Buying online products automatically at customer wish rate

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Abstract:  
In this paper we are going to explain how customer can buy products at most favourable rate. Every customer wants buying products at most favourable cost(rate). And even for International currency transfer also customer needs higher rate. This paper points out how to solve above problems for E-Commerce and fire conversion.

Key words: E-commerce; Order tree; customer bargaining online; Buying online products automatically

Introduction:  
E-commerce is the rapidly growing area. And there is number of web sites to provide services to customers. But customer don’t have chance to bargain on product. We are going to provide that facility to customer by using Binary search trees algorithms.

In computer science, binary search trees (BST), sometimes called ordered or sorted binary trees, are a particular type of containers: data structures that store "items" (such as numbers, names and etc.) in memory. They allow fast lookup, addition and removal of items, and can be used to implement either dynamic sets of items, or lookup tables that allow finding an item by its key (e.g., finding the phone number of a person by name).

Binary search trees keep their keys in sorted order, so that lookup and other operations can use the principle of binary search: when looking for a key in a tree (or a place to insert a new key), they traverse the tree from root to leaf, making comparisons to keys stored in the nodes of the tree and deciding, based on the comparison, to continue searching in the left or right sub trees. On average, this means that each comparison allows the operations to skip about half of the tree, so that each lookup, insertion or deletion takes time proportional to the logarithm of the number of items stored in the tree. This is much better than the linear time required finding items by key in an (unsorted) array, but slower than the corresponding operations on hash tables.

Implementation for above:  
Seller keep one item in E-commerce site for 5000INR. Customer wants to buy that product but customer is unsatisfied with the price. He ready to buy product at 3000. So, we need to allow customer to place order at 3000 and our application is watching about that product and if seller decreases the product cost then application automatically make transfer and booked order for customer.
There are 3 modules to implement this
1. Customer facing site
2. Backend Execution
3. Authorized people (Employees) accessing placing orders and amending: CSRT.

### i. Customer facing site:

In this module customer place order from user interface and from backend we need to add the customer order to Order tree as below.

If first customer placed order then Tree has only one node that is root node.

![Customer Facing Site Diagram](image1)

Second customer also placed order for the same product at different rate if it is lesser than previous customer we will add in left leaf of the root .Or will add to right leaf of the root.

![Second Customer Order Diagram](image2)

When rate decreases for product to 40 then nodes above 40(i.e. 40,50,60,55,52,58,80,70,90) will match and products will deliver to this customers.

We can apply same thing to International currency exchange also. Customer have to place order for two currencies and will match when rate reached more or equal to customer given rate.

### Backend Execution:

This module mainly focuses on making real transfer with customer wallet to merchant account sending customer notifications when rate is matched with his order. It also generates reports daily, monthly.

### CSRT:

CSRT means customer support representative tool. This is mainly used for checking the orders placed by customer. And if order is fraud order then CSR user have right to cancel order and notify to the customer.

### Scope:

We can use this product to all E-commerce sites and all banking applications. Binary tree
average Time complexity for search, Insert, delete is $O(\log n)$ and worst case is $O(n)$.

**Advantages:**

1. Customer no needs to check frequently about product.
2. Seller can have idea about customer preferences
3. E-commerce site won’t lose its customers.
4. Automating buying and selling process due to this approach

**References:**


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