*International Journal of Engineering & Technology*, 7 (3.27) (2018) 568-571

International Journal of Engineering & Technology

*Website: www.sciencepubco.com/index.php/IJET*

***Research paper***

# Development of Information System for Automation of the Fitness Center

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**Abstract**

In modern society, people need ease of use of information, as in recent years the volume of processed information has increased many times. The design of information systems helps to improve the storage, processing and delivery of information, creates simplicity in understanding and searching for the database stored in the system.
The practical importance of developing the module of the information system is to create a module on the platform 1C: Enterprise 8.3, which will enable the "Collection of data on potential customers". The developed module of the automated system provides an opportunity to take into account entering data on potential customers and services provided to them.
Modern business technologies are characterized by high dynamism associated with the constantly changing needs of the market, the orientation of production of goods and services to the individual needs of customers and customers, continuous improvement of technical capabilities and strong competition. In these conditions, the management of enterprises is shifting the emphasis from managing the use of individual resources to the organization of dynamic business processes.
In computer science, the concept of "system" is widely distributed and contains many meanings. Most often it is applied according to a set of technical tools and projects. The system can be referred to as the hardware part of the computer. The system can also be considered a large number of projects for the purpose of solving applications, supplemented with procedures for document management and calculation management.
The general structure of the information system can be considered as a set of subsystems regardless of the scope of application. In this case, they speak about the structural sign of classification, and the subsystems are called providing. Thus, the structure of any information system can be represented by a set of providing subsystems.

***Keywords***: *Information system; subsystem; system; ERP-concept, information.*

## 1. Introduction

An information system is a set of information contained in databases, data, and technical means and information technologies that ensure its processing. In real conditions, design is the search for a method that meets the requirements of the functionality of the system by the means of available technologies taking into account the given limitations [1,2].
The relevance of this work lies in the fact that the information system is necessary for the automatic functioning of the organization's tasks and reducing the duration of operations to address them. The use of automated accounting of tasks for the subsystem "Personnel management" gives an increase in the efficiency of accounting for the activities of the enterprise, speeds up the processing of documents, systematizes work with clients and employees of the enterprise and systematizes such tasks as:
1. Registration of personal cards of customers;
2. Formation of services provided to the client;
3. Determination of the quality, cost and quantity of services provided;
4. Preparation and conclusion of the contract;
5. Planning and drafting of the staff schedule;
7. Drawing up a list of potential customers;
8. Analysis of the effectiveness of the department.

The purpose of this study is to develop a module of the information system for collecting data on potential customers for the sales department of limited liability company Rubin-Bodybuilding. To achieve this, it is necessary to solve the following tasks:
- To consider theoretical aspects of designing information systems of the organization;
- Analyze the information system of limited liability company Rubin-Bodybuilding;
- Develop a module of the information system for collecting data on potential customers.

The purpose of the information system is to solve problems related to the quality and timely servicing of customers and employees of the enterprise, it performs such tasks as:
- solving problems of processing and collecting relevant data to achieve a specific goal;
- automation of office work;
- search for information about customers and applications;
- storage processing of information about employees.

The design of information systems always begins with the definition of the goal of the project, such as:
- availability of the system for processing user requests;
- reduction of time spent on information processing;
- simplicity of operation and support of the system;
- the required system capacity;
- the required response time of the system to the request;
- Ensuring the safety of the system being designed.

In the period of adoption, a transformation takes place with the expectation of "ability in principle," to solve the problems of the company within the prescribed period, and available cash [3].
This kind of transition is painful each time, for this reason it is important to focus attention in the real benefit of using the system in setting realistic tasks for the company. On this formation, it is necessary to specifically describe the scope of problems that the informative system will resolve.

