

WEB APPLICATION FOR SMALL BUSINESS MANAGEMENT

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This article describes the importance of developing and implementing software for managing small and medium-sized businesses in the Republic of Belarus. The paper also has a description of the developed software, technologies used in the development process, as well as the architecture of the application.

Small and medium-sized business in the Republic of Belarus plays an important role in the socio-economic development of the country. It contributes to the formation of a competitive environment, provides growth in the production of consumer goods. Thanks to it, the service sector expands, and the economy is given additional stability. The importance of small business is also determined by its features such as the ability to quickly respond to consumer demand and quickly meet it, quickly respond to changes in market conditions and demonstrate high maneuverability. What is more, small business provides the country with many new jobs. This, in turn, leads to a reduction in the number of unemployed people.

Due to the low level of competition and strong fragmentation of the market, small business in Belarus can develop quite successfully. In every area, from the supply of household and computer equipment to the sale of food products, there is a certain growth reserve.

The business environment of Belarus is formed mainly from small and medium-sized companies. Due to the rapid growth in the number of small companies, there is a need for software for business management. Such applications allow to manage the warehouse, goods, orders, managers, customers, etc. Thus, the user can facilitate and accelerate the conduct of his business, increase sales and, accordingly, increase the level of income of the organization [1].

One of the most powerful tools in the arsenal of modern leaders are automated systems of the Enterprise Resource Planning (ERP) class. ERP class systems are a full-featured set of applications integrated among themselves that allows you to create a unified environment for automating the planning, accounting, control, analysis and management of enterprise business processes in the field of financial, inventory, production and logistics flows, accounting, personnel management, regulation of relations with counterparties, reporting, etc.

The company's resource management systems are being introduced in order to combine all the company's divisions and all the necessary functions in one computer system that will serve the current needs of these divisions. Thanks to the one-time input of data into the mutual database of the company, information can be used simultaneously by any number of users of the system, which increases the effectiveness of both planning and control, as well as ensures the coherence of actions of all parts of the enterprise and the productivity of management in general.

ERP systems with a web interface make it possible to combine geographically remote branches and divisions of the company and involve them in a single information space. Enterprise management systems allow you to create a kind of information channels that can connect the enterprise with partner companies to provide them with access to the enterprise database and exchange the necessary information. As a result of such cooperation, a single information archive is formed, which allows optimizing the supply processes, deliveries and other types of joint activities, as well as bringing the whole process of interaction to a whole new level [2].

Implementation of the enterprise management system makes the company's business processes more transparent, increasing its attractiveness to investors, and, therefore, allows attracting additional investments for further development of production.

The developed system is based on the client-server architecture, in which tasks or network load are distributed between service providers, called servers, and service customers, called clients. The Internet is used as a medium for client-server interaction.

MVC concept is used on the backend side – Model-View-Controller – a scheme for dividing application data, user interface and control logic into three separate components: model, view and controller. This architecture allows the software to be more flexible, so that each component can be modified independently [3]. Backend of the application is written in PHP language. Laravel was chosen as a framework because it is a free and open-source. It is intended for the development of web applications following the MVC architectural pattern and based on Symfony framework. Some of the features of Laravel are a modular packaging system with a dedi-

cated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic sugar.

MySQL is used as a database for the application. The latest version of MySQL is one of the world's most popular databases. It is open source, reliable, compatible with all major hosting providers, cost-effective, and easy to manage. Many organizations are leveraging the data security and strong transactional support offered by MySQL to secure online transactions and enhance customer interactions. The schema of the database tables is presented below (Figure 1).

