.cpp.cs5800;
2
3 public interface FoodItem {
4     double getPrice();
5     String getDescription();
6 }
7
```

```java
1  package edu.cpp.cs5800;
2
3  public class Formatter {
4      public static String format(String name, double price) {
5          int totalWidth = 25;
6          String strPrice = String.format("%.2f", price);
7
8          int dashCount = totalWidth - name.length() - strPrice.length();
9          String fill = new String(new char[dashCount]).replace("\0", " ");
10
11         return name + fill + strPrice + "\n";
12     }
13 }
14
```

```java
1  package edu.cpp.cs5800;
2
3  public class FishBurger implements FoodItem {
4
5      private static final double price = 6.0;
6
7      @Override
8      public double getPrice() {
9          return price;
10     }
11
12     @Override
13     public String getDescription() {
14         return Formatter.format("Fish Burger", price);
15     }
16 }
17
```

```
 1  package edu.cpp.cs5800;
 2
 3  public class VeggieBurger implements FoodItem {
 4
 5      private static final double price = 4.5;
 6
 7      @Override
 8      public double getPrice() {
 9          return price;
10      }
11
12      @Override
13      public String getDescription() {
14          return Formatter.format("Veggie Burger", price);
15      }
16  }
17
```

```
1  package edu.cpp.cs5800;
2
3  public class ChickenBurger implements FoodItem {
4
5      private static final double price = 5.5;
6
7      @Override
8      public double getPrice() {
9          return price;
10     }
11
12     @Override
13     public String getDescription() {
14         return Formatter.format("Chicken Burger", price);
15     }
16 }
17
```

```
 1  package edu.cpp.cs5800.addons;
 2
 3  import edu.cpp.cs5800.FoodItem;
 4
 5  public abstract class AddOnDecorator implements FoodItem {
 6      protected FoodItem foodItem;
 7
 8      public AddOnDecorator(FoodItem foodItem) {
 9          this.foodItem = foodItem;
10      }
11  }
12
```

```
1  package edu.cpp.cs5800.addons;
2
3  import edu.cpp.cs5800.FoodItem;
4  import edu.cpp.cs5800.Formatter;
5
6  public class CheeseDecorator extends AddOnDecorator {
7
8      private static final double price = 1.5;
9
10     public CheeseDecorator(FoodItem foodItem) {
11         super(foodItem);
12     }
13
14     @Override
15     public double getPrice() {
16         return this.foodItem.getPrice() + price;
17     }
18
19     @Override
20     public String getDescription() {
21         return this.foodItem.getDescription() + Formatter.format("+ Cheese", price);
22     }
23 }
24
```

```
1  package edu.cpp.cs5800.addons;
2
3  import edu.cpp.cs5800.FoodItem;
4  import edu.cpp.cs5800.Formatter;
5
6  public class TomatoDecorator extends AddOnDecorator {
7
8      private static final double price = 1.0;
9
10     public TomatoDecorator(FoodItem foodItem) {
11         super(foodItem);
12     }
13
14     @Override
15     public double getPrice() {
16         return this.foodItem.getPrice() + price;
17     }
18
19     @Override
20     public String getDescription() {
21         return this.foodItem.getDescription() + Formatter.format("+ Tomato", price);
22     }
23 }
24
```

```
1  package edu.cpp.cs5800.addons;
2
3  import edu.cpp.cs5800.FoodItem;
4  import edu.cpp.cs5800.Formatter;
5
6  public class LettuceDecorator extends AddOnDecorator {
7
8      private static final double price = 0.5;
9
10     public LettuceDecorator(FoodItem foodItem) {
11         super(foodItem);
12     }
13
14     @Override
15     public double getPrice() {
16         return this.foodItem.getPrice() + price;
17     }
18
19     @Override
20     public String getDescription() {
21         return this.foodItem.getDescription() + Formatter.format("+ Lettuce", price);
22     }
23 }
24
```

```java
1  package edu.cpp.cs5800.addons;
2
3  import edu.cpp.cs5800.FoodItem;
4  import edu.cpp.cs5800.Formatter;
5
6  public class PicklesDecorator extends AddOnDecorator {
7
8      private static final double price = 1.2;
9
10     public PicklesDecorator(FoodItem foodItem) {
11         super(foodItem);
12     }
13
14     @Override
15     public double getPrice() {
16         return this.foodItem.getPrice() + price;
17     }
18
19     @Override
20     public String getDescription() {
21         return this.foodItem.getDescription() + Formatter.format("+ Pickles", price);
22     }
23 }
24
```

```
1 package edu.cpp.cs5800.customer;
2
3 public interface Loyalty {
4     int getDiscountPercentage();
5     String applyLoyaltyDiscount(double amount);
6 }
7
```

```java
1  package edu.cpp.cs5800.customer;
2
3  import edu.cpp.cs5800.Formatter;
4
5  public class Customer implements Loyalty {
6
7      @Override
8      public int getDiscountPercentage() {
9          return 0;
10     }
11
12     @Override
13     public String applyLoyaltyDiscount(double amount) {
14         return Formatter.format("After " + this.getDiscountPercentage() + "% Discount:", ((
   double) (100 - this.getDiscountPercentage()) / 100 ) * amount);
15     }
16 }
17
```

```
1 package edu.cpp.cs5800.customer;
2
3 public class GoldCustomer extends Customer {
4     @Override
5     public int getDiscountPercentage() {
6         return 15;
7     }
8 }
9
```

```
1 package edu.cpp.cs5800.customer;
2
3 public class SilverCustomer extends Customer {
4     @Override
5     public int getDiscountPercentage() {
6         return 10;
7     }
8 }
9
```

```
1 package edu.cpp.cs5800.customer;
2
3 public class PlatinumCustomer extends Customer {
4     @Override
5     public int getDiscountPercentage() {
6         return 20;
7     }
8 }
9
```