

Grocery Store Bill Generation Application

1. Class Diagram

```
+-----+
| Customer |
+-----+
| - name    |
| - products[] |
+-----+
| + addProduct() |
| + checkout()   |
+-----+
      |
      | (Composition)
      |
      v
+-----+
| Product  |
+-----+
| - productName |
| - quantity    |
| - pricePerUnit |
+-----+
| + getPrice()  |
+-----+

+-----+
| BillGenerator |
+-----+
| + calculateTotal() |
+-----+
```

Explanation: A Customer has multiple Products (composition). BillGenerator calculates the total bill using customer data.

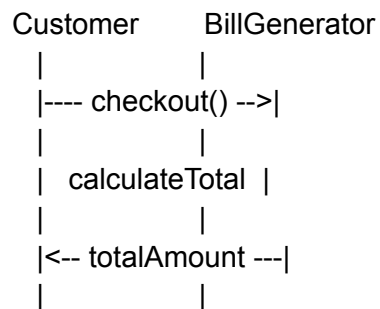
2. Object Diagram

Customer: Alice **Products:**

- **Product 1:** Apples | Quantity: 2 kg | Price: \$3 per kg
- **Product 2:** Milk | Quantity: 1 liter | Price: \$2 per liter

BillGenerator: Used to calculate total bill.

3. Sequence Diagram



Step-by-Step Flow:

1. Customer selects grocery products.
 2. Customer requests checkout.
 3. BillGenerator calculates total price.
 4. Total bill amount is returned to the customer.
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4. Final Bill Calculation

- **Apples:** $2 \times 3 = \$6$
- **Milk:** $1 \times 2 = \$2$
- **Total Bill:** \$8