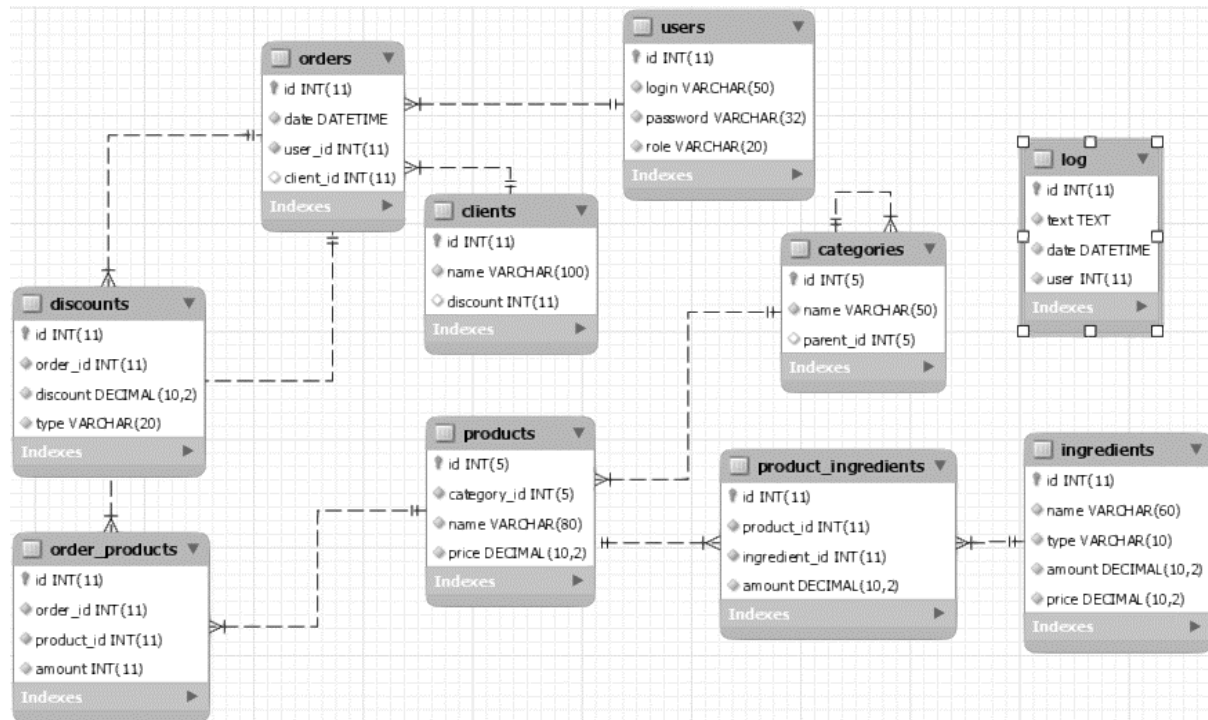


Figure 1. – The schema of database tables

React library is used for frontend. React (also known as React.js or ReactJS) is a JavaScript library for building user interfaces. It is maintained by Facebook and a community of individual developers and companies. React can be used as a base in the development of single-page or mobile applications. However, React is only concerned with rendering data to the DOM, and so creating React applications usually requires the use of additional libraries for state management and routing. Redux and React Router are respective examples of such libraries. Some of the features of React are class and functional components, virtual DOM, JSX, React hooks and lifecycle methods.

The application allows you to create and manage many manager accounts. Each user can be assigned a role or provide additional privileges that determine which parts of the application the manager will have access to.

There are 3 product types in the application, such as simple, configurable and bundled. Each product has a number of predefined and custom attributes. Configurable products consist of simple products. They are configured by one or more attributes. Bundles consist of simple and configurable products and represent packages of products that are sold together. Products can be categorized for easier search and classification. Categories can be unlimited by nesting.

The application implements warehouse management. The number of warehouses can be unlimited. Goods can be presented in various units, such as pieces, packages, grams, liters, etc. The user can also transfer products from one warehouse to another. When selling goods, products stock in warehouse decreases automatically by the appropriate amount.

One of the most important features of the application is the sales module. It allows to keep track of sales of the enterprise. Orders are formed from products and services. The customer can be either anonymous, for example in the field of catering, or included in the list of customers of the company. Customers included in the enterprise database may have discounts on products, as well as receive newsletters with useful information.

ICT, Electronics, Programming, Geodesy

It is often necessary to be able to view sales statistics for a specific period for further analysis.

Possible use cases:

- determine which products are sold better than others;
- what goods and services sell poorly;
- track sales for a specific period, for example, day, week, month.

The created software product allows to increase the efficiency of business management of the company, increase the productivity of managers. The program does not require installation and can be used on computers, on tablets and mobile devices as well.

The application interface is designed in such a way as to achieve maximum convenience and ease of use. Even a user unfamiliar with the program will be able to quickly and easily understand it.

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