

Development of a software module for order status management at an event management company

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Abstract

In this work, we study the activities of the studio "Make Men Zhake", which is specializes in organizing various events (corporate parties, birthdays, weddings) and, in particular, the management area. In the manager's work, the main problem area was identified - the business process of processing customer orders.

The goal of the work is to solve the above problems with the use of information technologies and the development of a Customer Relationship Management (CRM) module.

In the work, we describe all the activities of the studio of event, the hierarchy of employees, which is a typical example of a small commercial organization. We use the "Rational Rose" tool to describe/modelling the studio, and for constructing UML diagrams.

We also presents the state-of-the art of CRM technology, because "Make Men Zhake" is a typical example of a small commercial organization in which the customer is the main one. To achieve the goal, we had developed a software module for processing the orders of the studio's customers in the "1C: Enterprise" platform.

The result of the work will be a ready application, in which the manager could supervise all the process of processing orders, the organizer controls everything, and all the studio staff can make changes and corrections to certain processes. Also important is that customers can learn everything about the order without meeting with the manager, which greatly simplifies the work of the studio as a whole.

In the end, the result of the implementation of the module will be the automation of the management area and the work of the Studio as a whole. Thus, the main goal is to increase the profitability of the business event of studio "Make men Zhake" will be achieved.

Foreword

I would like to thank my Supervisor Joao Paulo Pereira from the Faculty of Information Systems at the Polytechnic Institute of Bragança. He guided me in the right direction, helped me on all matters related to my thesis. I am grateful to him for his very valuable comments and observations.

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List of Abbreviations

CCS - Customer Service&Support;
CIS - Customer Information System;
CMS - Content Management Software;
COM - Component Object Model;
CRM - Customer Relationship Management;
DB - Database;
ECM - Enterprise Customer Management;
ERP - Enterprise Resource Planning;
HR - Human Resource;
IS – Information Systems;
IT - Information Technology;
ITS - Information and Technological Support;
MA - Marketing Automation;
MRP - Material Requirements Planning
ODBC - Open Database Connectivity
OS - Operating System;
PC - Personal Computer;
SaaS - Software as a Service;
SFA - Sales Force Automation;
UI - User Interface;
UML - Unified Modeling Language.

1. Introduction

1.1 Context and motivation

Preparing and organizing events is not an easy process. Organizers of various events are constantly faced with the problem of a competent solution to the search for problems that arise in the process of preparing an event.

Today we are witnessing a new stage in the development of culture and leisure. Cultural and educational work was replaced by cultural and recreational activities, the very idea of which characterizes the processes developing in the sphere of free time: the democratic nature of ways and methods of organizing mass actions, the alternatives in making managerial decisions, the live and direct participation of the population in the implementation of cultural projects and programs.

The concept of an event is associated with something joyous, cheerful, carefree, and free. This perception of this word is typical both for participants of the celebration, and for its organizers. However, undoubtedly, an event is a complex and complex concept that involves various forms, options, goals, tasks of organizing and holding an event.

At present, information technology has reached a high level of development. Use of information technologies allow to automate a lot of organizational processes. In this regard, the majority of organizations are using automated tools to handle efficiently store and distribute the accumulated data.

The implementation and use of computer systems and facilities allows more efficient use of staff work, increasing the reliability and efficiency of processing and storage of information, people involved in this decision-making tasks, select one or more options from a variety of alternatives presented by the computer.

Modern management is primarily associated with order management. Numerous studies have found that the time to perform procedures such as reception, preparation, transmission, processing, monitoring of orders is from 50 to 70% of the total cycle of its performance for the majority of enterprises. Therefore, to improve the quality of customer service and prompt satisfaction of their expectations is necessary to reduce the time and number of components of the cycle due to the modernization of the model solutions and the development of order management module according to the individual characteristics of the event studio "Make men Zhake" that will reduce lead times and, thus, increase the efficiency of work of the manager. (Economic Encyclopedia)

1.2 Main objectives

Thus, the goal of the work is to increase the profitability of the business, which involves the development of a module to monitor the status of customer orders for the event studio "Make Men Zhake". It is also necessary to study CRM technologies for the application of a standard software product and customize special business processes for order management for activities, monitor class

schedules and free dates, view the current status of orders and plan their transition to the next state of the date.

To achieve this goal it is necessary to perform the following tasks:

- 1) Examine the order of conducting accounting and order management in the studio of event "Make men Zhake";
- 2) Develop a project proposal for the implementation of the module "Orders";
- 3) Develop a software module for accounting and order management in studio of event "Make men Zhake".

The object of study is the work order management manager studio of event "Make men Zhake". The subject of research is the analysis and development of a software module for the accounting of orders and their subsequent control "Make men Zhake".

1.3 Methodology

CRM is a special approach to doing business, in which the client is at the center of the company's activities. That is, the CRM strategy involves creating in the company such mechanisms of interaction with customers, in which their needs are the highest priority for the enterprise. Such an emphasis on the client affects not only the overall strategy of the company's business, but also the corporate culture, structure, business processes, operations.

The main goal of implementing the CRM-strategy is to create a pipeline to attract new customers and develop existing customers. Managing relationships means attracting new customers, neutral buyers turn into loyal customers, from regular customers to the formation of business partners. In this regard, the development of CRM is relevant for the "Make Men Zhake" management system.

Modern CASE tools cover a vast area of support for numerous IS design technologies: from simple analysis and documentation tools to full-scale automation tools covering the entire software lifecycle. To create UML diagrams, Rational Rose - CASE-tool Rational Software Corporation (USA) was chosen. It is intended for automation of the stages of analysis and software design, as well as for generating codes in different languages and issuing project documentation. Rational Rose uses a synthesis-methodology of object-oriented analysis and design based on the approaches of three leading experts in this field: Bucha, Rambo and Jacobson. Universal notation for modeling objects, developed by them (UML - Unified Modeling Language), pretends to be a standard in the field of object-oriented analysis and design. In addition, Rational Rose includes software reengineering tools that ensure the reuse of software components in new projects.

The program "1C: Enterprise" was chosen directly for the development of the software module. Operations in enterprises engaged in commercial activities in our time - this is primarily computer accounting. Computer tools and computer programs are used to conduct it. These include: 1C: Enterprise 8.3, which is a system of application solutions built on the same principles and on a single technological platform. The manager can choose the solution that corresponds to the actual needs of the enterprise. In addition, "1C: Enterprise 8.3" allows you to create and individual solutions that take into account the needs of a particular organization.

1.4 Structure of the work

In the second chapter, we will talk about the evolution of CRM-systems, its architecture and functions. Why do some entrepreneurs need to implement the CRM-systems. Its advantages and disadvantages.

In the third chapter, we will consider the application of 1C, its functions, architecture, and why we chose this application as the basis of our work.

The main chapter, where we will describe all the diagrams of the activities of the organization, business processes, and we will also develop a CRM module in the 1C: Enterprise application.

At the end of our work we will test the module and make a conclusion on the work done.

2. State-of-the-art of CRM systems

2.1 Historic evolution of CRM Software

CRM software or Customer Relationship Management Software is a term that refers to technologies that companies use to manage and analyze customer interactions and data throughout the customer lifecycle, with the goal of improving business relationships with customers, assisting in customer retention and driving sales growth.

But the CRM software hasn't always been the robust, and stand-alone application that so many businesses rely on today. Over the past decades, it has evolved out of a variety of other business programs starting from the Database Marketing and Call Centers software to today's Social and Mobile CRM Software with a significant level of automation.

CRM analysts agree that the evolution of a CRM Software can be divided into 3 main periods or stages. We believe that the 4th stage of the CRM evolution has already begun (Bloguser, 2016) :

- The 1980s or The Origins Stage
- The 1990s or The Expansion Stage
- The 2000s or The Modern CRM Stage
- The 2010 and beyond: Cloud-Social-Mobile-Integrated CRM software

2.1.1 The Origins Stage: Database Marketing

The origins of the modern CRM software date back to the mid 80's when direct marketing evolved into database marketing. Pioneered by Robert and Kate Kestnbaum, database marketing collected and analyzed customer information. Using statistical modeling, the collected data was used to help customize communications with potential customers. This is the period when companies began sending more personalized marketing messages and building bigger campaigns because the contacts were more efficiently organized and accessible in the database. (Lankin, 2006)

The use of the PCs became more common in an office environment, and in addition, client/server architecture was introduced in the workplace which paved the way for an explosive growth in software development.

In the second half of the 1980s the first contact management software (CMS Software) was developed. This simple CMS Solutions allowed customer details to be collected and stored in an organized way, as well as to be easily accessed, but not much else could be done with them.

With the explosive growth of the PC's and client/server architecture, the 1990s brought the first major step towards a true CRM Software. These and other advances pushed the evolution of contact management software toward sales force automation (SFA). SFA allowed companies to automate their database marketing saving significant time, effort, and cost. SFA took many of the features of database marketing, automated them, and combined them with contact management solutions. The

idea behind SFA system was to deal with the pre-sales activities. These systems were used for telemarketing, lead generation, as well as preparing sales quotes and orders. (Silaenkov, 2006)

At the same time customer service and support (CSS) functionality were developed to handle the post-sales activities. The CSS software was the base on which the customer contact centers and help desk departments were developed within organizations. The main downside of the CSS software at that time, was that stored data in the CSS database was not linked up with any other organizational system. This made it challenging for organizations to do anything useful with the data since other departments such as marketing were not able to correlate this data with their own information sourced through other activities.

By 1995, SFA and contact management had evolved to closely resemble modern CRM software. This is the year when CRM acronym won the battle over ECM (enterprise customer management) and CIS (customer information system), and the CRM industry finally had its standardized name.

The second half of the decade brought huge changes to the CRM industry. ERP vendors entered the CRM market, hoping to use their size and ERP in order to dominate the industry. All of this competition pushed CRM vendors to provide a broader suite of services which included sales, services, marketing tools as well as inventory control and customer interaction tracking. New customer related features were added to CRM systems.

Near the end of the decade a number of notable, high-value acquisitions consolidated the overall market, while the rapid growth of the Internet saw the development of e-CRM systems. Using intranet, extranet, and internet, e-CRM vendors offered a level of intra-organizational collaboration that hadn't previously been available in the CRM industry. CRM software also made its first step into the mobile market with the introduction of Handheld and Pocket PCs. (Lankin, 2006)

2.1.2 The Modern CRM Stage

Birth of the CRM software with strategy and beginning of the Cloud CRM Solution. Like most software industries, the CRM vendors took a huge hit in the early 2000's with the failure of the dot-com bubble. The hardest hit took the e-CRM vendors. But the innovation that came out of the decade, which included a cloud base, mobile solutions, and more offsite storage capability, was more than enough to recover from the hit. (Shurimov, 2016)

After 2002 a really strategic approach began to be implemented into organizations with regards to CRM software. Instead of looking at just cutting down on expenses, companies were looking for approaches that would help them to grow their revenues by working with customers to better understand their needs. Companies that began succeeding at CRM software development were working to develop more comprehensive solutions that would help organizations manage all business relationships.

CRM software started becoming more flexible and agile. Organizations have completely embraced the concept that CRM software is not just a contact management tool but it is rather a more strategic tool that supports the overall sales and marketing effort.

In 2007, the next big change in the CRM industry happened. The cloud-based CRM software was introduced to the world. At this time the cloud-based applications weren't customizable. By 2010 cloud technology began to be integrated into CRM software, allowing organizations to be able to pay per use. This made CRM software become more affordable for different kinds of organizations. Therefore, organizations of all sizes started implementing CRM solutions!

It had become clear that everyone in the organization needed to be involved in customer relationship management activities, not just one solo department. Management, staff and technology were all required to be operating together to achieve CRM efficiency.

In the second half of this decade, social media marketing was beginning to grab the attention of the organizations around the globe. They began to see the power of social media marketing to attract customers. Social CRM software exploded onto the market with the introduction of ComcastCares - an application that focused more on interaction than transaction. Most large corporations quickly followed Comcast's example, solidifying the place of social CRM (Silaenkov, 2006).

Through the end of the first decade, and up to the present day, cloud-based and SaaS CRM solutions continue to integrate more features like customer service and social CRM. Cloud-based and SaaS CRM solutions continue to gain popularity, largely due to their lower initial cost and easy integration with mobile devices.

As more companies look to expand and more startups look to grow in 2016, it certainly seems like the need and demand for a strong CRM software will only increase. With the ever changing world of technology showing no signs of slowing down either, it appears that the future of CRM software is linked closely with adapting to or integrating with new technologies as they are introduced. And from there, using these advances to better serve their potential buyers. Mobile CRM software is gaining popularity these days as customers look to be able to access businesses from anywhere.

The predicted goal is to reduce the on-site resources and equipment necessary to deliver CRM software. As companies are more ready to listen their customers, it seems like customers are going to drive innovation in a way that they never have been able to before, opening up CRM software to new areas of the business (Shurimov, 2016).

2.2 Architecture and functionalities

Three key functional areas of CRM systems are denoted by the acronyms CSS, SFA, MA: they are responsible for automating customer support and services, automating the activities of sellers and automating marketing accordingly. It is interesting that, according to system integrators, the basic nature of these blocks does not at all mean that all of them will be applied within the framework of one project. Consider these blocks in more detail (Tadviser, 2014).

2.2.1 Customer Service & Support (CSS)

In contrast to the traditional concept of customer service, which was intended solely by the telephone inquiry service operating in the "question-answer" mode, the technique of modern service kits involves a wider range of possibilities, enclosed in CSS applications.

Among them, we can distinguish the following basic properties on which the quality of the customer service functionality is based (Lychkina, 2012):

- A database containing information about customers and contacts with them; The set of these data allows to determine at any moment of interaction with this or that client whether this person applied to the company earlier and with what questions;
- The structure of CSS-application allows to provide working interaction not only with territorially remote clients, but also provides the opportunity to organize group work with customers and partners in the conditions of sectoral and regional separation, as well as providing services in a remote mode;
- The module program allows for the counting of statistics, which can be used to record standard questions and difficulties, as well as formal references, on the basis of which the voice menu can later be created;

- Collection of data on potential customers, with the help of which it is possible to expand the circle of consumers of products and services offered by the insurance company. The already available contact data is stored in the system and distributed among the sellers; Their relevance is regularly monitored;
- The functionality of CSS also at the same level includes the ability to regulate business communications with partners; As in the case with the client base, the system constantly replenishes and updates the reference information;
- A standard set of components CSS-application contains, as a rule, the module E-business, responsible for the web part of CRM and the online store; The system regularly monitors the processing of incoming requests and the results of working with them;
- Ensuring the safety of documents during circulation through various subsidiaries and branches of the enterprise;
- Modular programs regularly calculate bonus systems and various discounts; Thanks to the possibility of remote interaction, the client can always check the status of his bonus account via the Internet, and the strict order of information storage and instant provision of them allows real-time servicing of both customers and partners;
- The storage of personal information about customers, if necessary, allows you to set up a system of personal messages to customers or partners: it can be congratulations, personal invitations to any events and the like;
- Continuous monitoring of service services helps to increase customer satisfaction; Taking into account these indicators, the company gets an opportunity to improve the quality of its products, thereby increasing the loyalty of existing customers;
- Tracking the expiry of insurance contracts (an issue in which special precision and care are important, given the number of clients);
- In the standard properties of the system there is a mechanism for assigning priorities, which allows the customer to provide service depending on the value.

The CSS module creates a basic level of interaction between the organization and its clients, since it is on the basis of quality service that the loyalty of the target audience is formed.

2.2.2 Sales Force Automation (SFA)

SFA, the module for automating the activities of sellers, is responsible for the process of selling the company's services with various interfaces. The standard functionality of the SFA-application includes (Shchedrovitsky, 2015):

- Control over the state of contact information: checking the relevance of data as agents of its own company, its partners and customers, and competitors, as well as access to the history of communications across all lines;
- Management of agents and sellers; A specially configured in calendar mode module allows you to direct the business processes of various departments of the company, as well as individual employees. Such coordination is carried out by setting up a list of tasks;
- Various SFA-application modules assume the possibility of connecting to the enterprise communications system, be it a telephone, fax, e-mail or anything else; Thus, communication control is carried out;
- In the package of functionality of the SFA application, the possibility of forecasting the ways of the forthcoming work is available: according to the marketing research

conducted in the company, as well as analysis of the reporting of the sales cycle, prospects for further development are outlined;

- The general CRM system can also include information about all the motivating factors for attracting potential customers; They are taken into account in the future to develop the most effective business strategies;
- Through the module of management of the documentation also receives the necessary information and advertising materials;
- Analysis of the sales progress and the results of the work of agents allows us to supplement the database with information and analytical information on the effectiveness of sales, and, accordingly, to monitor outdated factors and new marketing techniques, as well as trends in changes in the needs of the clientele;
- Work with clients is conducted in several directions: in the archives of the system, the maximum amount of information related directly to the sale is collected: cycles, statistics, territorial binding, generation of reports, sales history, etc. These data can then be used to analyze the profits and losses for each customer;
- The possibility of automatic generation of tariffs and commercial offers in accordance with the existing conditions and the state of the client base.