## 2. Materials and Methods

Developers of information systems, in particular SAP, Baan, Oracle, PeopleSoft and J.D.Edwards, quite hostilely advertise their own products, which creates a feeling for those who are not well informed in this sphere, that these projects are ready to solve all the problems of their firms without exception. For example, the telecommunications firm Aliant claims that the project according to the introduction of the ERP concept was very successful. The projected rate of return on investment in this project was 33% [4, 5].
In the Russian Federation, despite the large costs associated with the introduction of an informative concept, only SAP has determined approximately the SRT of its own ERP-concepts, which, according to SAP, work safely. Among its own customers in the Russian Federation, SAP is accentuated by the Company, Tulamashzavod, Sverdlovenergo, Donetsk Electrometallurgical Plant, Omsk Refinery, Nizhny Tagil Electrometallurgical Enterprise, Syktyvkar Forestry Complex, Chernogorneft [6].
Despite the large number of unsuccessful efforts to introduce information systems, numerous firms are thoroughly thinking about the formation of the system in order to improve their activities [7].
ER-diagrams are used for data development and represent a standard way of defining data and relationships between them.
To develop the information module, the package "1C: Enterprise" was used. The structure of 1C: Enterprise application mechanisms is aimed at solving the problems of automation of accounting and enterprise management.
In 1C: Enterprise 8.3, a modern user-friendly interface has been implemented, thereby increasing the user experience when working with the system for a long period [8].
Technological platform 1C: Enterprise 8 guarantees various options for working a practical solution: from individual single-user, up to the work in the scope of large employees of companies and firms [9].
It provides an opportunity for integration with almost all kinds of external projects and equipment in the base of generally accepted stereotypes and data transfer protocols.
The structure of the information system is a set of its individual elements, called subsystems. The subsystem is a part of the system, allocated on some basis.
Subsystems of the enterprise LLC Rubin-Bodybuilding include: logistics management; marketing management; service management; sales management; financial management; management of accounting; transport management; management of staffing; energy supply management; information management; promotion management.
Subsystem "Service management" is designed to automate the functions of operational maintenance and accounting of personal data of potential customers, accounting and analysis of the movement of customers.
The structure of multifunctional subsystems in significant is determined by the distinctive features of the financial system, its industry-wide affiliation, the form of property, the size, the nature of the company's activities. Subsystem "Management of service" solves such problems as:
• Registration of personal cards of customers;
• Formation of services provided to the client;
• Determining the quality, cost and quantity of services provided;
• Preparation and conclusion of a contract;
• Planning and drafting of the staff schedule;
• Drawing up a list of potential customers;
• Analysis of the effectiveness of the department.

## 3. Results and Discussion

Rubin-Bodybuilding LLC provides fitness and health services, as well as sales of individual food and training programs, has a multi-level organization structure, including a subsystem such as "Service Management", and in it the task "Collecting data on potential customers ", Which includes:
- maintenance of personal cards of potential customers;
- drawing up contracts with them for a one-time visit to the hall;
- preparation of reports on potential clients and future clients of LLC Rubin-Bodybuilding.
The task is to create an information base for the subsystem "Service Management", which will support the operation of the subsystem of the organization LLC Rubin-Bodybuilding, and perform its tasks using 1C: Enterprise 8.3 [10].
In the configuration, objects such as:
- Subsystems;
- Directories;
- Documentation;
- Reports;
- Service;
- Registers of information;
- Accumulation registers.
- Subsystems:
- Employees (personnel) - the entire staff of the organization's employees, performing various production and economic functions.
- Information - contains information about subsystems, their structure of activity.
- Shares and discounts - information on the provided shares, as well as the creation of new discounts.
- The category of services provided - information about the services provided to the client (the result, according to the least, of one impact, necessarily carried out with the assistance of the supplier and the consumer).
- Clients - information about clients, gives an opportunity to view the client's personal data, its schedule, the types of services provided to it, and also has information on potential customers.
Directories:
- Services - directories of services, registration of new ones and removal of old ones;
- Customer - personal data of customers, registration of new ones and removal of old ones;
- Employees - personal data of employees, registration of new employees and removal of old ones;
- Files;
- Shares for public holidays;
- Promotion to the subscription;
- Candidates - the candidates are considered to be suitable for the position or for work at the enterprise;
- Directories manager;
- Training and development - the directory provides the opportunity to send staff to training or further training;
- Applications for training and development - contains information on applications for future training activities for staff;
- Vacancies - are created with the purpose of placing vacancies on certain sites on recruiting, or sent to the search office for new employees;
- Recruitment - this handbook provides an opportunity to link candidates and vacancies;
- Training activities - information on events, starting and ending dates;
- Potential client - data on potential customers, gives the opportunity to change the status of potential customers;
- Services to potential clients.
Documentation:

- The application for leave - is created for the account of the employees leaving on holiday;
- Employment contract - an agreement is made between the candidate and the enterprise for the provision of a place;
- Contract - with the help of this document a contract with the client is concluded. Price list;
- The contract for a one-time visit - with the help of this document a contract is concluded with the client to visit the hall 1 time.

