Solution Approach

Application launches with productList.jsp where the user has the flexibility to select his items and quantity and place the order. On click of OrderServlet is called with all the selected items with respective quantities as input.

In OrderItemAdd class from the servlet request object we prepare a Map with itemIds and OrderItemVO and if itemIds are present then OrderCalculate class is invoked. OrderItemVO contains itemId , quantity and price. In OrderCalculate the order total calculation happens where if item meets the eligibility of promotion discount is applied for the promotion and returns the price after applying discount for each promotion.

Promotion calculation steps, given three promotions to be applied for items in the cart.

Priority of the promotions are considered as below

1. Buy item of quantity X and get at Y quantity price.
2. X% discount on all items.
3. Buy X and Y items at fixed price Z.

Promotion Evaluations and Assumptions:

Buy item of quantity X and get at Y quantity price:

Assumption X quantity is always more than Y quantity. Item is eligible for promotion only if the quantity of it is greater than ‘X’ quantity of the promotion. If the input quantity is in multiples of X then Y price multiple value will be given as price else the extra quantity item will be calculated with the original price and added to the y items price and total price is calculated.

X% discount on all items :

Precentage discout is applied to all items.

Buy X and Y items at fixed price Z.  
 Item is eligible for the promotion only if both X and Y items are