2.2.3 Marketing Automation (MA)

Functionality of the MA application is provided by modular programs aimed at marketing strategies of the enterprise. Among them are the following (Tadviser, 2014):

- Various methods of analyzing the target audience and forming a circle of their own clientele; Features of consumer groups of the client base and its individual representatives can subsequently be used in forecasting business situations and designing business strategies;
- The possibility of preparing structured lists of potential customers. Such planning allows to optimize time and resources of employees of the company;
- The possibility of developing plans for marketing campaigns and the means for conducting them; The same item includes an analysis of the results of these actions for each client group and other parameters;
- The standard software of the MA module includes all the necessary methodological and technical devices for the organization and effective conduct of telemarketing;
- The capabilities of the marketing automation application are also used to identify and analyze customer requirements;
- In addition, the package of functions usually includes management of potential transactions;
- Providing an orderly replenishment of the database with information about the products and services provided by the company, market trends, and information on the state of affairs in the business of competitors.

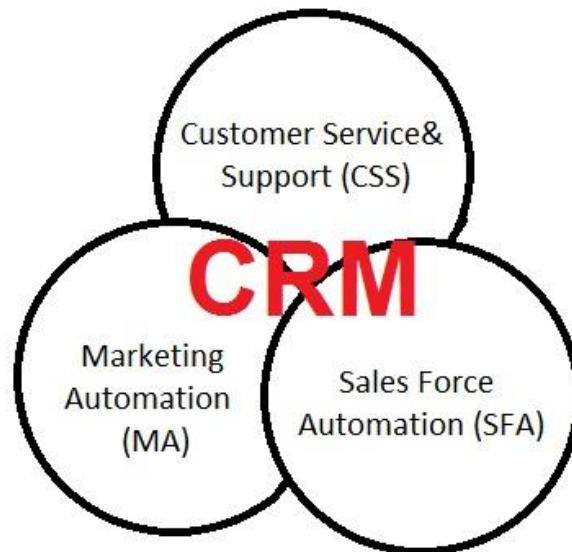


Figure 1: Standard blocks of CRM systems

2.3 Criteria of choice

In the market of software products and information systems, there are a large number of proposals for CRM systems. These systems are quite diverse in terms of the scope of tasks to be solved, the equipment used, and the technology of operation. When choosing a CRM system, many factors need to be considered.

For purposes related to the operation of the quality system, it is important to consider the following (Quality management, 2006):

- Compliance with business requirements. Before deciding to implement a CRM system, it is necessary to determine exactly what tasks it will solve in the conditions of a particular enterprise. The system must be chosen according to the requirements of the business, and not vice versa;
- Ease of use. The user interface should be as simple and convenient for operation as possible. If CRM system will complicate the process of interaction with customers and increase the number of actions that will be required for employees to work, then such a system will remain unclaimed. This will lead to the fact that the key element of the quality system will not be realized - data registration;
- Availability of analytical tools. To conduct analysis and identify the behavior of consumers, their requirements and expectations, the CRM system should provide an opportunity to conduct analysis, focused on each specific client;
- Ability to customize to processes. It is important that the CRM system allows you to flexibly change the settings depending on the progress of the process. This is an opportunity to allow more fully define and automate each particular process;
- Scalability. This criterion is especially important for large organizations. It is necessary that the solutions used in the CRM system be scalable and can be applied to a large number of users;

- Customization for the specific industry. In each branch and sphere of activity there is a specificity of work with clients. This specificity should be taken into account in the CRM system;
- Customization for users. Both the organization itself and the environment surrounding it change with time. This leads to the need to change the working conditions of users of the CRM system. For effective work, it is necessary that the system allows for simple and rapid change of user functions in accordance with changing business tasks;
- Integration with other information systems. Other automation and process control systems may exist in the organization, so an important selection criterion is the ability to integrate and exchange data between the CRM system and other automation systems;
- The cost of ownership. The cost of owning a CRM system consists of several components: the cost of licenses, the integration of hardware and software, the current costs of maintenance and administrative costs for managing IT assets. This criterion is also essential when choosing a system;
- Efficiency of technical support. For effective operation of the CRM system, an important factor is the responsiveness of the system vendor to user requests and the resolution of their problems;

There are a number of other criteria that need to be considered when choosing a CRM system. The above criteria are the most common and necessary for most companies.

2.4 Motivations

In today's business need for automation of various processes have become commonplace. It becomes difficult to imagine a warehouse or accounting without the use of specialized software, sales reps use special applications for registration and sending the order to the office right from your tablet or mobile phone, a sufficiently large part of the orders coming from the site in the form of ready to process documents. But it is the relationship with customers, at least in the middle and small businesses, for some reason, very often carried out without the introduction of automation and enough attention to the account.

What happens if the work is carried out without the sales department accounting system? Each sales manager is working as it is more convenient, it is the fixation of calls and other types of interaction with customers at its sole discretion: some on paper, some in Excel spreadsheets, and some do not consider it necessary to record the process of their work.

Incoming calls or requests from the site of the new customers are not fixed, sometimes even difficult to know who is engaged in a part of the managers of the application. As a result, actual records are maintained only at the level of paid orders and shipment. And as far as the sales department works effectively, whether practiced all incoming lead, whether there was some work with existing contacts, to determine is impossible.

In addition, in the case of dismissal of an employee or illness, all his unfinished negotiations and rough contact the company may lose, that also is highly undesirable for the effective work of sales.

Out of this situation - the automation and standardization of customer relationship management, i.e. the use of CRM - technologies.

CRM needs to (Zalozhnev, 2009):

1. Do not lose a potential customer, do not miss any incoming call and request. In the small and medium business competition in our country is very high. Companies are making significant efforts in order to attract customers to them notice. Compared to

other costs of customer acquisition is allocated a significant budget. And it is very important that all these funds and efforts were not in vain. Automated systems allow you to gain confidence that it will work and sales. You will receive a fixation of each incoming call, every request, every lead.

2. Control of the staff and the standardization of working with clients. Without a common standardized CRM-system, each employee is working as it used to. Someone keeps records in spreadsheets, someone - in a notebook or diary. Letters can be sent to customers with both corporate and a personal mailbox, calls take place at any convenient phone, quality control is not possible. CRM-system is almost completely solves this problem. Information on all inbound and outbound contacts will be in the same repository, where it can be extracted at any time.
3. Accumulating statistical base, which is also very important for the success of any business. Through the use of CRM-system, all operating information is collected in a common database in a standardized form. As a result, the manager can analyze performance statistics, to make various reports (many of which are already in finished form are present in the CRM-system), i.e. analyze the work and plan follow-up work more consciously.

2.5 Advantages and disadvantages

The main application of CRM systems is related to the organization and management of the relationship with customers. Therefore, first of all, the advantages of the CRM system are shown in the increase in sales figures, in particular, the sales volume increases, their effectiveness increases, and the cost of attracting customers decreases. In addition, CRM-systems have a significant impact on the manageability and culture of organizations.

The main advantages of the CRM system include (Mrochkovsky, 2012):

- Increase the speed of decision-making. By combining disparate customer data, the process of data processing and analysis is accelerated. As a result, those responsible for interaction with customers can see the entire history of contacts, respond more quickly to requests and make decisions on them.
- Increase the efficiency of working time. CRM systems allow you to automatically track important events related to customers, and issue notifications. Staff do not need to look for this information in disparate sources.
- Increase the impact of marketing activities. Because CRM systems store all information about the client and the history of interaction, then the marketing actions become more client-oriented. The company has the opportunity to organize marketing events, participation in each specific client.
- Increase the reliability of reports. The systematization of information increases the reliability of reports and the accuracy of sales forecasts.
- Determining the value of each customer. Allows you to define and plan the necessary conditions for working with a particular client. CRM systems allow you to prioritize resources based on the value of the customer.
- Reduction of paperwork. By automating the process of interaction with the client, all documents can be translated into an electronic form.

- Reducing the flow of customers. By using CRM-system, employees have access to all the details of interaction with the client. This improves the quality and efficiency of customer service.
- Eliminate duplication of tasks. CRM systems can integrate with other business management systems, which eliminates the double work of data transfer and processing.
- Streamlining of processes. CRM systems allow you to combine all the processes of interaction with customers in a single system. Process inputs and outputs are made available to different processes, which allows you to manage contracts, projects, events, products, etc., that are associated with each specific customer.
- Enhancing the culture of management. Automation of the process of personnel management. CRM systems set common rules of work and interaction with customers.
- Data protection and security. By using the CRM system, you can centrally manage access to customer data and ensure their safety.

The main shortcomings in the work of CRM, as a rule, are not associated with the programs themselves, but with an incorrect approach to their implementation and use. Let's consider some examples.

Personnel find it difficult to master CRM. Often this happens because employees simply do not understand what benefits they can get through working through the program. This can cause staff dissatisfaction. Therefore, it is important from the very beginning, on specific examples, to show employees how CRM simplifies and speeds up their work and helps to increase sales: such instruction is usually conducted by software developer representatives.(Kinzabulatov, 2017)

Stop work if CRM fails, because all work is going through the program. This can happen with software developers who save on maintenance and program development. The best CRM took care of reliable protection and fast recovery of systems. Therefore, when choosing a CRM, it is important to find a developer who provides prompt technical support, and then nothing will interfere with the work.

3. 1C:Enterprise Platform

3.1 Description

3.1.1 1C Company

Founded in 1991, 1C Company specializes in development, distribution, publishing and support of mass-market software.

At present 8000 dealers from 600 cities cooperate with 1C. About 7500 teams constitute the 1C:Franchising partner network, which is a main channel of value-adding for 1C products. Service-partners provide regular information and technological support for 1C software customers. The network of authorized training centers is also operating.

1C is the official distributor of such world-famous vendors as Microsoft, Novell, Borland, Symantec, ABBYY, Kaspersky Lab, ProMT, Eset Software and over 100 other software vendors. 1C offers more than 10 000 titles of software for office and home use. (Kashaev, 2006)

3.1.2 1C:Enterprise 8

1C:Enterprise 8 system of programs is intended for automation of everyday enterprise activities: various business tasks of economic and management activity, such as management accounting, business accounting, HR management, CRM, SRM, MRP, MRP, etc.

1C:Enterprise 8 system consists of two parts: an integrated framework (aka '1C:Enterprise 8 platform') and a set of applied solutions created and executed in the framework.

There is a great number of business applications developed on 1C:Enterprise platform. There are 30+ of boxed (off-the-shelf) business applications supplied for a wide range of tasks: accounting, sales and warehouse, payroll calculation and HR management, manufacturing and financial planning, accounting and reporting for private entrepreneurs, public sector accounting, report consolidation, accounting in non-profit organizations and others.

Among the software produced by 1C the most important is 1C:Enterprise system of business automation products. Being famous with their flexibility, built with modern technologies, scalable with single-user, file-server and client-server solutions, these products are used together or separately in SOHO to medium companies with one or several locations. (Kashaev, Programming in 1C: Enterprise, 2014)

1C:Enterprise version 8 was launched in summer 2003 and it is underlain a powerful technological platform, whose features allow 1C, its franchise partners, independent developers and system integrators as well as the clients themselves to create the most diverse business applications.

One of 1C:Enterprise system products – 1C:Accounting – is the most successful accounting computer software in the CIS and it has become an industrial standard in business accounting automation. Other well-known products of 1C:Enterprise system are: 1C:Trade Management,

1C:Payroll&HR, solutions for logistics, internet etc. For home accounting we provide 1C:Money, with the annual tax declaration function. Since 2004 1C offers Manufacturing Enterprise Management integrated solution of ERP-class and the wide range of specialized solutions. To date, more than 1 000 000 companies as official users of 1C:Enterprise programs.

1C provides advanced services for official users of 1C:Enterprise – the information and technological support (ITS). The purpose of this service is to provide users with a complete set of 1C software updates, accounting methodologies, office automation technologies, tutorials and new components for 1C:Enterprise system, consultations from chartered accountants, up-to-date legislation on taxation and business regulations and more. Monthly 1C publishes a set of 1C:ITS CD-ROMs with up-to-date information. Our service-partners deliver this disk set to users, install databases and components, make maintenance of the systems, also providing other services. Internet support is also offered. We are developing a range of products for e-mail, docflow and e-commerce. 1C has several co-projects with Intel, Microsoft, Novell, Borland, Symantec, Eset Software and others. (1C)

3.2 Architecture and Functionalities

1C:Enterprise is a universal cloud and on-premise system of programs for automating a company's financial and wider operational activities. 1C:Enterprise has the breadth of capability to address the diverse needs of today's business. This is achieved through "configurability" – the ability to customize the system based on the specific needs of companies and their business processes.

1C is more than just a solution automating fixed business rules. Rather it is a suite of software tools employed by developers and users. The system can be logically divided into two major components that are closely interrelated: an application and the platform on which the application runs. (Oshchenko, 2013)

To explain the relationship between the system components of 1C:Enterprise, we compare it to a Blu-ray player. It is well known that a player is required for watching videos, listening to music, or playing other media content. The Blue-ray is standard but it meets the wide variety of customer needs through the range of discs out there with video or music to suit any taste.

To watch a video, you need to put a Blu-ray disc into a player, and the player will reproduce the content (video) that is recorded on it. In addition, Blu-ray players let you record your own content, i.e., create a new Blu-ray disc with a home video.

On its own, the player is useless without a Blu-ray disc, and likewise, a Blu-ray disc is useless without a player (except perhaps as a coaster for your coffee cup). Getting back to 1C:Enterprise, we can say that the platform is a type of "player", and an application is a "disc". The platform allows you to run the application, as well as modify it or create a new one. There is a single platform (1C:Enterprise 8), but an unlimited number of applications can be created. To run an application, you always need to have both the platform and the application itself (see the diagram above). The platform does not perform any automation tasks on its own, since its purpose is to provide the environment for developing and running applications. The same is also true for an application: it needs 1C:Enterprise Platform to run.



Figure 2: Process of the work of the application (1C:DN)

1C:Enterprise Platform offers the following advantages (Kashaev, Programming in 1C: Enterprise, 2014) :

- Drastically reduces technological complexity, ergonomics, and performance issues of enterprise software systems;
- Allows power users to implement specific business processes;
- Speeds up and standardizes business application development, customization, and support;
- Provides complete openness of UI and solution code, which allows better understanding and modification of business processes;
- Is ready for integration with existing 1C applications and third-party systems;
- Supports web-services, ODBC, COM, and so on;
- Supports your preferred architecture: Windows/Linux, MS SQL, PostgreSQL, IBM DB2, and Oracle DB;
- Includes on-premise or managed hosting web-based delivery, as well as Web, tablet, or Windows client.

3.2.1 The 1C: Enterprise System of Programs

The 1C:Enterprise application system is daily used by several million users in business and government to automate operations, accounting, finance, HR, and management activities. 1C Company provides an array of vertical solutions for manufacturing, distribution, and service businesses. With its innovative technological platform and the array of applied solutions, 1C Company has achieved wide popularity for its openness, speed of modification and software updates. 1C:Enterprise is a very flexible and scalable platform meeting the needs of companies ranging in size from a single user to hundreds of users (1C:DN).

1C:Enterprise is a system of applications that includes the Platform and Applied Solutions (off-the-shelf applications). The difference between the platform and the applied solutions is simple: the platform, as its name suggests, supports all of the applied solutions. The platform essentially stands alone, whereas there are many applied solutions. 1C Company and their partners are constantly introducing new applied solutions.

The benefit of having such a platform is to raise the abstract level of a software system. The platform handles all of the tasks related to technological complexity, performance, ergonomics, and so on.

1C:Enterprise allows you to do the following (Oshchenko, 2013) :

1C:Enterprise Platform

- Adapt the software system to match the specific language of users and experts in the subject area concerned.
- Speed up and standardize the development of applied solutions, as well as their implementation, customization, and maintenance.
- Allow customers to see all of the algorithms of the applied solution and change them, if necessary.

