

Data Structures and Algorithms Lab

06. Linked Lists

Subject Code: 17ECSP201

Lab No: 06

Semester: III

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Batch: C2

Question: Charlie and the Chocolate Factory

Objective: Usage of linked lists



Charlie, the new owner of chocolate factory after returning from 'Oompa-loompa' land has got a new recipe of making chocolates. Well, the old recipe was robbed out by a few workers and the chocolate factory had to shut down as every cat and dog in city started making the same kind of chocolates. Charlie had to shut his factory and make an adventurous expedition in search of new recipe. That's when he ended up in Oompa-Loompa land. The Oompa-Loompas offered him with 2 new varieties in return of their favorite chow, beans. Now, Sssssssshhhh!!! One new secret recipe is shared only with you! Here is the procedure:

First you need to buy the following:

200 Beans of Cocoa

10 Cups of Cornstarch

30 Margarine Sticks

100 Yolks of egg

30 Vanilla strips

Now you need to melt all in the same above order, one by one, whip it, grind it, bake it, freeze it and finally mould it to a dream fantasy chocolate.

Your task is to do it all. Go to market buy all the chocolates required, melt them in the same order and prepare the new chocolate.

Uno, Dos, Tres...
Let the choco-licious preparation begin!

At Professors Desk

Your task is:

1. First buy all the required variety of chocolates. We may not get all in the same shop. If the desired quantity is not available then we need to buy from next shop.

Maintain a linked list structure:

```
struct choc_fantasy
{
    char choc_name[20];
    int quantity;
    struct choc_fantasy * prev;
    struct choc_fantasy * next;
};
```

You will keep on calling the function “insert_at_end” until you buy all the required chocolates in specified quantity. The required chocolates can be purchased in any order.

2. Melt and prepare fantasy chocolate

Now melting process has to happen exactly in the same way as said. You will search for Cocoa in linked list and delete the nodes (it could be one node having 200 quantities or split up in any number of nodes). Print appropriate message after adding each ingredient.

3. The print the message that “Secret Recipe Chocolate is now Ready” and exit the program.

**** Happy Coding ****