

ASSIGNMENT 1

Your first assignment in this block will be using linked list data structure for implementing a small Product Management System in Java language. Each product has the following information:

Product name (String), Price (double), Quantity (int)

For example:

(Cake, 10, 20)

(Bread, 5, 100)

(Milk, 20, 110)

(Banana, 30, 40)

(Egg, 5, 50)

(Cake, 15, 30)

YOUR TASK: Build MyList class as a linked list of Product objects, with the following methods:

1. **void addLast(String pName, double pPrice, int pQuantity)** – check if pName has last character 'a' or the price > 30 then do nothing, otherwise, add new product to the end of the list.
2. **void traverse()** - Traverse the linked list with the format like an example above.
3. **void sort()** – sort the list in the alphabetical order of the product name.
4. **double totalValue()** – return total value of all products,
each product has a value = price * quantity
5. **void removeDuplicate()** - Remove duplicate products (according to the product name) in the list: for each duplicate product name, **keep the product which have the highest value = price * quantity** and **remove the others**. For example, 2 products following have same name, the product in the red color will be removed.

(Cake, 10, 20)

(Cake, 15, 30)

You should create linked lists from scratch, do not use list structures available in java like ArrayList, Vector or LinkedList classes.