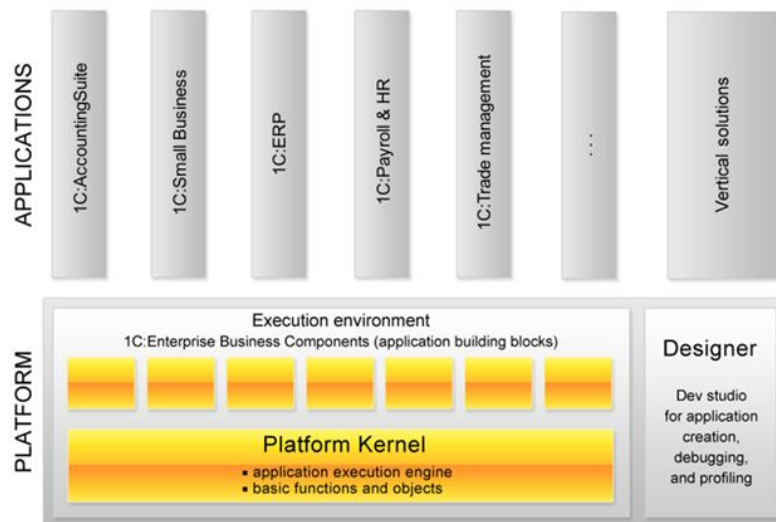


Figure 3: Application includes the Platform and Applied Solutions (1C:DN)

1C:Enterprise Platform consists of the following parts (1C):

- Data/process layer that provides system features, such as support of a variety of databases, an application server, web server components, and web services components.
- Business Components – predefined visually configurable building blocks (templates) that are widely used in enterprise applications – catalogs, documents, accumulation registers, bookkeeping engine, calculation engine, and business process engine.

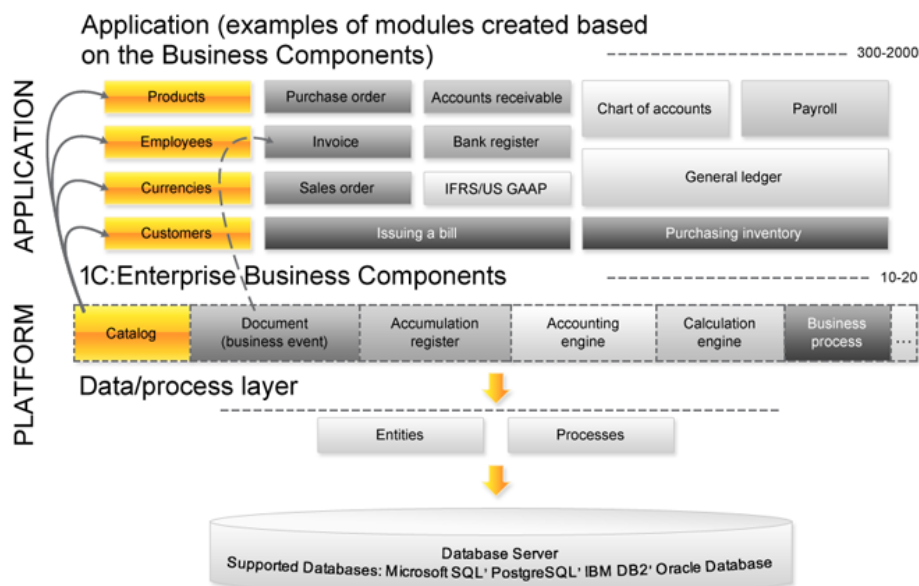


Figure 4: Scheme of application-based interaction of the application with subsequent upload to databases (1C:DN)

The above figure 4 of a business application shows usage examples for (Kashaev, Programming in 1C: Enterprise, 2014):

- Catalogs – storing lists of Customers, Products, and so on.
- Document – business events, such as Purchase Orders, Sales Orders, or Invoices.
- Accumulation register – accumulating document posting transactions, for example, accounts receivable or bank register.
- Accounting engine - accounting document posting – typically used for creating specialized ledgers, as well as the general ledger.
- Calculation engine – payroll calculations.
- Business process – used throughout the system.

Using the Business Components significantly reduces the cost of enterprise application development, since it allows the company to focus on implementation of its specific business processes only, instead of building basic business functionality from scratch. The diagram below displays the overall 1C solution architecture consisting of the platform and the applications.

The Platform – consists of the application server, Business Components (visually configurable building blocks), and IDE environment.

Business applications running on the platform – 1C Company provides solutions for small and medium businesses – 1C:Accounting Suite; and for enterprise customers – ERP/MRP, HR, Logistics, Financial Consolidation, and so on. 1C Company and its partner network also offer vertical solutions for many industries.

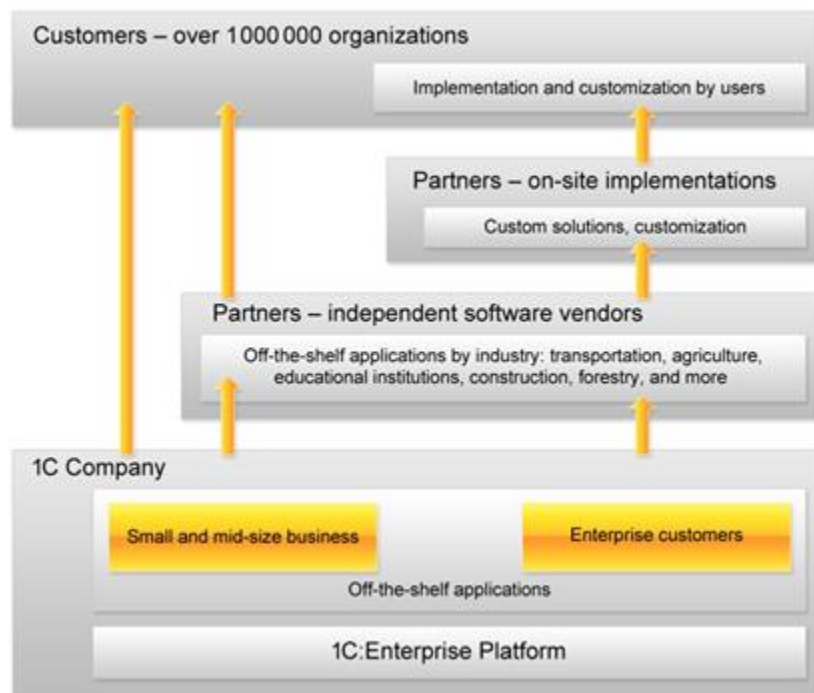


Figure 5: Followers of 1C:Enterprise (1C:DN)

The following table summarizes technologies and tools included in 1C:Enterprise.

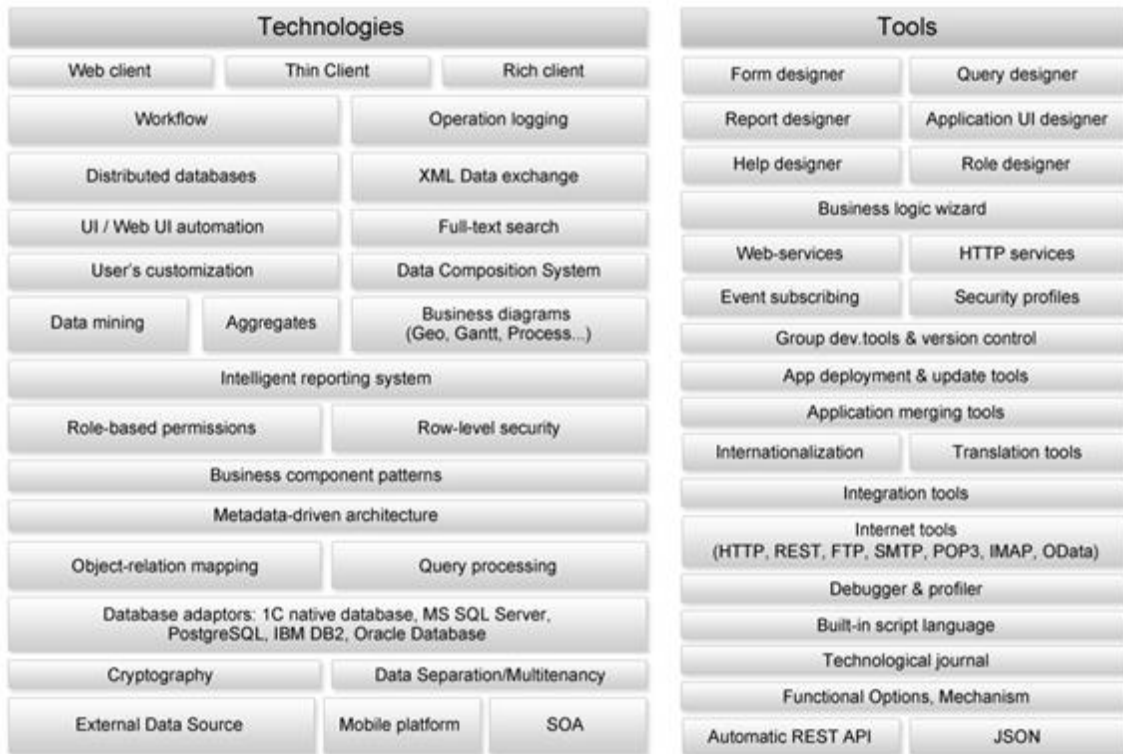


Figure 6: Summarizes technologies and tools included in 1C:Enterprise (1C:DN)

4. Case study

4.1 Description of the organization

Studio of events "Make men Zhake" is a professional team in the field of organization and holding of private (wedding, birthday, or anniversary, prom) and corporate events (presentation, opening, test drive, team building, corporate events).

Today in the studio of the festival employs 10 people, including two leading, manager on work with clients, DJ, vocalists, dancers, photo and video operators.

There is a manager in the company responsible for make orders for a specific service and give all the information about the company services. The "Make men Zhake" studio provides a wide range of services, the manager inform which service is best for your event. In studio of event "Make men Zhake" is possible produce business card, where is all the information about the services of the company, and has contact numbers. The studio can be seen in the journals of the city of Omsk, such as "Zhas Otau" and "Zhas Zhubailar". Employees of the studio are skillful, talented and creative people who will make every effort to make any festive event enchanting and unforgettable.

Under the auspices of the studio, the best representatives of various industries gathered: actors, screenwriters, musicians and artists, whose potential enables us to meet the customer's wishes in the best possible way and to offer the original scenario development of entertainment programs and events. The creative potential of the celebratory studio "Make men Zhake" helps to create an excellent mood and a unique holiday atmosphere.

The organization of events can be purchased as a complex, and separately (providing only the presenter or the order of the photographer). The choice is dictated by the size of the purse and the customer's exactingness. (Ulrich Halzbaur, Edwin Yettinger, Bernhard Knaus, Ralph Moser, Markus Zeller, 2009)

4.1.1 General characteristics of the enterprise

Studio of event "Make men Zhake" was opened on 16 December 2013. The main activity is the provision of entertainment services, including:

- Development of the concept of the festive event;
- Technical support of events;
- Hire transport;
- Coordinator of the event;
- Printing, souvenir products;
- Organization and holding of press-conferences;
- Catering services;

- Artists of all genres;
- Professional presenter, master of ceremonies;
- A professional DJ;
- Festive decoration of the premises;
- Stylist, makeup artist, hairdresser, manicure
- Various show-programs;
- And so on.

The company has evolved and continues to evolve, developing in a stable and effective organization that can compete in the market of entertainment services of the city of Omsk. The company tries to work outside of Omsk, trying to find its niche in other cities. All work time Studio has established itself as a reliable partner and financially stable firm.

Their goal is also to take the leading positions in the city, organize the event, as well as to provide quality services to holiday companies. The basic rule of "A positive image of the company": Studio of event "Make men Zhake" tries to maintain a positive image in the minds of buyers.

4.1.2 Characteristics of the organizational culture

The organizational structure of the studio of event "Make men Zhake" is shown in the figure.

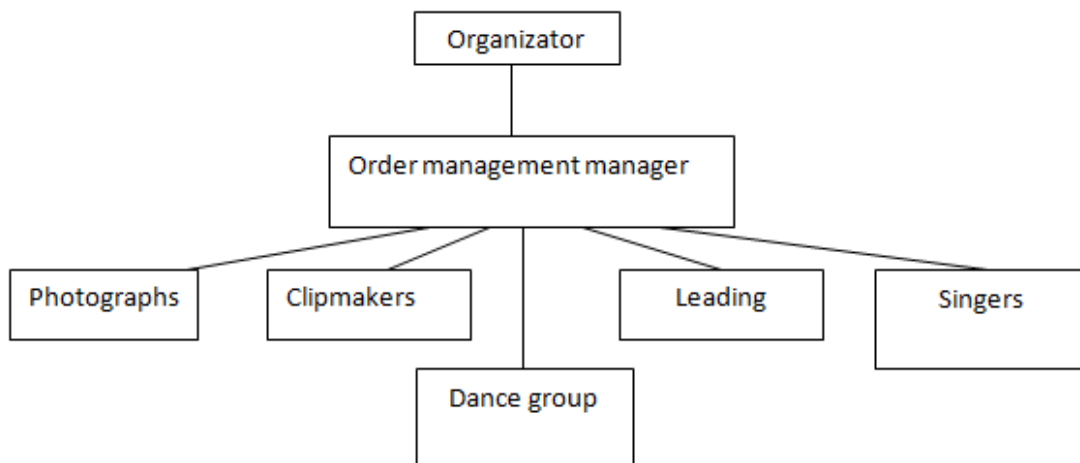


Figure 7: Organizational structure studio event "Make men Zhake"

The basis of this structure focus on the principle of unity of command, which involves the provision of the head of the broad rights and powers to carry out its functions. Leader has the sole right to make decisions on the management unit and is personally responsible for the activities of the team.

Advantages of the structure:

- A clear scheme of mutual relations;
- A clear statement;
- Fast reaction;
- Feedback in response to guidance from senior management.

Disadvantages structure:

- The lack of production units for planning and preparation of decisions;
- Reboot the top-level manager. (Konokov, 2010)

4.2 Description of the problem

Receiving orders in the company is not automated, making management work efficiency suffers. At the moment, all the documents, applications for advertising in the production department are transferred to the paper.

The main person in the studio structure is the organizer and is the frontman. However, all work on orders and coordination with employees is a manager. The organizer imposes fines on employees and encourages their execution, in connection with the planning and analysis of changes in the organizational structure, checks the work of subordinates, disposes of property, concludes contracts with third parties. The manager controls the activities of the enterprise. In view of such problems as overloading top-level management, it is recommended to develop a program that will create and automate an order management system that automatically coordinates the activities of employees as a whole: facilitates the management work as a whole.

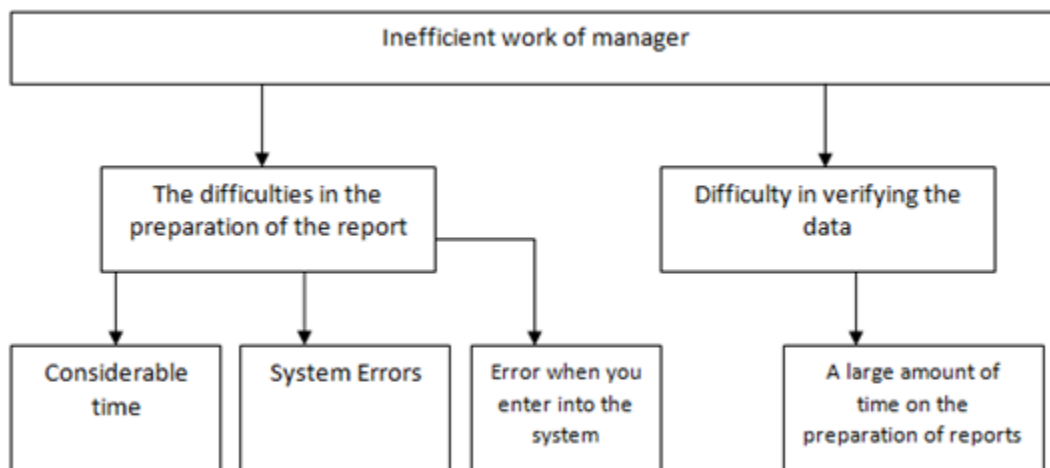


Figure 8: The Tree of problem

It is necessary to introduce electronic document management. It is necessary, first, to improve the efficiency and transparency of document management at the firm; second, to facilitate interaction with customers to provide electronic reports to the organizer.

In addition, with the introduction of shared databases of the company there will be opportunities for operational accounting and decision-making on major issues related to the activities of the firm.

One of the main functions of the Manager is quick to find the necessary information:

- The dates of publication of legal documents;
- Keyword;
- Name of publication;
- By document type.

