

## Codigo Fuente

```
1  /**
2   * @author Victor Lavalle
3   */
4  public abstract class MenuComponent {
5
6      private String Name;
7
8      public String getName() { return Name; }
9      public void setName(String Name) { this.Name = Name;}
10
11     public abstract String toPrint();
12
13 }
```

```
1  import java.text.DecimalFormat;
2  /**
3   * @author Victor Lavalle
4   */
5  public class MenuItem extends MenuComponent {
6
7      //In this case we generate a random number from 1 to 100
8      //for demonstration purposes
9      double price =(Math.random() * 100) + 1;
10     DecimalFormat formatPrice = new DecimalFormat("#.00");
11
12     @Override
13     public String toPrint() {
14         return "»"+this.getName()+ ": $" + formatPrice.format(price);
15     }
16
17 }
```

```
1  import java.util.ArrayList;
2  /**
3   * @author Victor Lavalle
4   */
5  public class MenuGrouper extends MenuComponent {
6
7      private String Name;
8      ArrayList<MenuComponent>items= new ArrayList<>();
9
10     @Override
11     public String getName() {return Name; }
12
13     @Override
14     public void setName(String Name) {this.Name = Name; }
15
16     public ArrayList<MenuComponent> getItems() {return items;}
17
18     public void addItem(MenuComponent subMenu) {
19         this.items.add(subMenu);
20     }
21 }
```

```

22     @Override
23     public String toPrint() {
24         String dishes=Name+"\n";
25         for(int i=0;i<items.size();i++){
26             dishes+= items.get(i).toPrint()+"\n";
27         }
28         return dishes;
29     }
30 }

