Development of a Data Base in C language, using multiple linked list

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Abstract: The program was elaborated for a company which exports goods from the Republic of Moldova according to it's needs, legislation and the amount of work as to make easier the work of Company's employers.

Key words: Data base , multiple linked list , pointers, single linked list, structures.

1. INTRODUCTION

Was elaborated a data base using C language. The Data Structure used in this case was Linearly Linked List (Single Linked List and Multiple Linked List), and the storing of the data base was on txt files. Was elaborated a complex program, which consists of four parts: Suppliers, Products, Register and Orders. For working and maintaining the whole program were elaborated 75 functions. Ware analyzed all the possible cases that might happen and performed separated functions maintaining the program and the particular functions that serves as the purpose of the program.

2. SUPPLIERS

A supplier according to the company needs has fields that are only for general information, which are not used in computing some results. The only things that are essential at suppliers is their unique ID which will be used in other functions and as well in other parts of the program and in the products field in which is stored the products of the certain supplier. The ID of the Supplier is generated by the program itself. Here I have not performed any sorting, because it is no need of it. In general the program was created for a maximum number of 10 suppliers, which by the way is more than enough for the company purposes. So we can add of course till 10 suppliers, but what concerns deleting of suppliers it is possible only if that supplier has no products, otherwise it can not be deleted, because in the register should be kept information about the movement of goods.

3. PRODUCTS

We can add products for a supplier that exists in the program. Of course firstly it checks all the suppliers that exist and than it asks for which supplier to add products. In fact it does not add products, but it appends products to the linked list of products characteristic to a supplier. Here we have no limit to the length of the linked list and we can add as many products we want. A product has 3 fields: its unique ID , which also is generated by the program, the Name of the product and the Price. Sorting is available in two ways: by name and by price. This has been made so because of the reason that normally we should see the products sorted alphabetically, but we also need to sort by price to see which products are cheaper and which are more expensive.

4.REGISTER

As the program was elaborated for a company which exports goods, it is normal to prevent all the possible cases. So in these conditions the goods can enter into the company depot, then can be shipped (exported) and in some cases because of some custom problems at the receiver country goods can be returned. So it is available 3 types of movements: entry goods, shipped goods and returned goods.

Here is essential to loose less time. So the program checks all the suppliers that supply the company with necessary merchandise and it asks from which supplier we have received goods. Depending on the option we chose the programs sets the necessary table with names of the products as to be able to enter the received quantity.If we are talking about a kind of movements that does not depend from a supplier (shipped goods or returned goods), but it will involve all the products from all the suppliers the program will ask us to enter the recevied or shipped quantity for every product.

We have two possibilities to view the register: for a certain period or for the entire period. But the main usage of this part is that according to laws of the Republic of Moldova it is necessary that a company monthly should present accounting reports to the IRS, and a part of this is to show the stock of goods at the last day of the previous month. So as to make easier the work of the Accountant, the program performs this automatically, moreover it is possible to view the stock of a certain date, of course if were entered all the entries in the register during that month. In this case obviously we gain lot of time.

5. ORDERS

This part of the program help us to compute the orders to the suppliers. The procedure is quit simple, for example we know the quantity of each product we need, than according to our stock we should compute what to order, as to avoid not to use the goods in the stock. Then we will compute the amount we need to transfer to the supplier's accounts. All this operations will be done by the program. Moreover he will also compute the statistics for each supplier. Now I will explain how the order number is

formed. Due to company characteristics the order number is formed by a specific letter given to a supplier and a number which will grow ascending from the first value, which is one. If in the time we added a new supplier the programs will add it and will prompt us that we have a new supplier to be able to set up characteristic order form. All the orders will be stored as to be able later to visualize them if needed.

5. PROGRAM VISUALIZATION

Due to a large number of functions implemented i will not discribe them, but i will show some outputs of the program which are html based.

Fig.1 Output of suppliers

We can see that there are three suppliers and for each of them all the fields are shown.

After entering products for a certain supplier we can easily view them as shown in figure nr.2

Fig.2 Products of supplier

One of the most essential part of the program is to compute an order and in figure nr.3 where is shown one. It can be observed the available fields: product name, quantity needed, the amount per unit and total amount. Also it is shown the amount that should be transfered for the entire order.

Fig.3 Example of an order

In the figure nr.4 is shown the stock at a certain date. We should enter the date and the program automatically will retreive and compute the stock. In the stock are shown all the products and their quantity.

Fig.4 The Stock

In the next figure is shown the statistics of suppliers which includes the number of orders , the initial value of an order and the characteristic letter set it by the user.

Fig.5 Supplier Statistics

5. CONCLUSIONS

Implementing this program will save a lot of time, as manually doing all this computations, especially if we are talking of big quantities of data is not an easy task, and for any reasons of safety is better to perform several times, which is not needed in the case of the program. The output is in a html file, opened in default system browser, which gives us the benefit of a clear information, very easy printable. All the data is kept in files, in this way we avoid to lose any information. The type of file is a text file (.txt) so it should be very clear that the size of the file will not be very big, it will use less disk space, also the entire program does not load the processor and it works very fast. The program works on any Microsoft operating system, the only necessary thing is to copy the program on Disk C. The program by itself writes and reads from the file, so we should not care about this kind of things, as they are done automatically.

5. REFERENCES

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