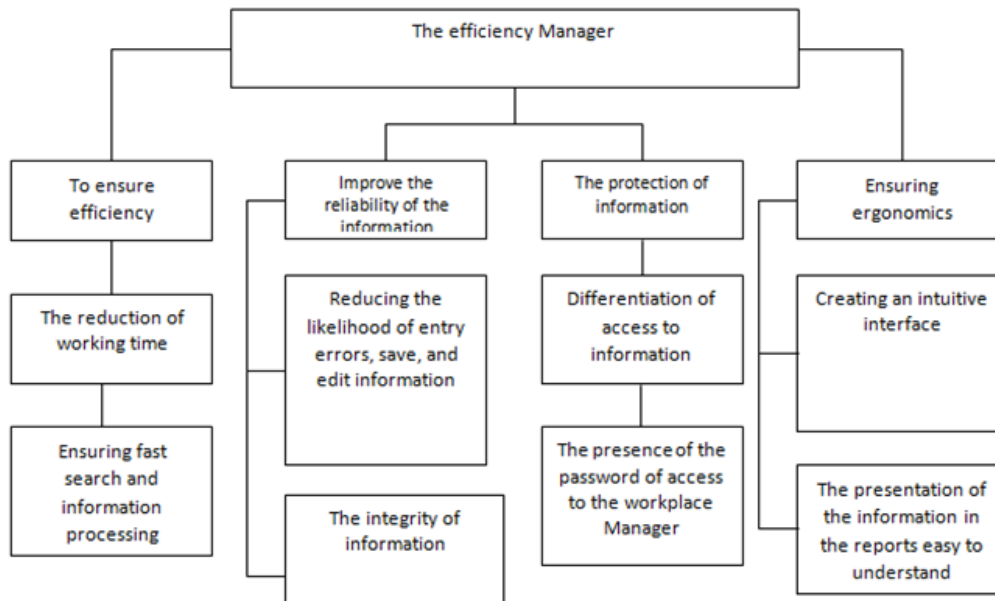


Figure 9: The purpose of the Tree

4.3 Identification and description of the business processes

Figure 10. shows the main diagram of the structure of the organization, which shows the activities of the studio events in general. The team consists mainly of the Organizer (which is the main one in the structure), the Manager (who performs the main management functions, that is, in effect is the executive director of his kind) and employees (Leaders, singers, dancers, photographers). The diagram shows the interaction of all persons: the team in general and directly customers. With the customer at the initial stage, the manager mainly works: he talks about the meeting, tells the essence of the event, assigns a per-payment, announces the total cost of the event. If the customer all triples, then they sign the agreement on the agreement. The organizer works more with the internal structure of the team: distributes the duties of each and assigns salaries, however, any details are still made by the manager. Thus, it turns out that the manager is assigned an "external" side: work with uploaders, PR-department, work with social networks, and on the organizer internal: streamline the work of employees. Regardless of this, the organizer is the most important in the room and he will fully participate in the meeting, and, of course, the activities of the manager. From this it appears that the manager has many important responsibilities, and we will automate his work directly in the future.

Figures 11 to 16 describes the:

- Discuss the plan of the event - Discuss the type of event and the need for participation of certain employees;
- Discuss the work of dancers - Depending on the type of event, establish the number and type of dances;
- Discuss the work of singers - depending on the type of event to discuss the repertoire of songs;
- Discuss the work of photographers - depending on the type of event, set the amount of photos;
- Set the price - to discuss the amount of payment for the event to each person depending on the type of event.

From 18 to 21 diagrams shows that the automation of the activities of the team and customers.

4.4 Design of the CRM module

4.4.1 Software development methods

Modern CASE-tools cover a vast field of support for numerous IS design technologies: from simple analysis and documentation tools to full-scale automation tools covering the entire software lifecycle.

IBM Rational Rose - CASE-tool company Rational Software Corporation (USA) - is designed to automate the stages of analysis and design software, as well as for the generation of codes in different languages and the release of project documentation. Rational Rose uses a synthesis-methodology of object-oriented analysis and design, based on the approaches of three leading experts in the field: Bucha, Rambo and Jacobson. The universal notation for object modeling developed by them (UML - Unified Modeling Language) pretends to be a standard in the field of object-oriented analysis and design. In addition, Rational Rose includes software reengineering tools that ensure the reuse of software components in new projects.

Structure and functions. The basis of the work of Rational Rose is the construction of various kinds of diagrams and specifications that determine the logical and physical structure of the model, its static and dynamic aspects. They include diagrams of classes, states, scenarios, modules, processes.

Based on this, IBM Rational Rose is a powerful and convenient integrated solution that can be used to simulate practical applications of any class. This is due to the emphasis on visual ways of presenting information, which is usually much more visual than working with text or other variants of it. (CitForum, 2009)

4.4.2 Modelling

4.4.2.1 Use cases diagrams

Figure 10 shows the activities of the company as a whole.

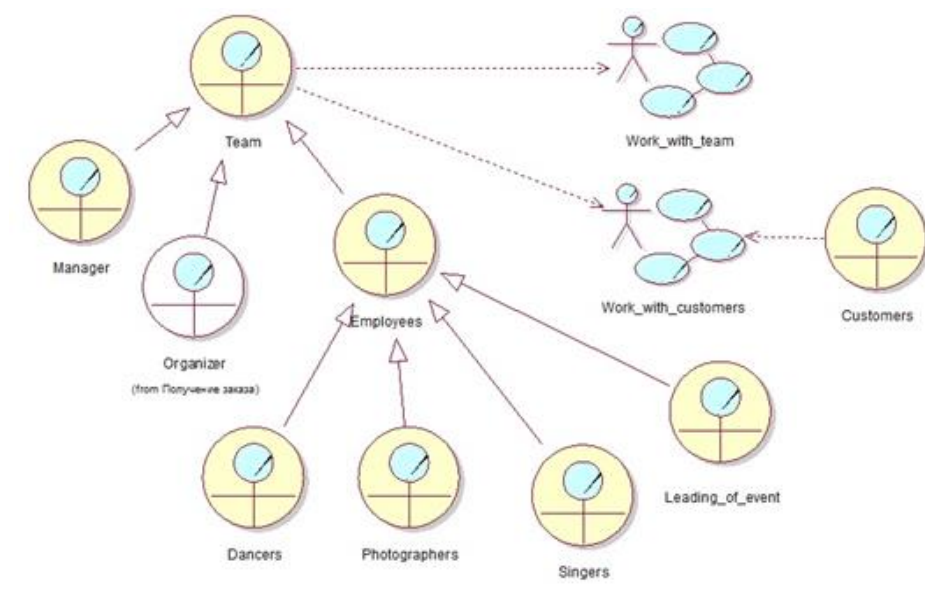


Figure 10: The general structure of the organization

Next figure shows in more detail the «Work with team».

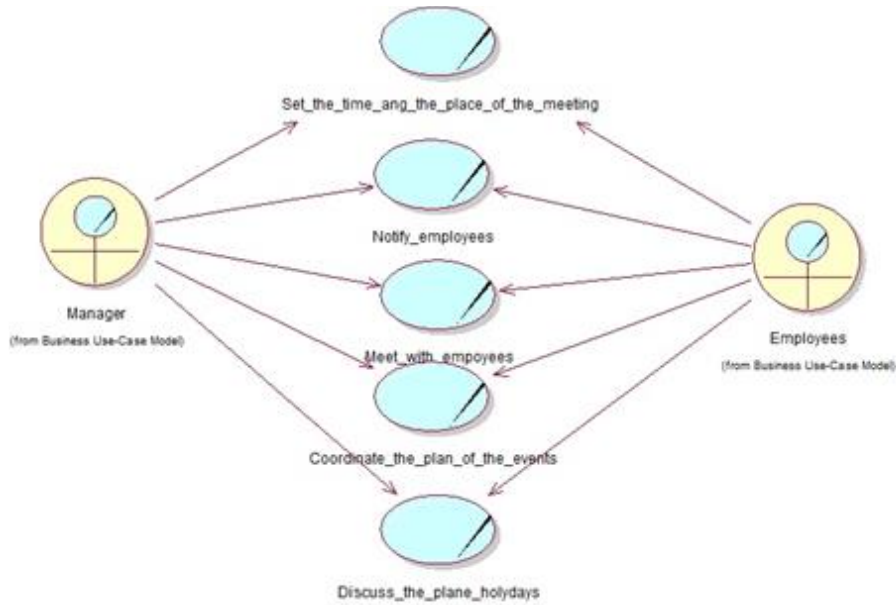


Figure 11: Work of Organizer with employees

On an example of a diagram "Work of Organizer with employees" we will consider in more detail.

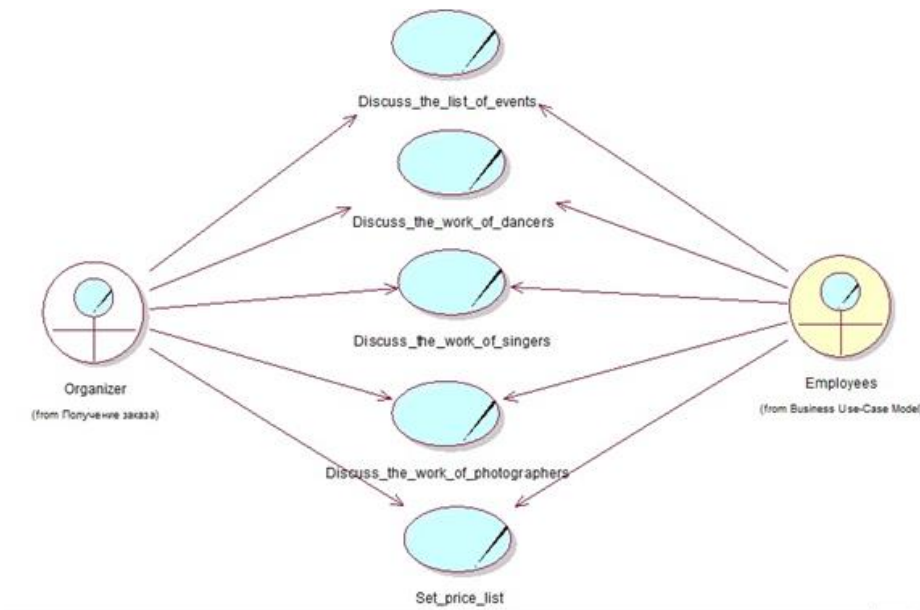


Figure 12: Work of manager with employees

The following diagrams show the activities of the manager and employees more in-depth: after meeting with the organizer and discussing common issues, the manager works in detail with the staff, as can be seen in the diagrams. To collect the team (organizer and staff), the manager prepares the place and time for the meeting, develops an approximate plan for discussing the issues and further coordinates the execution of all the team's actions.

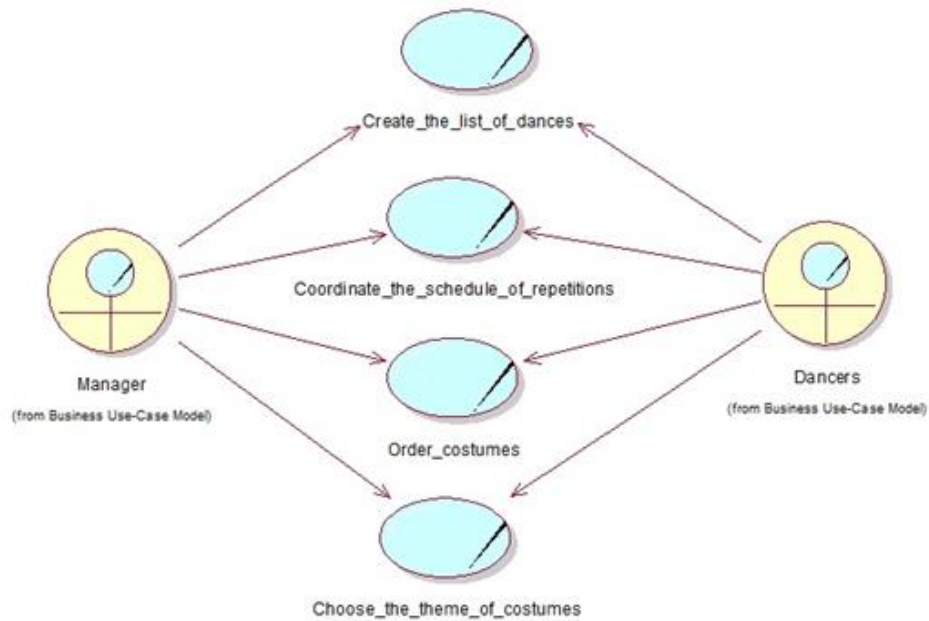


Figure 13: Work of manager with dancers

Discuss the work of dancers - Depending on the type of event, establish the number and type of dances.

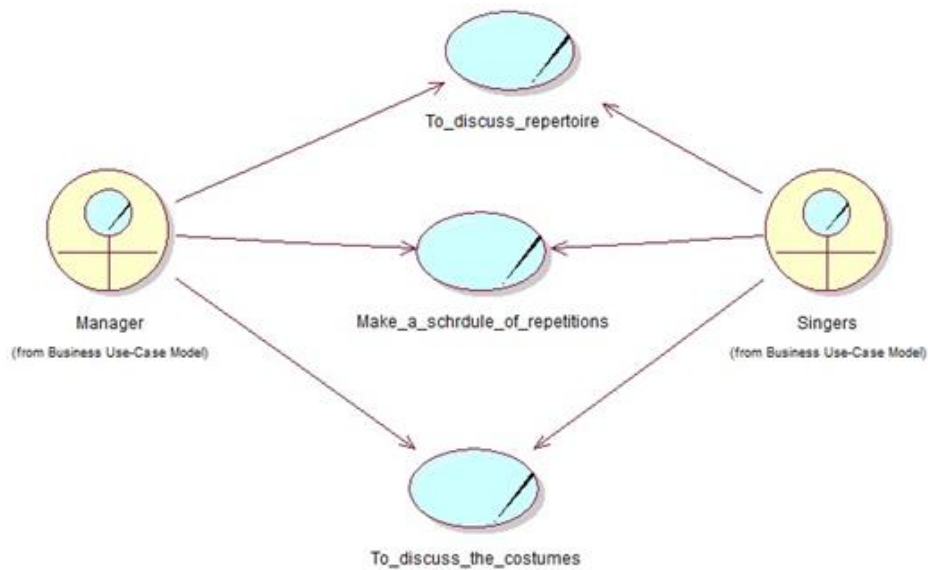


Figure 14: Work of manager with singers

Discuss the work of singers - depending on the type of event to discuss the repertoire of songs.

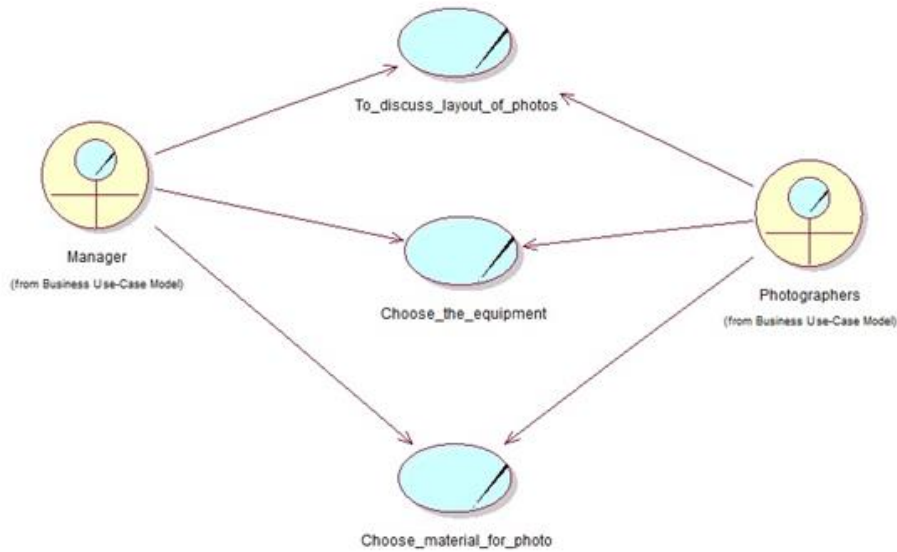


Figure 15: Work of manager with photographers

Discuss the work of photographers - depending on the type of event, set the amount of photos.

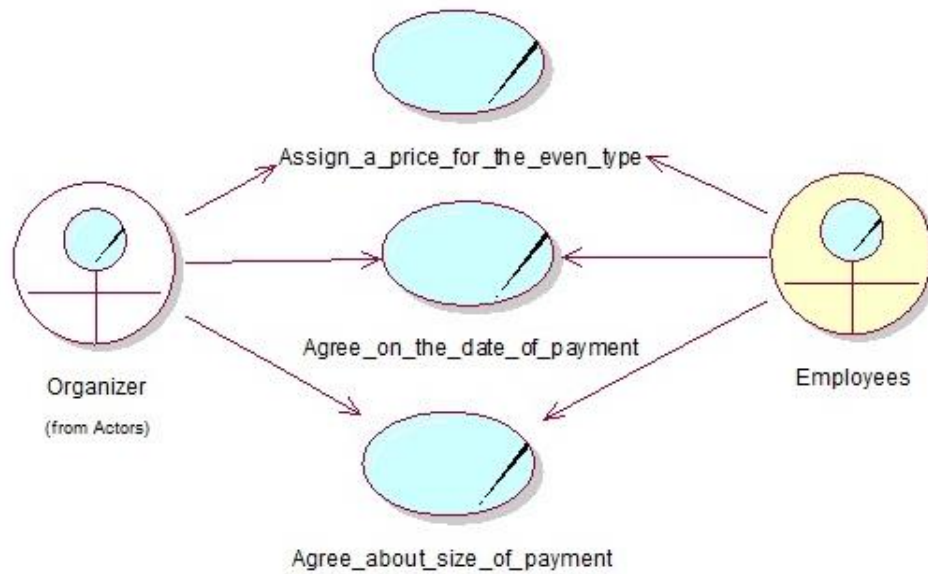


Figure 16: Work of Organizer with Employees

Next diagram shows the processes of the manager and the customer before automation. The manager should appoint a meeting with the customer, determine the time and place of the meeting; Discuss the event, draw up a contract, which will indicate the services needed for the event (photos, dances, songs); Agree on payment, that is, in what form will payment be provided and in what amount.