Reports:
- Employee List - displays a list of all employees for a given period of time.
- Customer list - displays a list of all clients for a given period of time.

Treatments:
- Working with directories - allows you to add, delete and modify directories on each subsystem.

The main window includes a desktop and 5 partition panels:
1. Shares and discounts;
2. Information;
3. Category of services;
4. Customers;
5. Employees.

The service to potential customers is free, and determines 1 type of service for 1 time use. The section "Clients" has the form (Figure 1):

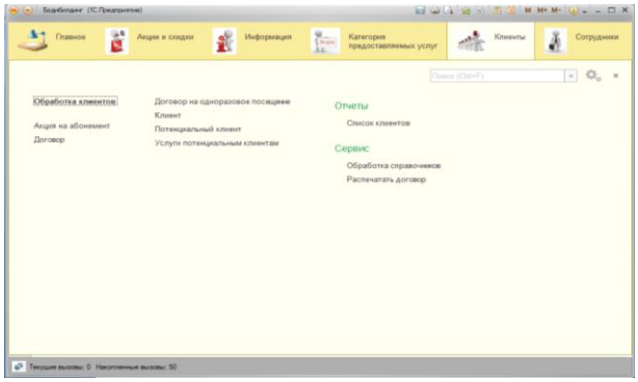


**Figure 1:-** Status of the Clients section

Registration of a new client is shown in Figures 2 and 3. This form includes: basic data (name, date of birth, telephone number); personal data (passport, address, gender); recommendation of the client (table of potential customers, which the client recommended); Services; hospital sheet (the main indicators of the client's health are recorded, what it can and what is contraindicated).