```

```

1  /**
2   * @author Victor Lavalle
3   * Menu created statically for demonstration purposes
4   */
5  public class Client {
6
7      public static void main(String[] args) {
8
9          //
10         MenuGrouper Breakfast= new MenuGrouper();
11         Breakfast.setName("Breakfast");
12
13         MenuItem meal= new MenuItem();
14         meal.setName("Fruit with Oatmeal");
15         MenuItem meal2= new MenuItem();
16         meal2.setName("Green Smoothie");
17         MenuItem meal3= new MenuItem();
18         meal3.setName("French Toast");
19
20         Breakfast.addItem(meal);
21         Breakfast.addItem(meal2);
22         Breakfast.addItem(meal3);
23
24         //
25         MenuGrouper Brunch= new MenuGrouper();
26         Brunch.setName("Brunch");
27
28         MenuItem meal4= new MenuItem();
29         meal4.setName("Scrambled Eggs");
30         MenuItem meal5 = new MenuItem();
31         meal5.setName("Waffles");
32         MenuItem meal6 = new MenuItem();
33         meal6.setName("Club Sandwich");
34
35         Brunch.addItem(meal4);
36         Brunch.addItem(meal5);
37         Brunch.addItem(meal6);
38
39         //
40         MenuGrouper Dinner = new MenuGrouper();
41         Dinner.setName("Dinner");
42
43         MenuItem meal7 = new MenuItem();
44         meal7.setName("Mac & Cheese");
45         MenuItem meal8 = new MenuItem();
46         meal8.setName("Ceasar Salad");
47         MenuItem meal9 = new MenuItem();
48         meal9.setName("Cheese Burger");
49
50         Dinner.addItem(meal7);

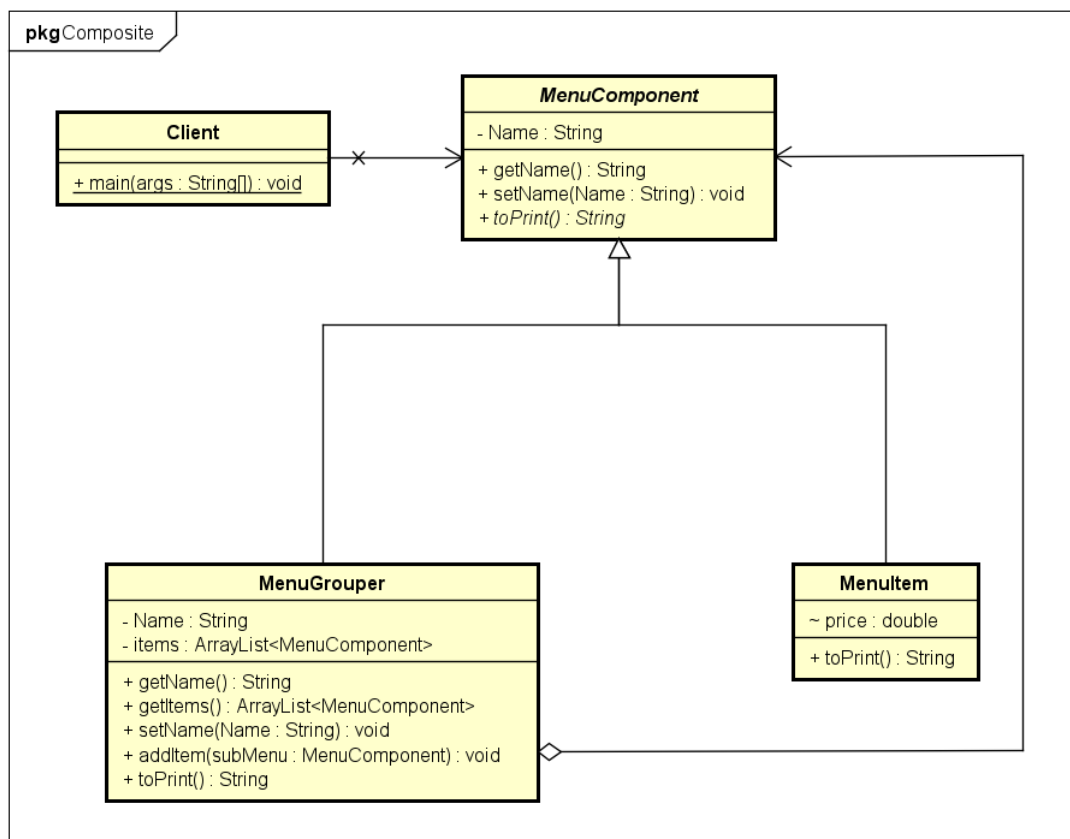
```

```

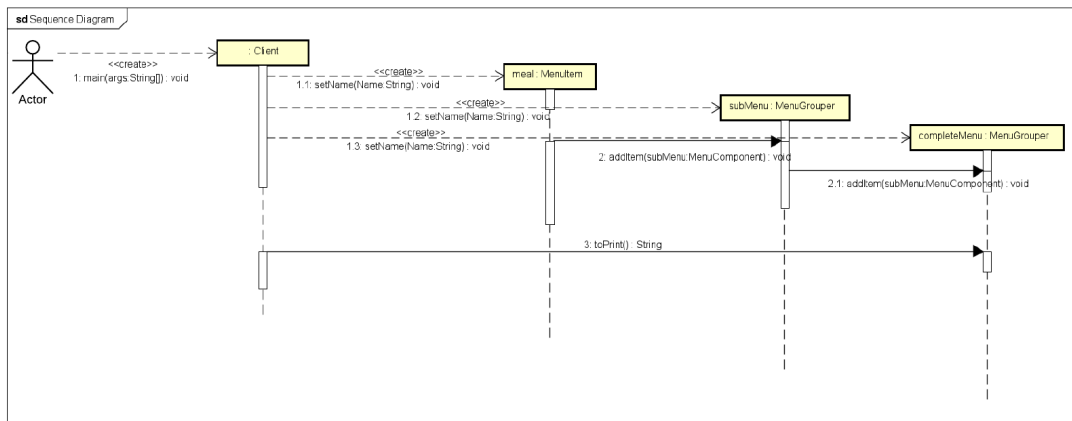
51     Dinner.addItem(meal8);
52     Dinner.addItem(meal9);
53
54     // -----
55     MenuGrouper Desserts = new MenuGrouper();
56     Desserts.setName("Desserts");
57
58     MenuItem meal10 = new MenuItem();
59     meal10.setName("Cheesecake");
60     MenuItem meal11 = new MenuItem();
61     meal11.setName("Brownie");
62     MenuItem meal12 = new MenuItem();
63     meal12.setName("Icecream");
64
65     Desserts.addItem(meal10);
66     Desserts.addItem(meal11);
67     Desserts.addItem(meal12);
68
69     // -----
70     MenuGrouper completeMenu = new MenuGrouper();
71     completeMenu.setName("COMPOSITE MENU\n");
72
73     completeMenu.addItem(Breakfast);
74     completeMenu.addItem(Brunch);
75     completeMenu.addItem(Dinner);
76     completeMenu.addItem(Desserts);
77
78     System.out.println(completeMenu.toPrint());
79
80 }
81
82 }

```

## Diagrama de Clases



## Diagrama de Secuencia



## Ejecución

```
Output - Composite (run)

run:
  |COMPOSITE MENU|

Breakfast
»Fruit with Oatmeal: $36.32
»Green Smoothie: $28.72
»French Toast: $77.02

Brunch
»Scrambled Eggs: $62.99
»Waffles: $77.19
»Club Sandwich: $32.12

Dinner
»Mac & Cheese: $46.87
»Ceasar Salad: $27.49
»Cheese Burger: $1.83

Desserts
»Cheesecake: $33.30
»Brownie: $9.17
»Icecream: $81.98
```