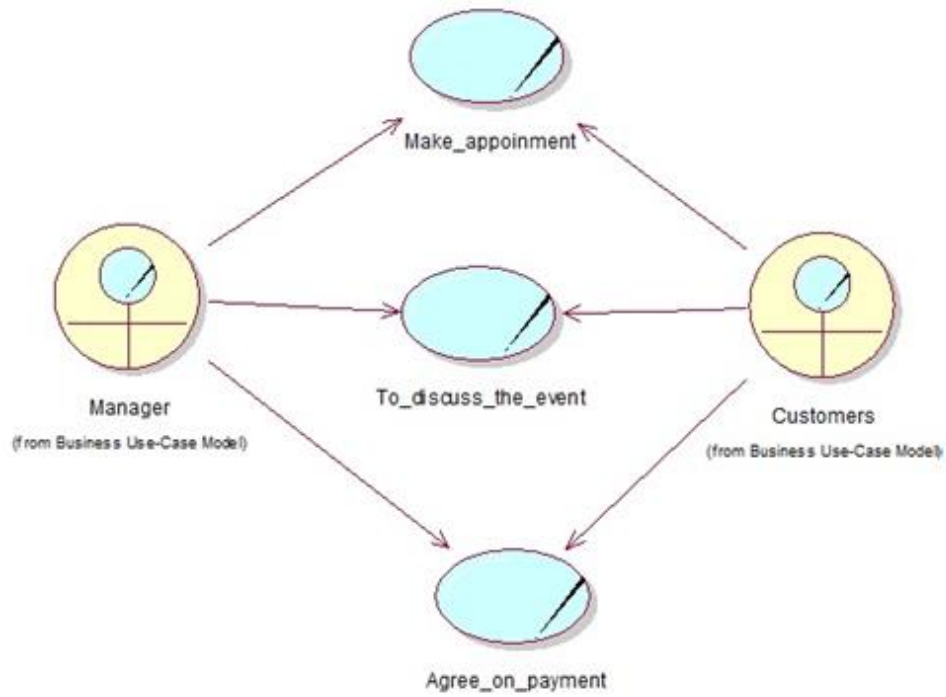


Figure 17: Work of Manager with Customers

The use cases diagram of the team and customers after automation are presented below.

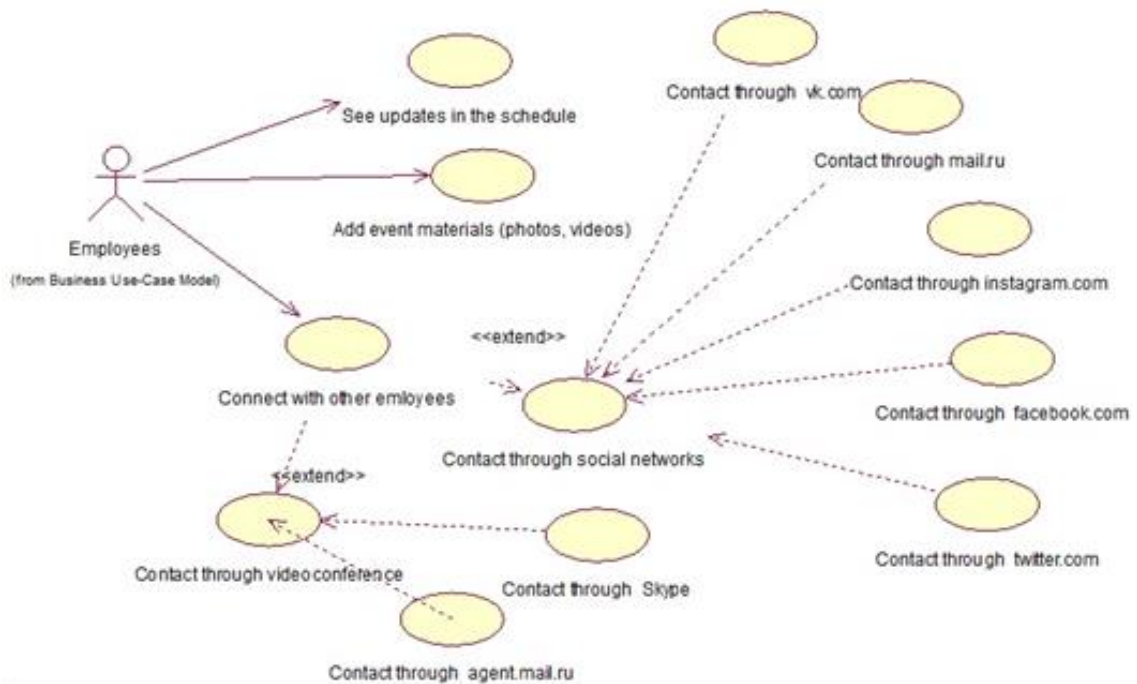


Figure 18: Use Cases diagram - Employees

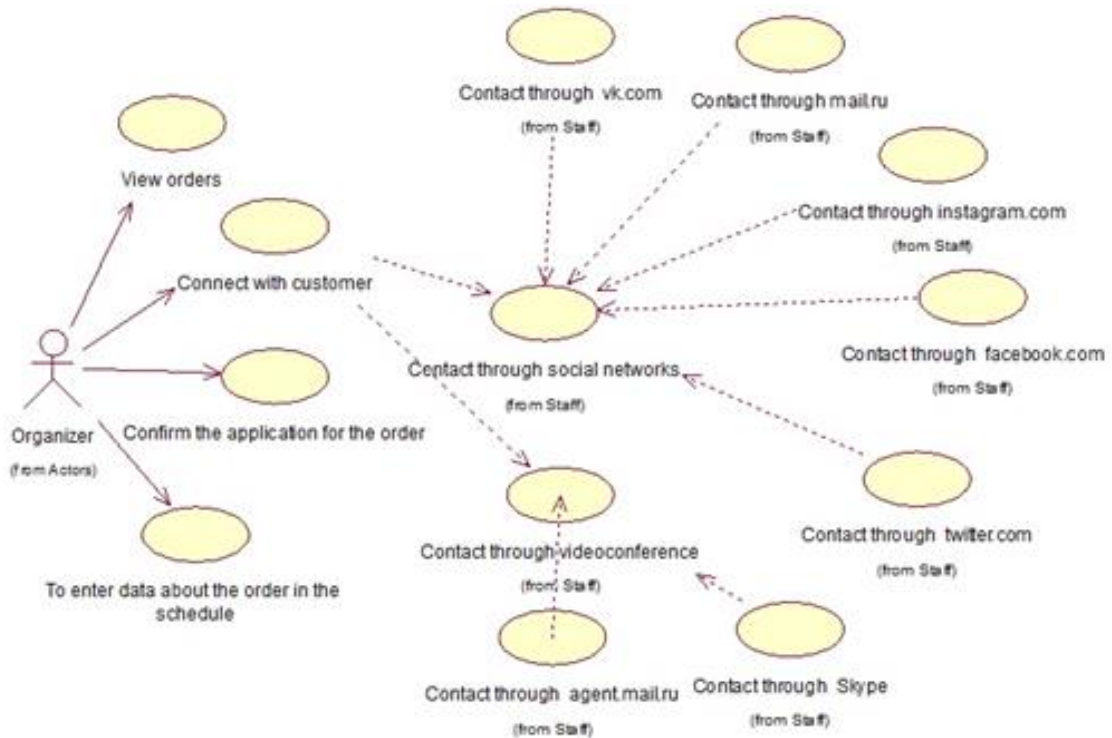


Figure 19: Use Cases diagram - Organizer

Presented diagrams show the work of organizer and manager after automation.

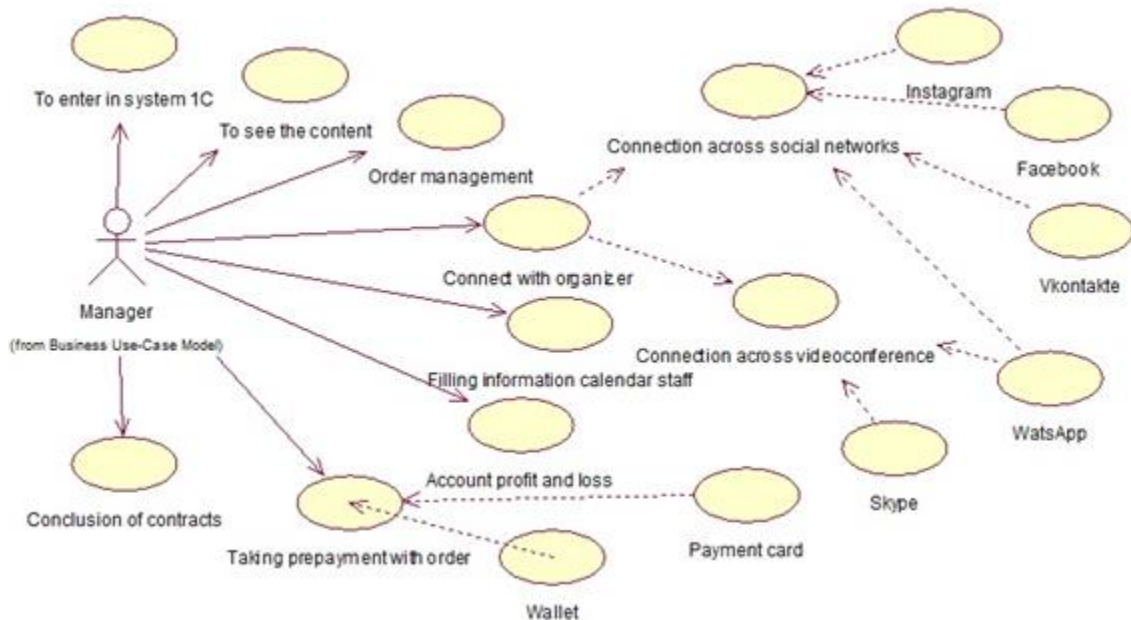


Figure 20: Use Cases diagram - Manager

The figure 21 shows graphically the use cases of the module, represented in the form of a use case diagram. The executors on the scheme are: client, manager. The main precedents are: order formation, order status control, definition of tasks for the fulfillment of orders, formation of lists for the issuance of goods, management of settlements under contracts.

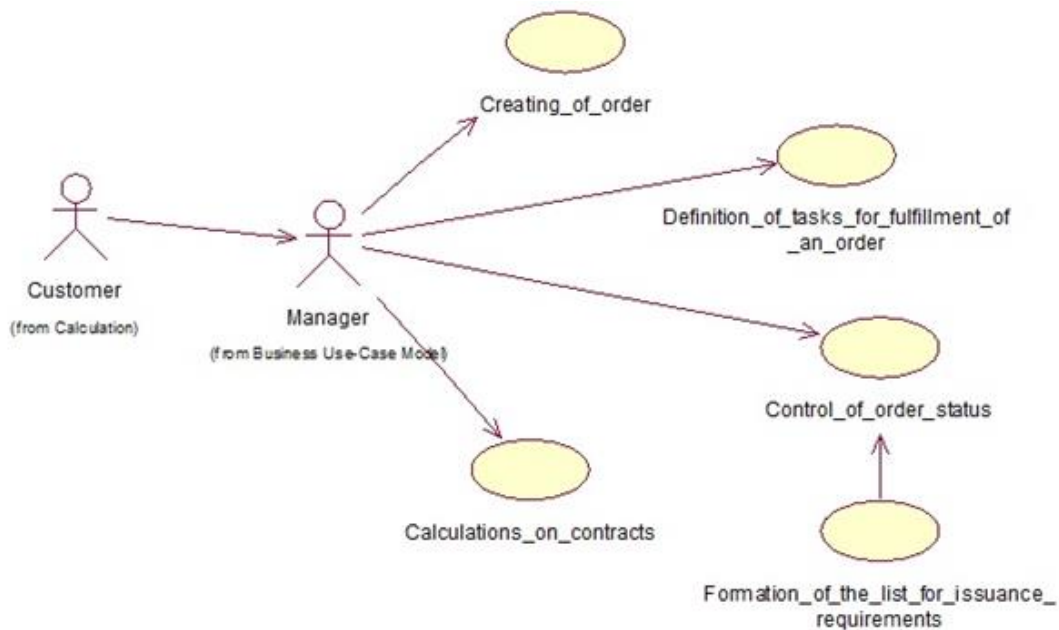


Figure 21: Use cases when creating the module "Orders"

Detailed description of each use case:

Use case 1. Creating of order.

The main executors: the manager on management of orders. The precedent consists of successive actions:

- The customer applies to the manager with the application;
- The manager tells the structure of the event, the cost of work, the nuances of the organization of the event, identifies the requirements of the customer
- Having received information from the customer, the manager enters it into the database;
- The manager, having received the necessary information, forms the commercial offer for the client;
- The customer pays the order or confirms the payment guarantee upon receipt.

Use case 2. Definition of tasks for fulfillment of an order.

Main executors: manager. The precedent consists of a sequence of actions:

- After payment of the order receives the status of the confirmed order;
- The manager on the basis of the contract with the client can put the status of order confirmation without payment;
- The manager enters the selection criteria for orders in the AIS;
- AIS forms a list of confirmed orders according to specified criteria;
- The manager sends orders to the organizer and employees;
- The order receives the status order in work.

Use case 3. Control of order status.

Main executors: Managers. The precedent consists of a sequence of actions:

- The status of orders should be displayed in the order log;

Case study

- After the introduction of the order in the AIS, it receives the status - not a processing order;
- After invoicing the customer, the order receives the status of an unconfirmed order;
- After payment or manual order confirmation, the order receives the status of the confirmed order;
- After the formation of the list of orders to the supplier, the order receives the status of the order in the work;
- After receiving and receiving the order, receives the status - received;

Use case 4. Formation of the list for issuance requirements.

Main executors: manager. The process consists of a sequence of actions:

- The manager identifies the requirements of the customer;
- The manager forms lists of necessary requisites;
- The manager informs the customer about the list, explains what the customer needs to purchase for the event.

Use case 5. Contract settlement management.

Main executors: manager. The precedent consists of a sequence of actions:

The manager forms a list, which indicates to whom, when and how much should the organization pay.

The following diagrams reflect the activities of the entire team and customer after the implementation of the module.

