

APPROACHES TO DEVELOPING AN INTERFACE FOR AN AUTOMATED INFORMATION SYSTEM FOR MANAGING A THRIFT STORE

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The article presents a practical way to create an interface for working with an automated information system. The analysis of technologies that are most suitable for the development of this system is carried out. Task, implementation of an interface prototype based on web technologies.

Keywords: automated information system, Commission shop, programming language, 1C: Enterprise, database, analog, prototype, interface.

Introduction. Today, almost every second product of human activity offered to the buyer is related to high technologies. This means that it not only meets specific human needs, but is also the embodiment of scientific and engineering thought. The automated information system being developed is aimed at significantly facilitating the work of the Commission store. In addition to providing the user with convenient access to all data, the system simplifies the maintenance of working documentation.

In this automated information system, the process of creating an application interface is used for direct interaction of the application with the database, which combines all the necessary information for output directly to the information system. The interface is created by adding the necessary components to 1C and then configuring them. The interface of any information system has components that allow the program to interact with the user.

Thus, this system being developed will provide a convenient mechanism for storing and selling Commission products, as well as processing information on Commission products.

Analogues and prototypes. There are several analogues and prototypes of the Commission store information system. The first analogue and prototype was the product "Commission store 1.1". The program is designed for making payments to the Commission store's customers, accounting for the receipt, sale and return of goods. Printing and recognition of barcodes.

Features of the program:

- maintaining a directory of operations, departments, and units of measurement;
 - maintaining a directory of clients (legal and individuals) with their basic data;
 - maintaining product balances for each committer, the ability to view balances, turnover of any product, amounts of payments and debts to the committer on any day;
 - quick entry of receipt, sale, revaluation and return operations, including using a barcode scanner.
- Ability to select operations using filters;
- printing invoices and receipts, product labels with barcodes; - printing a report on the amounts to be paid, calculating the Committee debt and the amount of commissions;
 - printing of the register of accepted and sold goods for any day, the list of available goods in the context of committees or departments;
 - module for the cashier's workplace;
 - enter sales in the database and output the receipt directly to the cash register (supplied separately).

Requires BDE 5.xx + InterBase 4.2 or higher.

The next analogue and prototype, which is an IP developed in 1C, is called "Commission trading 4.1.3". The author of the program is Sergey Komkov. Interface language: Russian. Operating systems: Win 9x, Win NT, Win ME, Win CE, Win 2000, Win 2003 Server, Win XP, Win 2008 Server, Win Vista, Win 7. This program was created on February 26, 2004.

Briefly: accounting for goods on the account cards of the Committee with an indication of the contract price and the percentage of Commission.

Details: Commission trading-accounting for goods on the account cards of the Committee with the indication of the contract price and the percentage of Commission. Documents to be generated: the account card of the Committee, the act of markdown of the product, the act of removing the product from sale, the product report, price tags.

Figure 1 shows the interface of the demo version of the information system "Commission trading 4.1.3".

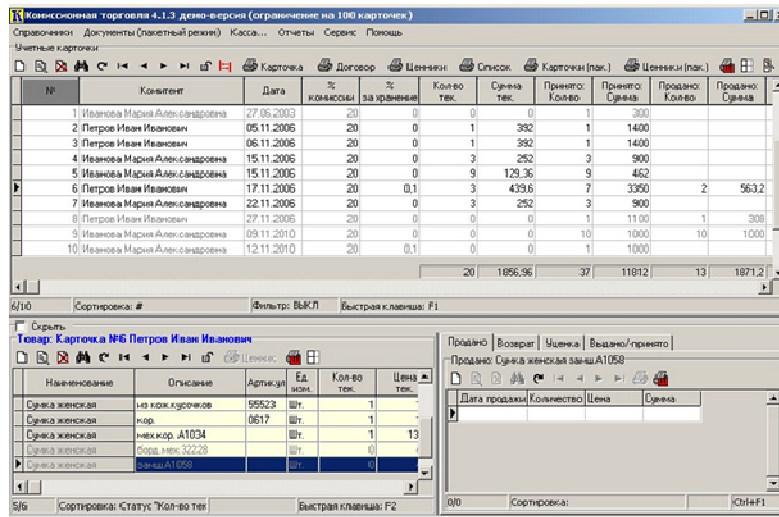


Figure 1. – Interface of the program "Commission trading 4.1.3".

The next analogue and prototype of the "Commission store" is the program for automating grocery stores "Mini-Shop".