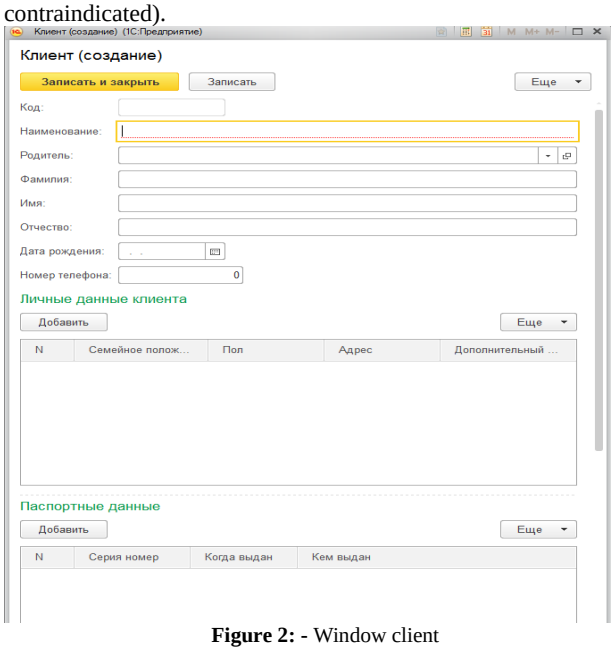


**Figure 2:** - Window client

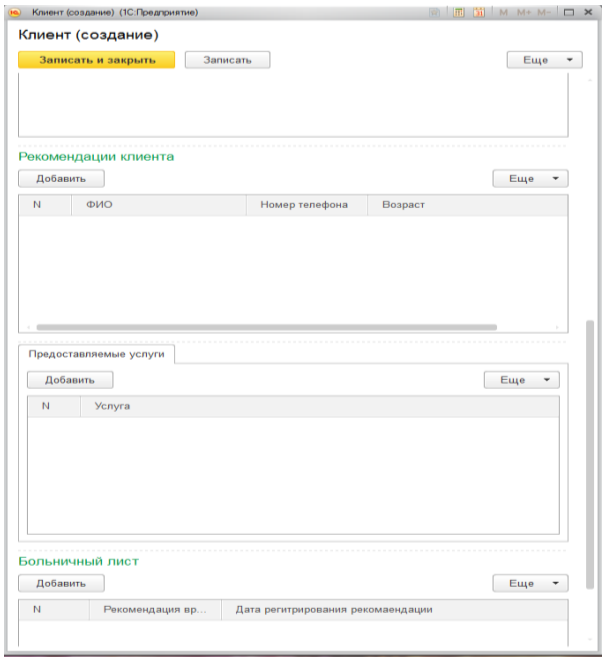


**Figure 3:** - Client window view (continued)

## 4. Summary

Rubin-Bodybuilding LLC has a multi-level organization structure, including such a subsystem as "Service Management", and in it the task "Collecting data on potential customers", which includes: maintaining personal cards of potential customers; drawing up contracts with them for a one-time visit to the hall; preparation of reports on potential clients and future clients of OOO Rubin-Bodybuilding, etc.

In this paper, we present the development of the information system module on the platform 1C: Enterprise 8.3, which will enable the "Collection of data on potential customers" for the sales department of Rubin-Bodybuilding LLC. The developed module of the automated system provides an opportunity to take into account entering data on potential customers and services provided to them. The work deals with the inputs, business tasks and outputs of each subsystem task. A scheme of information links for the module "Collection of data on potential customers" was designed.

In the configuration, objects such as subsystems, directories, documents, reports, services, data registers, accumulation registers were created.

## 5. Conclusions

Addition to the concept of "system" of the phrase "information" reflects the purpose of its formation and functioning. Information systems guarantee the receipt, preservation, processing, selection, issuance of data necessary for decision-making tasks in each field. They can help to investigate tasks and form new products.

The general structure of the information system can be considered as a set of subsystems regardless of the scope of application.

In the company's activities, the information system is seen as software that implements the business strategy of the organization.

The implementation of the system has its own phases of the life cycle:

- acquaintance;
- acceptance;
- use.

The stages of the design of information systems have been studied, and their sequence has been mastered, the main characteristics (analysis of the requirements for the system, definition of specifications, design, coding, product testing, operation and maintenance), purposes and design goals of the information system are considered.

The experience of implementing the information system in other countries was studied, and the works of experts were studied. It was found out that in Europe and the US a few years ago switched to the use of information systems standard ERP. Regarding the country of Asia, this can not be noted at this time.
It was found out that the development of the market for the services of fitness clubs is carried out at the expense of three main directions: improving the quality of technical equipment of the fitness center, individual attitude to the client, the introduction of the latest exclusive or well-known numerous training programs.
The organization "Ruby-Bodybuilding" provides high-quality service in the field of fitness industry.
The module for the task "Collection of data on potential customers" is designed to automate the functions of operational maintenance and accounting of personal data of potential customers, accounting and analysis of customer traffic.
The main tasks of the subsystem "Management of service": registration of personal cards of customers; formation of services provided to the client; determination of quality, cost and quantity of services; preparation and conclusion of a contract; planning and drafting of the staff schedule; compiling a list of potential customers; analysis of the effectiveness of the department.
It was found out that the information array assumes a set of homogeneous, related general semantic content of information.
The task was to create an information base for the subsystem "Service Management", which supports the work of this subsystem of the organization LLC Rubin-Bodybuilding, and performs its tasks using 1C: Enterprise 8.3.
Before using the developed module, it is necessary to correctly install and configure the information base.
In work the task "Data collection about potential customers" is realized, task setting is given, after which the database object model is designed.
For the development of the software module 1C: Enterprise, the choice of software development environment was explained (the structure of 1C: Enterprise application mechanisms is aimed at solving the problems of automation of accounting and enterprise management).
In 1C: Enterprise 8.3, a modern user-friendly interface has been implemented, which increases the user experience when working with the system for a long period of time, the technical documentation and user's manual are set out.

## Acknowledgements

The work is performed according to the Russian Government Program of Competitive Growth of Kazan Federal University.

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