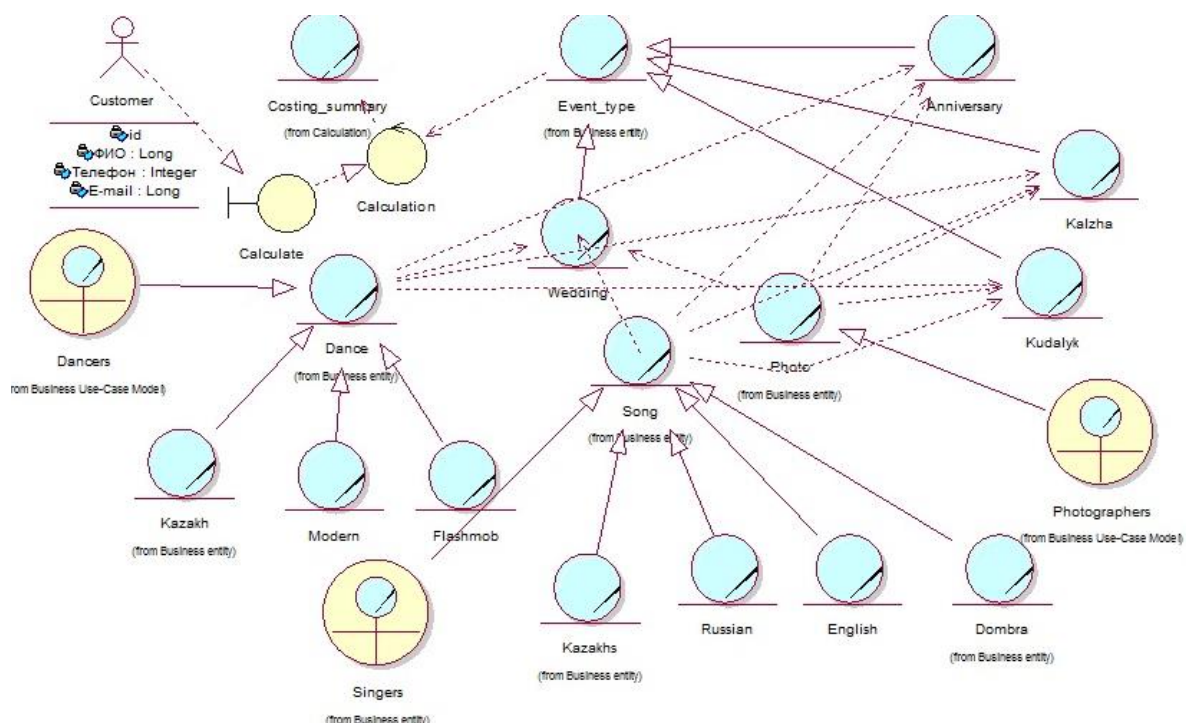


Figure 22: Calculation of the event for the customer with the choice of a specific service

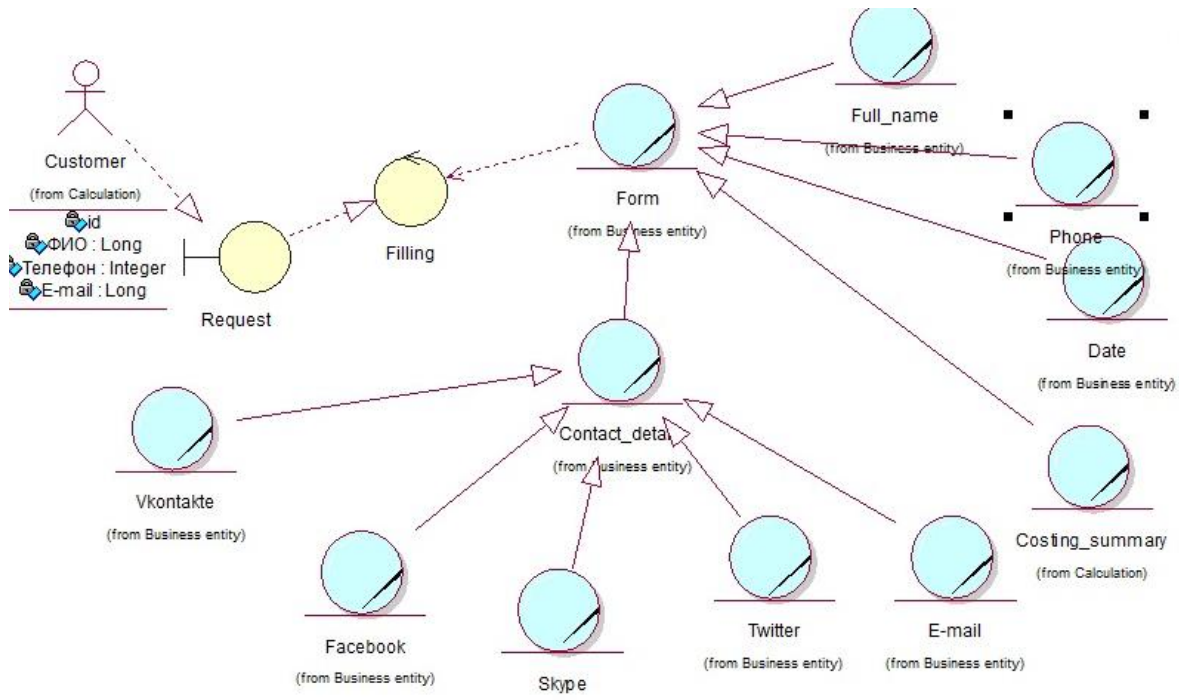


Figure 23: Filling the application with the customer with the addition of data

The diagrams show the actions of the customer and the studio directly in the application module.

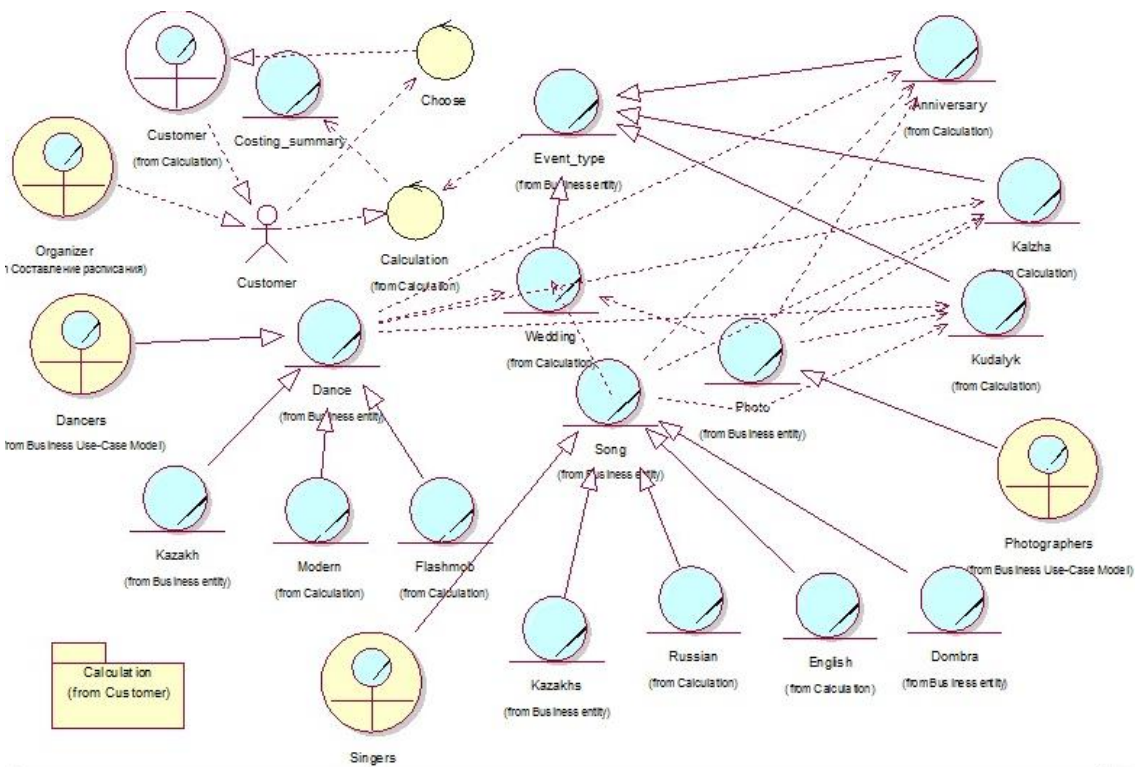


Figure 24: Automation of calculation of cost

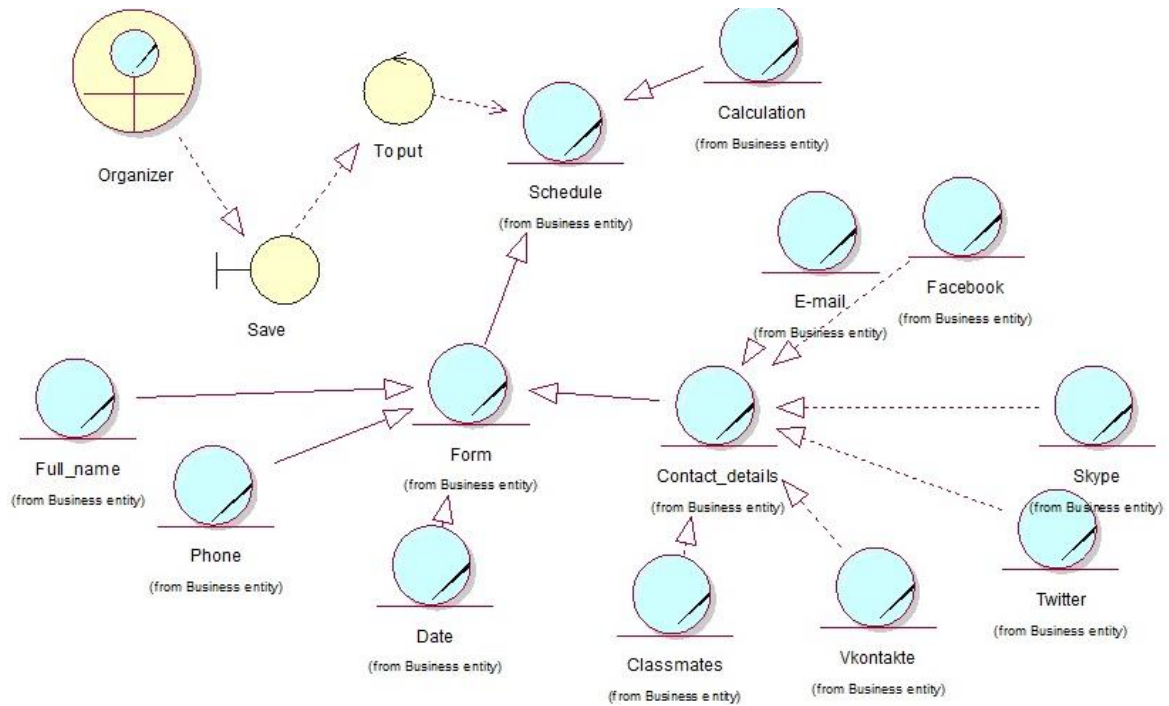


Figure 25: The actions of the organizer directly in the module

4.4.2.2 Sequence diagrams

Figure 27 shows the sequence diagram on which the main scenario of the use order generation is displayed.

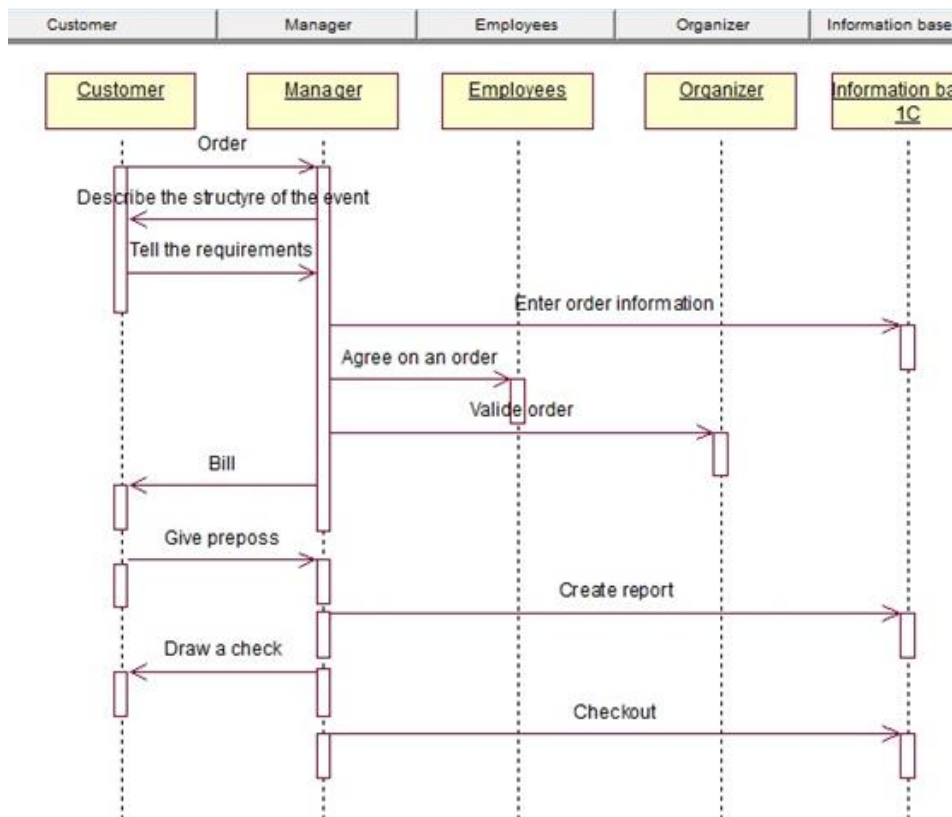


Figure 26: Sequence diagram of the order

The main scenario for the formation of orders consists of the following:

- The customer addresses to the manager of a department of sales with the application;
- The manager tells the structure of the event, which is part of the organization;
- The customer says his requirements for the event;
- If the customer is satisfied with everything, the order is coordinated with the employees and the organizer;
- Further the cost of the event is negotiated;
- The customer gives an advance payment to the manager;
- A check is issued to the customer by the manager.

In turn, the manager, having received the necessary information, enters information about the order in the 1C database.

4.5 Development of the CRM module

The solution of this task will take place in several stages, the most important of which will be the development of a software module.

Inbound information of the registered module is: order information provided by the client; Information on payment, required requirements, etc.

As an output information module will issue: lists of the finished order, generate reports on the status of orders for the author, task lists.

The following functions are planned to be implemented in the project: creating forms for registering primary information in the database, creating an order journal for monitoring the status of customer orders, automating the collection and formation of orders for various types of events, creating an organizer calendar for the convenience of scheduling its tasks, creating an order book for customers for Convenient presentation and prompt access to information about orders, generation of reports on events.

The verbal description of the subject area is as follows: the manager is engaged in the sale of goods, to implement the manager is negotiating with customers and making orders. On all suppliers and types of goods cards are inserted in which the necessary information is indicated.

This program, taking into account the improvements (that is, with the implementation of the software module) should perform the following functions:

Management of customer orders;

- Keeping a list of activities;
- Maintenance of the list of goods / requisites;
- Formation of a calendar for employees;
- Tracking the correctness and integrity of the information entered;
- Providing the possibility of editing the report after the formation;
- Providing a quick search for directories;
- Ensuring the delineation of user's access to the system;
- The presence of a clear interface.

This software product provides storage of a large amount of information about the company's orders. The structure of the automated workplace manager software will consist of the following parts: directories, documents, reports. This division is made from the point of view of the convenience of the system and a quick search of the necessary information:

- "Directories" are a dialog box and are designed to enter information into the system and are used by the data entry unit when entering information about customers and goods.
- "Documents" are intended to describe information about the transactions performed or about events that occurred in the life of the organization in general. Since the document makes changes in the state of accounting, it is always "tied" to a specific point in time. This allows you to reflect in the database the actual sequence of events.
- "Reports" will be formed on the basis of data from the "Documents" and "Directories". The unit will include reports on the implementation of orders in the amount and on the activities.

A reference is a list of the values of an element. They serve to exclude ambiguous input of information. For example, in the "Nomenclature" handbook, each position has its own name, which is the search in this directory. The system "1C: CRM" allows you to maintain an unlimited number of necessary directories. Each directory is a list of homogeneous objects: employees, organizations, goods, etc. Such objects are called the element of the directory.

As a mandatory element, the directory has the Code and Name. The code of the directory element can be either numeric or text. The system "1C: CRM" provides extensive opportunities for working with the codes of the elements of the directory: automatic assignment of codes, automatic control of code uniqueness and others. In addition to the code and name, in the directories of the system "1C: CRM" can store any additional information about the element of the directory. To store such information in the directory, a list of requisites can be created.

Directory "Orders" contains information about orders, namely, name, type of event, name of the client. This guide will not be difficult. In order to be convenient to use the directory. Create a new configuration object directory and call it "Orders." On the "Data" tab we specify the length of the code - nine, the type of the name - "String", the length of the name of the directory is equal to 25 characters.

Further, within the framework of the work, a configuration object such as "Documents" and its components are used:

- Documents - one of the basic concepts of the system "1C: Enterprise 8.3". With the help of documents, it is organized to enter into the system information about the economic activities being performed, to view it and, if necessary, to adjust it. Most of the documents that are created during the configuration of the task configuration are electronic analogues of standard paper documents, however, the use of this type of data can go far beyond the simple recording of information about business transactions.

The document "Invoice for payment" can be issued on the basis of the specification to the contract.

The next configuration object is the "Information Register", which is intended to describe the structure of data storage in the context of several dimensions. Based on the "Information Register" configuration object, the platform creates an information structure in the database in which arbitrary information "tied" to a set of measurements can be stored. An important feature is its ability to store time-based data. Due to this "Register of information" can store not only the current data values, but also the history of their change in time.

The "Prices" register stores the values of the goods sold by the enterprise, deployed in time. Since the prices are stored with reference to the date, you can preset new prices in advance and be sure that the new prices will come into effect not earlier than the date specified for them.

The reports serve to output the final results. The layout of reports for sales and events can be configured with the ability to set conditions for the layout system and based on the user's choice. Let's say that reports can be generated by a counterparty, a manager, a product, and so on. So, creating and editing the configuration in "1C: CRM" is very simple. Part of the functions already included in the program itself simplify the work of creating a configuration. That significantly shortens the development time for new applications.

At the beginning of the stage, we have an empty application workspace.