Opportunities:

- "Mini-Shop" – a simple and convenient free accounting program in grocery stores, household chemical stores, etc.;
- "Mini-Shop" is the first program in our line of programs for automating trade and warehouse operations of grocery and similar stores (see also Laitik-Shop and Kors MAG);
- accounting in grocery stores, household chemical stores, household goods, etc.;
- used for a large flow of sales;
- allows you not to enter data about each sale;
- calculation of the balance between the product released to the point and the delivered revenue;
- calculation of debts for the point of sale;
- reconciliation of balances on a point using inventories;
- warehouse operations: receipts, returns to the supplier;
- operations with retail outlets: vacation, return, entering balances (inventory);
- cash transactions: revenue, debt write-off;
- printing invoices;
- batch accounting;
- report (inventory inventory, settlements with the point of sale);
- 1 warehouse and 1 point of sale;
- up to 10 items in the invoice for the arrival and release of goods.

Examples of the work are shown in figures 2-4.

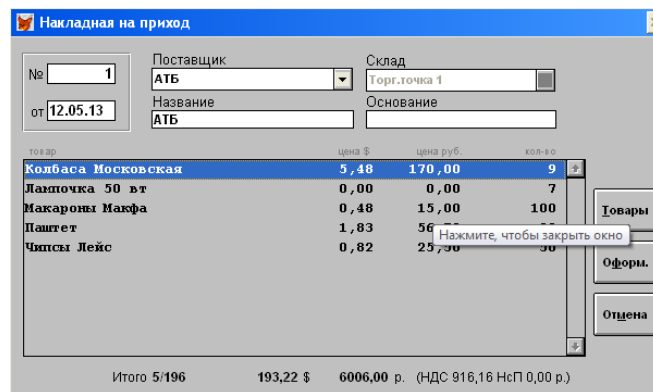


Figure 2. - "Receipt Invoice" Interface».

The screenshot shows a window titled "Макароны Макфа". It contains a table with two columns: "Закупка" (Purchase) and "Продажа" (Sale). The "НДС" (VAT) is 18,00%. The purchase price is 15,00 p. The sale price is 19,00 p. The VAT amount is 0,61\$. The net price is 0,48\$. The gross price is 26,67%.

НДС	Закупка	Продажа
18,00 %	0,48 \$	26,67 %
	15,00 p.	0,61 \$
		19,00 p.

Единиц: 100 уп

Buttons: ОК, Отмена

Figure 3. – Example of working with "Pasta macfa".

The screenshot shows a window titled "Обработка товаров". It contains a list of goods with a search filter. The list includes: Колбаса Носковская, Лапочка 50 шт, Макароны Макфа, Паштет, Чипсы Лейс. The status bar shows "Колбаса Московская" and "5 наименований".

Buttons: Добавить, Копировать, Удалить, ОК

Figure 4. – Example of "Processing goods".

Changes:

- version 1.2 from 30.05.2012 - fixed a problem when printing invoice headers (incorrect encoding);
- version 1.1 from 06.12.2008 – a mechanism for filtering the list of products by several fragments. For example, to search for lines like "sausage boiled doctor", type "number of Wardak" in the "Filter" field and press Enter;
- version 1.0 from 08.02.2005 - release of the program.

The choice of development technologies interface. This web application is planned to be developed using the 1C:Enterprise 8.3 platform using the built-in programming language. It follows that web interface development technologies should be optimized for the operating system as much as possible, and the 1C:Enterprise development environment is suitable for all Windows families.

According to experts, the market for development tools is now shifting from specific programs that support development (compilers, IDEs, profilers, etc.) to systems that support the entire development lifecycle. If we talk about this trend more simply, then suppliers tend to invest in their complexes all the tools necessary for the development team, or provide convenient connection of other available tools. Of course, this is a difficult task, and it is almost impossible to solve it in full.

1C: Enterprise as a subject-oriented development environment has certain advantages. Since the range of tasks is more precisely defined, the set of tools and technologies can be selected with greater certainty. The platform's task is to provide the developer with an integrated set of tools necessary for rapid development, distribution, and support of an application solution for business automation. In this case, individual "parts" may be inferior in functionality to universal development tools and specialized lifecycle management tools used by developers. However, the effect is achieved through a common set of tools and their close integration.

Development in "1C: Enterprise" is based on the General model of the application offered by the platform "without fail", i.e. the main and most complex architectural and technological solutions (such as the mechanism of a three-level architecture, issues of interaction of components, user authentication, etc.) are offered to developers in a ready-made form.

The information system being developed, according to its structure and basic needs, should provide opportunities for working and presenting a large amount of data that could change dynamically with the user's

actions. Development in "1C: Enterprise" is based on the General model of the application offered by the platform "without fail", i.e. the main and most complex architectural and technological solutions (such as the mechanism of a three-level architecture, issues of interaction of components, user authentication, etc.) are offered to developers in a ready form.

The 1C programming language is a formal sign system designed for writing computer programs. The programming language defines a set of lexical, syntactic, and semantic rules that define the appearance of the program and the actions that the performer (computer) will perform under its control.