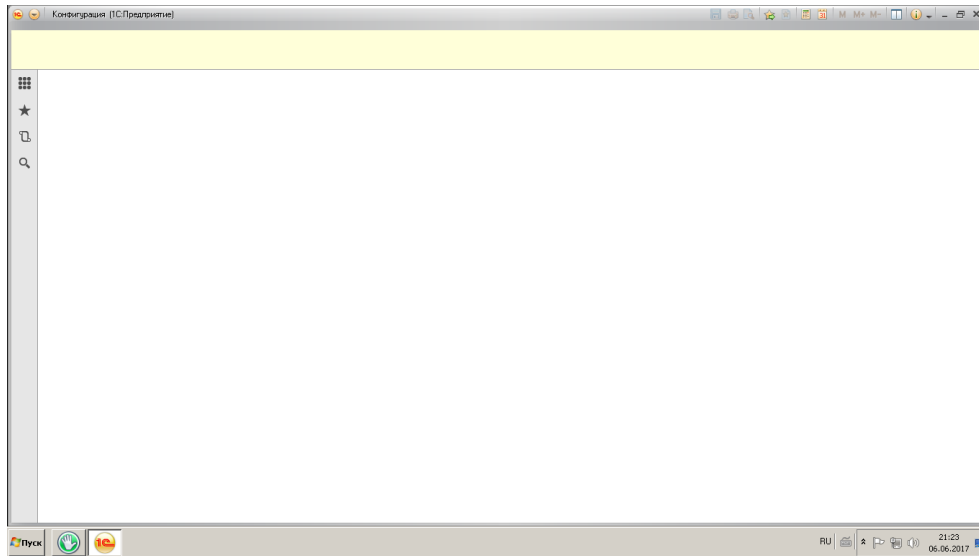


Figure 27: Empty application workspace

To create the module, we need to go into the application's designer, where we will work out all the necessary things in detail.

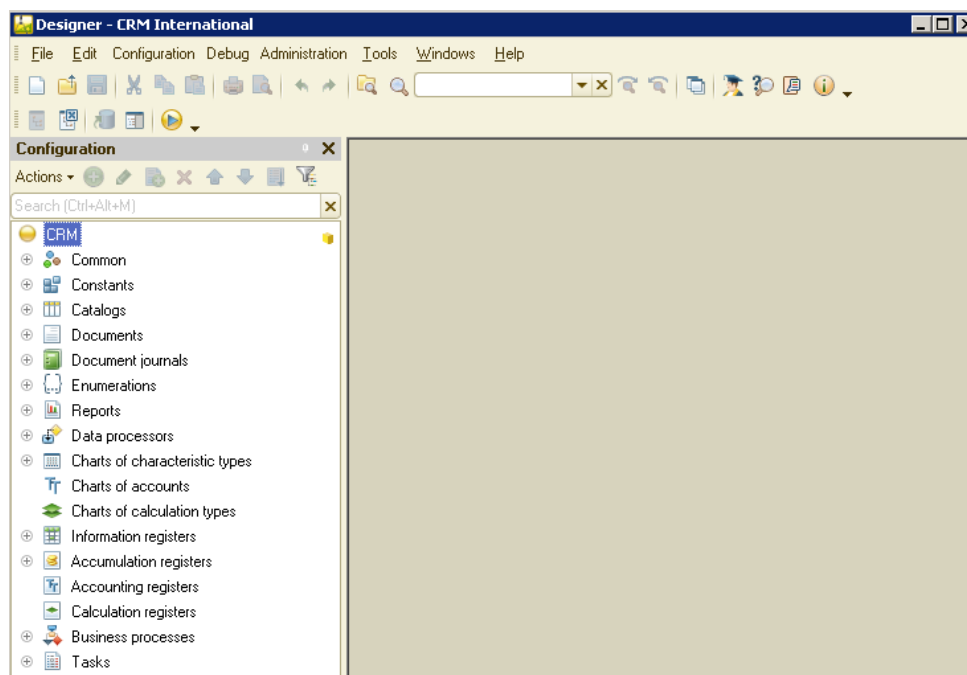


Figure 28: Application Designer Window

Case study

In the window of the designer we see the necessary set of tools with which we will design the application.

One of the main components of the development are the project catalogs. From these components, our module for the studio will be developed.

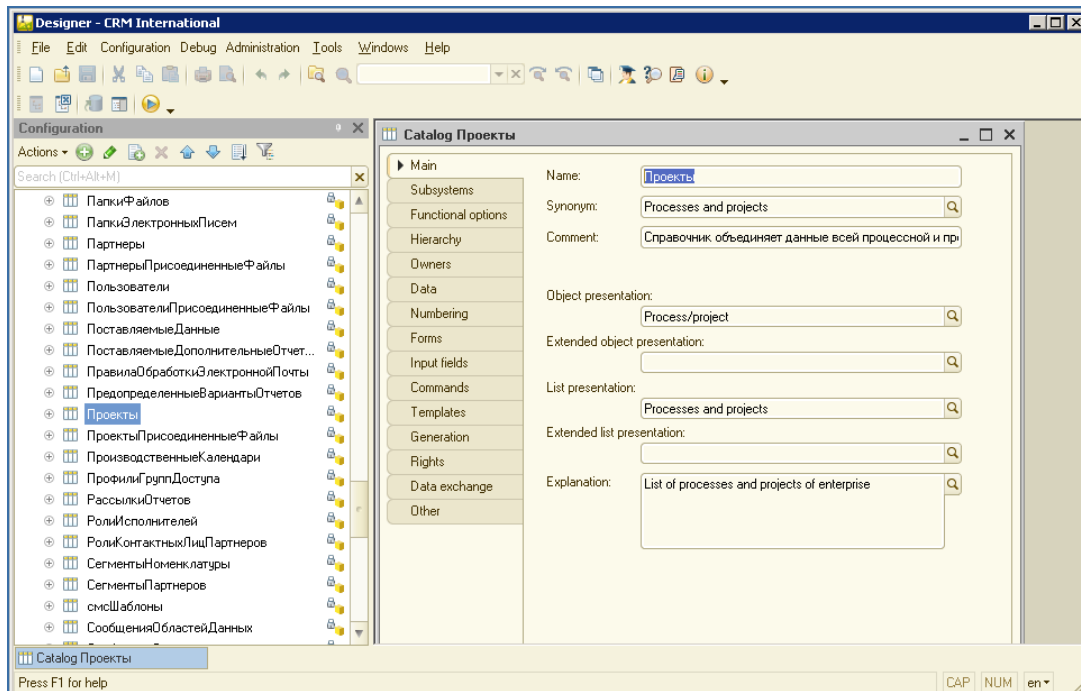


Figure 29: Creating directories "Projects"

The following figure shows in detail the process of creating the required application windows, for example: the "Projects".

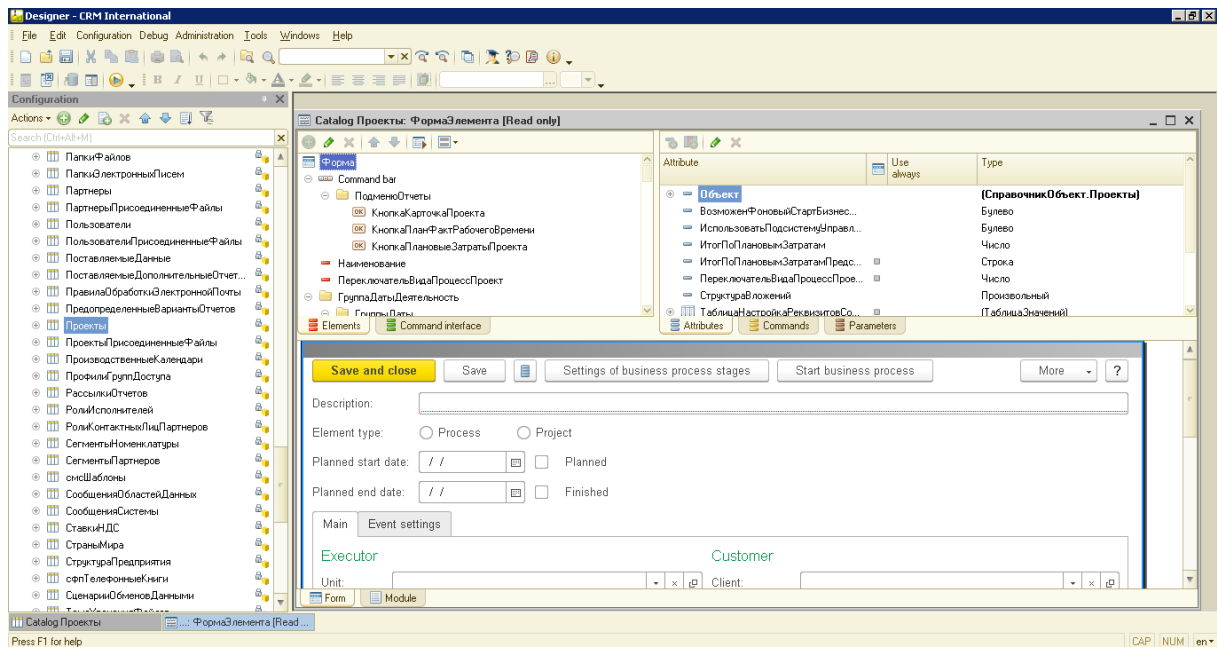


Figure 30: Creating a form of the "Projects" window

In the following figure, we can see the creation of a calendar. For this we choose from the existing elements the elements that are necessary for us.

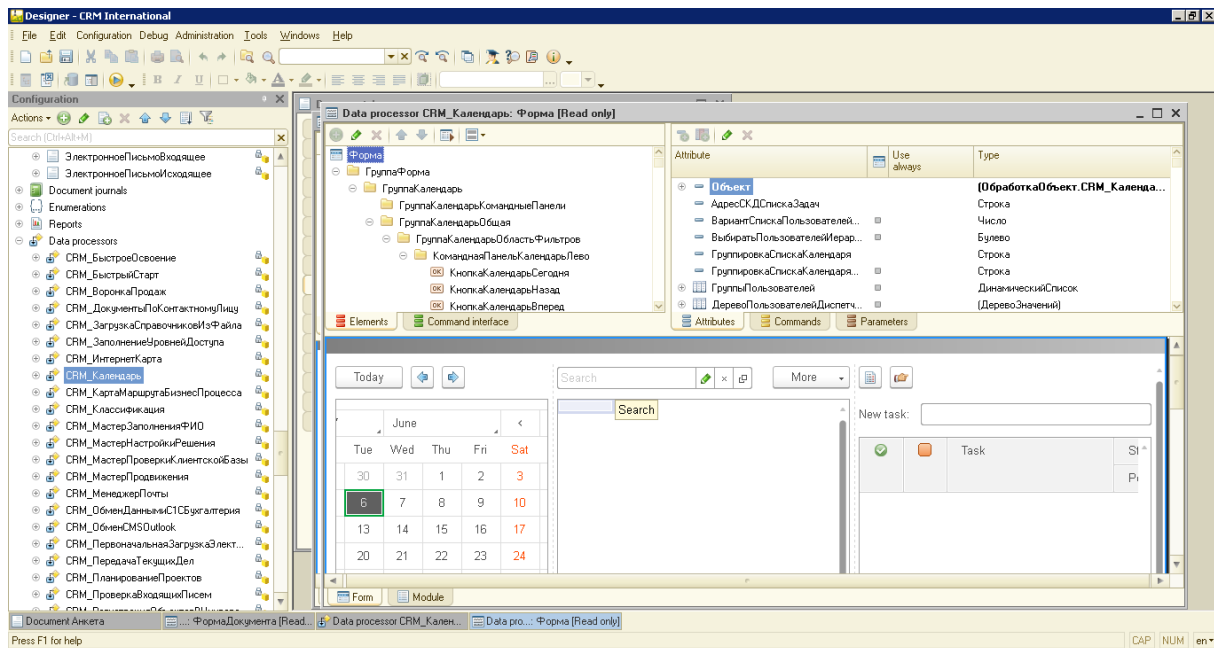


Figure 31: Creating a calendar form

Any action to create an element is automatically recorded in separate blocks called "Module". The code is automatically created only in Russian languages.

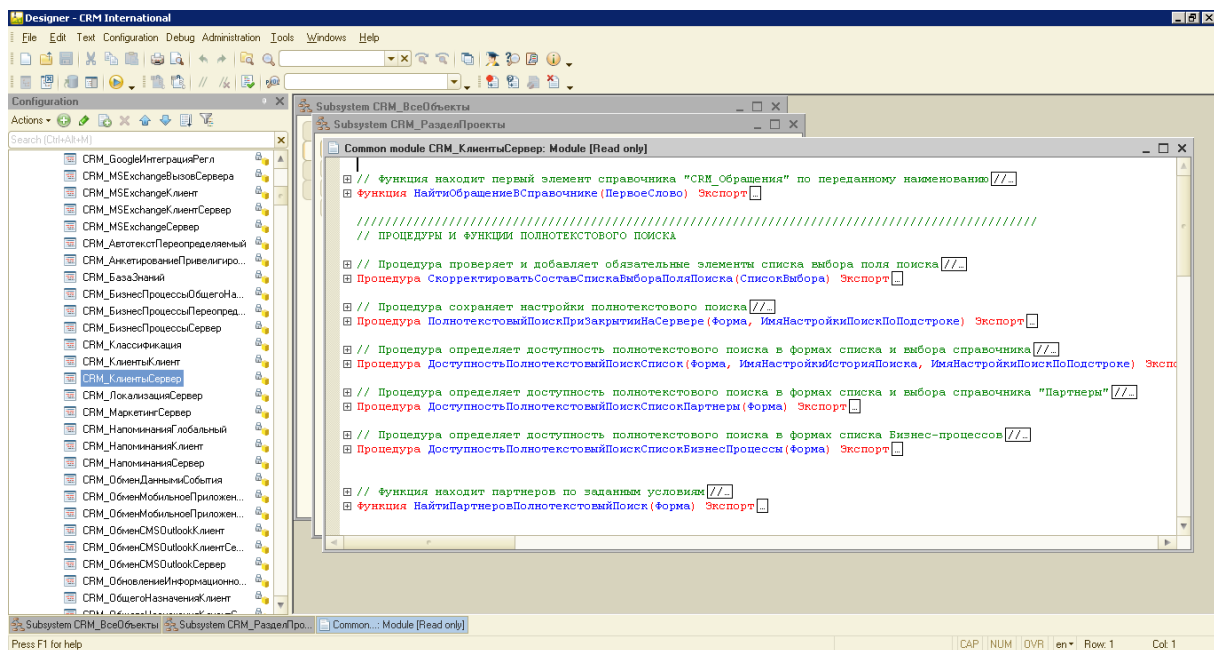


Figure 32: Code sample module

After we have created the necessary windows in the designer, we go to the application workspace, where we see all the working module that we created in action.

Case study

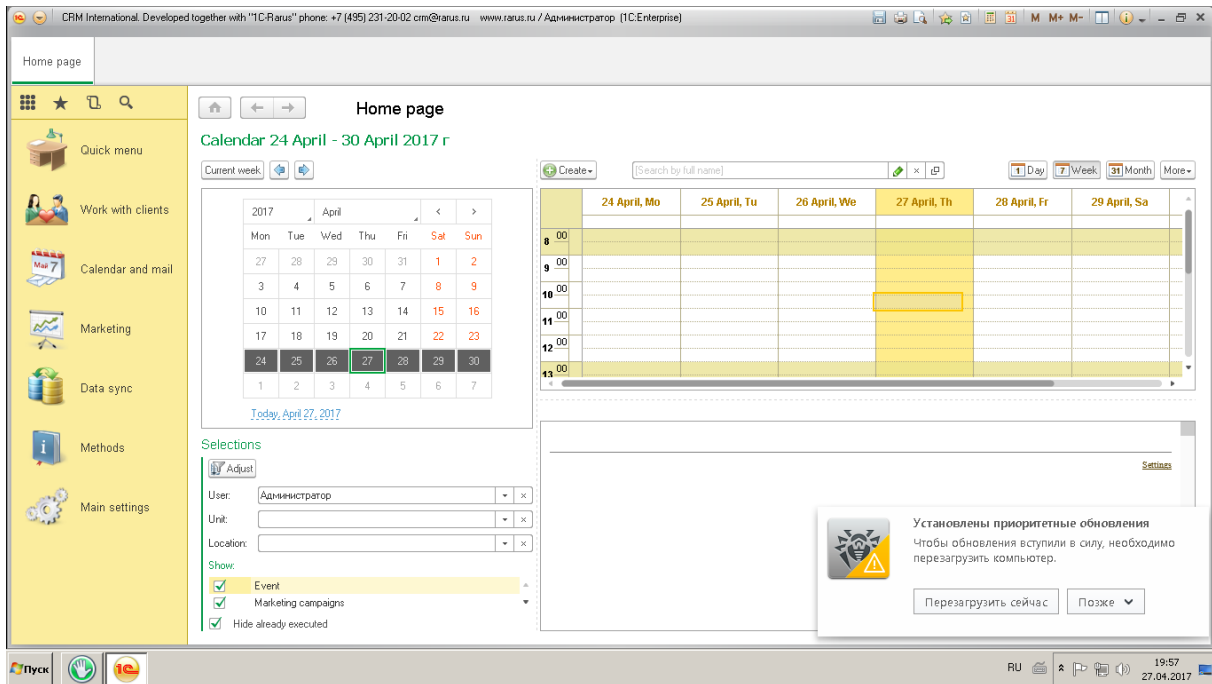


Figure 33: Ready Desktop

The following are examples of filling out the finished forms of directories, documents, reports, etc. created by us.