A very important advantage of 1C:Enterprise is the openness of the system. For a Manager who makes a decision about choosing an automation tool, it is important to be sure that the system will not be a "black box" for the company, and there is a real opportunity to understand the system's operation and, if necessary, change it. This work can be performed by franchising organizations that specialize in supporting 1C: Enterprise, as well as by its specialists of the enterprise itself. The system package includes the tools necessary for updating the application solution and making changes to it of any complexity, as well as a full set of documentation for them. A specialist who supports the system in a particular organization uses the same tool as the developers of 1C or companies that develop replication solutions. 1C:Enterprise features allow you to minimize efforts to change the automation system and its subsequent maintenance.

Building a system based on the application's technological model, metadata, and application model allows you to significantly simplify and speed up development. First, based on metadata and a single model, all components of the system interact with each other without significant effort on the part of the developer. Secondly, a significant part of the technological complexity of implementation is solved by the platform and is not "piled" on the developer of the solution.

The system does not limit the use of modern technologies, but focuses on their most convenient and easy integration into the overall application development infrastructure. The implementation of this approach can be seen in the gradual inclusion of a whole range of technological solutions in the platform.

Based on the above, we can conclude that the 1C:Enterprise development environment is the best option.

Interface design. When developing the interface, for ease of use, a functional structure was used, which consists of a number of modules, presented below:

1. Product arrival module. Responsible for generating receipt documents, calculating the percentage value of goods, entering information in the registers of information and savings.
2. Product sales module. Responsible for selling products and entering information in the savings register.
3. Markdown module for products. Responsible for creating a new price, entering information in the data and savings registers.
4. The module of the returned merchandise. Responsible for returning unsold goods to the Committee and entering information in the savings register.
5. Report generation module. Responsible for generating a report on sales of goods (for various parameters), generating a report on receipts by comitents, generating a product report, and generating a report on returns.
6. Module for filling and printing documentation. Provides opportunities for creating and printing a product label, printing a Commission agreement and a markdown act.
7. Reference module. Provides the ability to fill directories with the necessary content.

The functional structure is shown in figure 5.

Conclusion. The correct approach when developing the interface is to use modern technologies that allow you to solve your problems in all operating systems. This, first of all, saves time when developing the interface, as well as resources for data processing, and is also very relevant, with a large amount of information that is subject to constant change.

The information system of the Commission store allows you to significantly facilitate the work of the Commission store. It enables structurally store data about the clients (customers), commodities, characteristics of commodities, to control the time markdown of the goods, if it is necessary to calculate the markdown of goods and Commission Commission, to deduct from the original price markdowns and commissions and to pay the consignor for the goods sold. Trading, drafting and processing of documents is simplified and partially switched to automatic mode.

When developing an automated information system for managing a Commission store, due attention is paid to the informativeness of the application, which allows the user to get all the necessary information in the form of reports and acts.

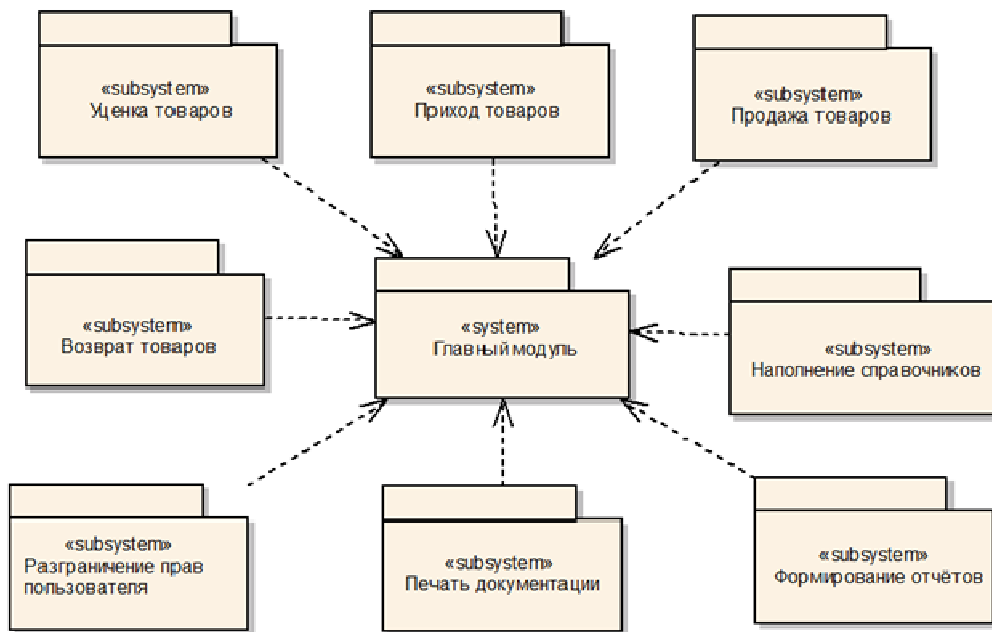


Figure 5. – Functional structure

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