5. Tests and validation

Careful testing of software is the most obvious way to ensure its reliability. Indeed, testing is the diagnosis of the disease, the analysis of symptoms, the identification of the source and the definition of the best method of treatment. However, preventive measures are no less important.

Testing is one of the most important processes in the life cycle of software development. Users are interested in the final result: the system should provide a reliable reflection of specific business processes, be easy to learn, dynamically respond to changes in life's realities.

The procedure for testing and correcting the information database, provided in the figure, serves to diagnose and eliminate erroneous states of information databases that have a different data storage format.

Testing is carried out in the application's designer in the section "Administration".

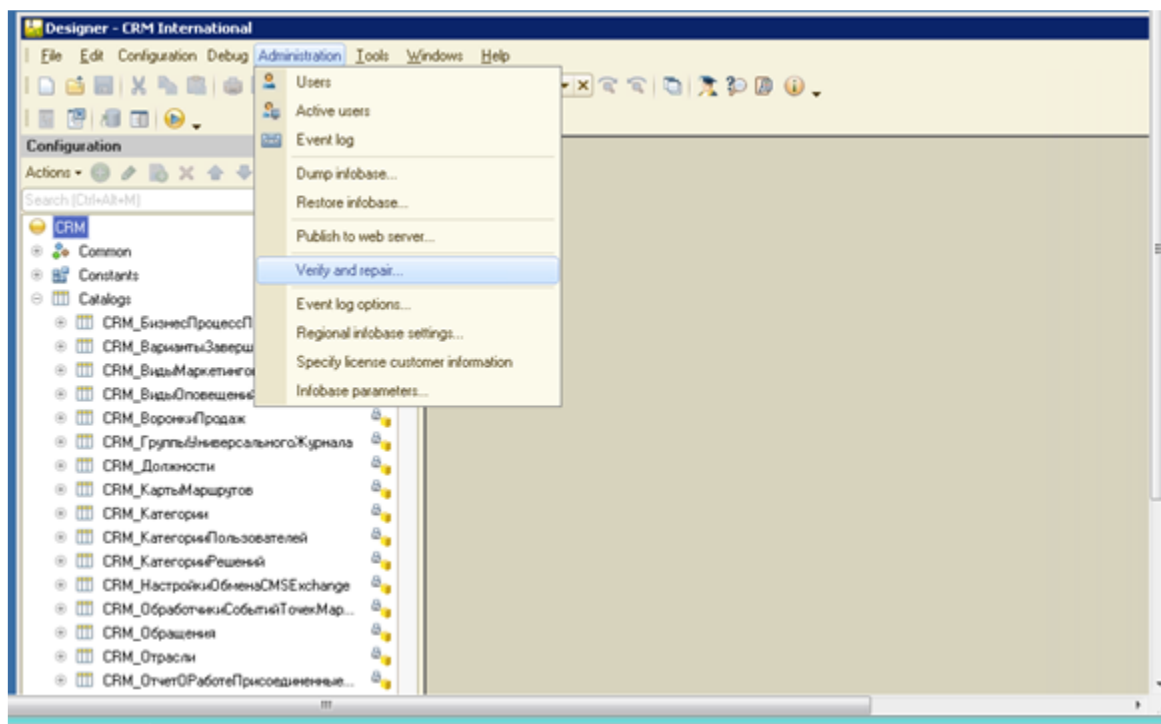


Figure 34: Choosing the right action

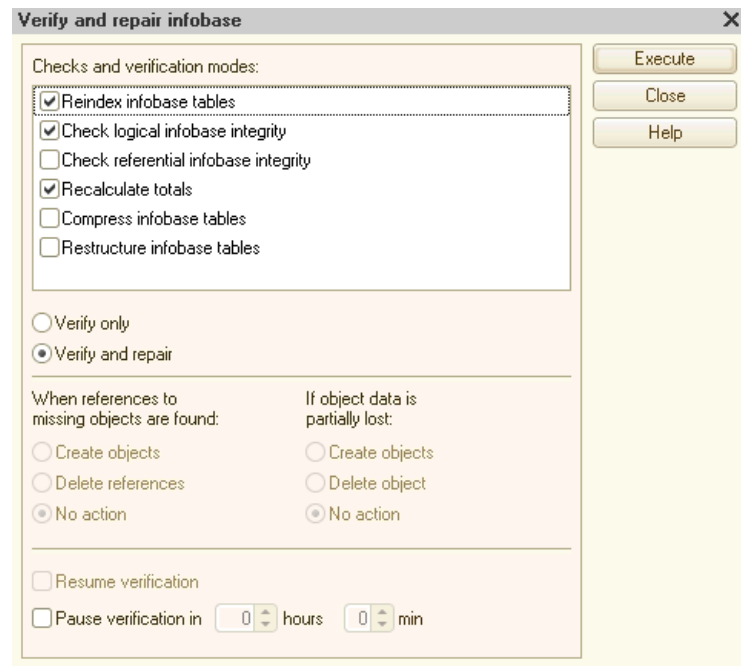


Figure 35: Choosing the conditions for testing

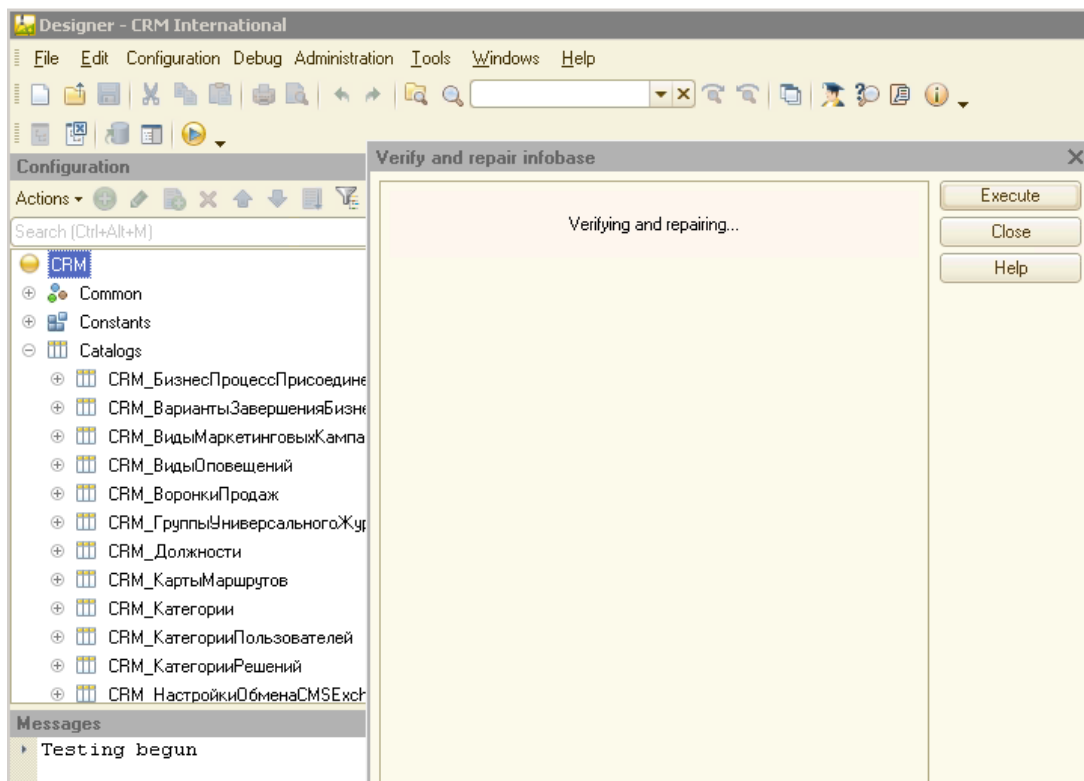


Figure 36: Start testing

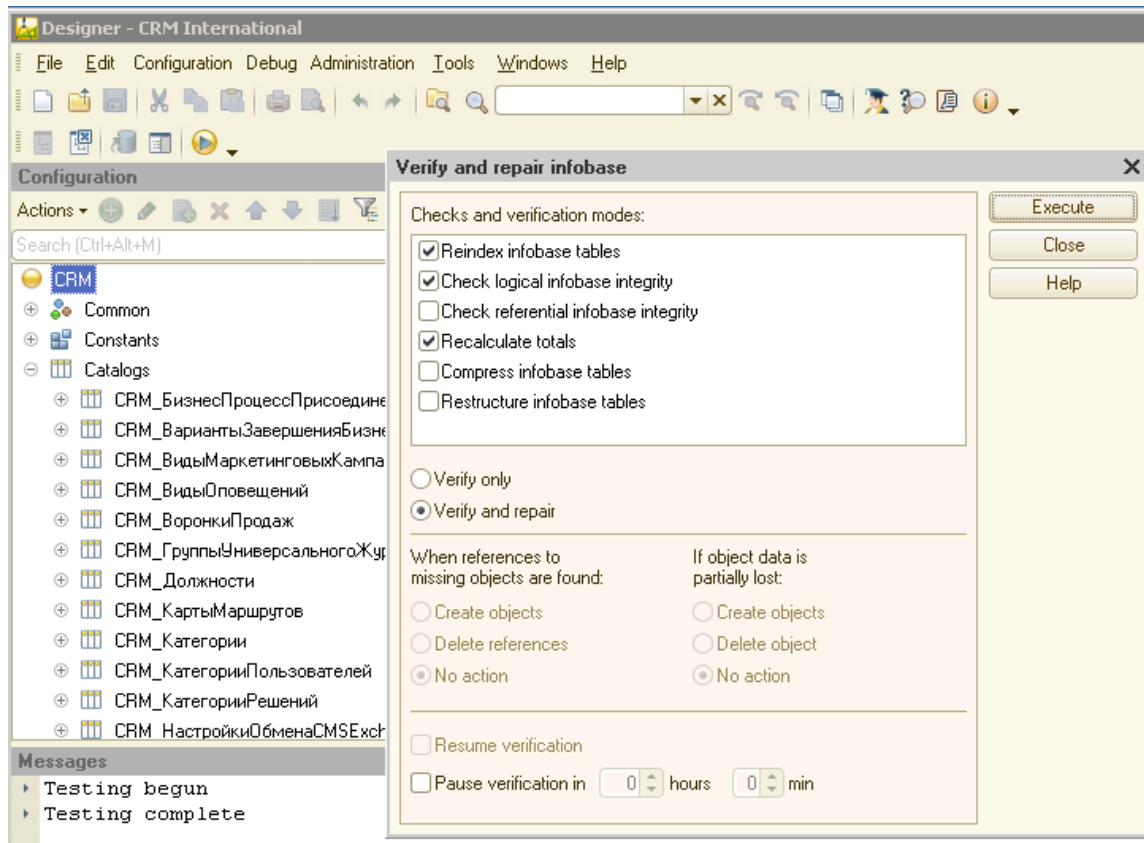


Figure 37: Testing and correction of information base

6. Conclusions and Future works

In the course of this work, the activity of the studio of event "Make Men Zhake" and the manager in particular was studied. One of the main problems was the lack of automation of the activity process in the studio of the holiday. The main work was done by the studio manager: he accepted applications, met with clients, organized general meetings with employees. Acceptance of orders in the company was not automated, the operative work of the manager suffered. All documents, various applications for placement of advertising in the production department were transmitted on paper. Required automation of its work and studio of event in general to facilitate the work of the manager. In this regard, the application "1C: Enterprise" was developed a software module that automates process studio.

In this work, apart from describing the structure of the organization was developed and implemented module in the finished working environment under the name of "1C: Enterprise". Development was done with the technology of the CRM systems. For studio of event developed the necessary manuals, documents, in general, all that is necessary for work of the manager, the organizer, employees and customers. Because now they can remotely without having to meet with the manager to see the current status of the order.

As a result of the module implementation, the studio has its own automated database, which stores data about events, employees, and orders. The development of the program module led to the fact that the manager quickly cope with the tasks, and the organizer is easier to manage the studio process as a whole.

The application was introduced electronic document management. This was necessary to improve the speed and transparency of the document flow in the company, and also, to facilitate interaction with customers, and to provide electronic reports for the organizer. In addition, with the introduction of the company's common databases, there are opportunities for prompt accounting and decision-making on critical issues related to the firm's activities.

The goal set in the work - solving economic problems of business with the help of more efficient and more complete use of information technology in the process of processing customer orders is achieved, the task is completed.

In the future, it is planned to expand the program's capabilities, perhaps, the module will be finalized for the new studio requirements. After all, in today's business, the need to automate various processes has become a familiar phenomenon. It will be already difficult to imagine warehouse or accounting without the use of specialized software. It is planned to expand the staff, because quite a large part of the orders will come from the site already in the form of ready-to-process documents. It is also possible to increase the number of assignments for the studio, which will lead to an increase in staff, an increase in the number of orders. It is planned to become a competitive company in the city, taking first place in the provision of holiday services. And, as a consequence, all these actions will lead to an increase in profits.

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8. Annexes

The following are examples of how to fill out various documents, tables in a finished application.

CRM International. Developed together with "IC-Rarus" phone: +7 (495) 231-20-02 crm@arus.ru www.arus.ru / Администратор (IC:Enterprise)

Home page | Activity types | Clients | Client (create) * | Events | Personal meeting * | Price-list of the company

Price-list of the company

Structure of the price-list

Types of prices | Price groups | Nomenclature

Fast selection

Type of prices: Оптовая цена | Price group: | Nomenclature: | For date: 6/6/201

Add | Copy | Change | Delete | Update | Send by mail | Pricing | Display title | Change form...

Nomenclature	Оптовая цена	
	УоМ	Price.
Orda	шт	3,000

Figure 38: Example of completing documents

Calendar | Mail administrator | Events | Tasks | Newsletter

Events

Create | Find | Cancel search | For execution | Generate | Printing | All

Status: All | Client: All | Responsible: All | Period: Without limitation

Start	End	Subject	Client	Responsible	Contact person	Responsible
10/15/2014 4:00...	15.10.14 16:05	Personal meeting on contract signing	"Electro"			George Vladimirov Abakov
10/16/2014 2:00...	16.10.14 15:30	Meeting on arrangement of new sales department				Peter Tuchen
10/17/2014 9:00...	17.10.14 19:00	Task from 10/17/2014/ Prepare the presentation				George Vladimirov Abakov
10/17/2014 10:41:42 AM	17.10.14 10:45	Task from 10/17/2014/ Send the price-list for refrigerators to the client				George Vladimirov Abakov
10/20/2014 12:22...	20.10.14 12:40	Contract	Base "Groceries"		John Smith	George Vladimirov Abakov
10/20/2014 2:00...	20.10.14 14:05	Check the contract number	Koenig Holding GmbH			George Vladimirov Abakov
10/20/2014 3:31...	20.10.14 15:36	Offer of the services on pool maintenance	Alchimov Aleksey Alexandrov		Mr. Petur Konstantinov Sidorenko	George Vladimirov Abakov
10/23/2014 4:01...	23.10.14 16:34	Survey for potential dealers	Base "Groceries"		John Smith	George Vladimirov Abakov
12/18/2014 12:05...	18.12.14 00:05	Task of 12/18/2014/ task (Meeting)	Alchimov Aleksey Alexandrov		Mr. Petur Konstantinov Sidorenko	Aleksandar Nikolsev Nezabrivich

Figure 39: Filling in the "Events"

Project planning Processes and projects Reports about work Control points of projects Report

Planned expenses of projects

Run report Select option... Settings... Save result... Import result to selection...

Project	Total
Stage	
Article of expenses	Sum
Seminars and exhibitions	9,000.00
Мероприятия	1,000.00
Выставки	1,000.00
Аренда зала	1,000.00
Семинары	8,000.00
Семинары партнеров	5,000.00
Семинар партнеров Инфинити	2,500.00
Аренда зала	2,500.00
Семинар партнеров Технотрейд	2,500.00
Аренда зала	2,500.00
Семинары сторонних компаний	3,000.00
Аренда проектора для презентации	3,000.00
Test project	2,000.00
Обсуждение	2,000.00
Аренда зала	2,000.00
Training of clients and partners	3,000.00
Партнерские курсы	3,000.00
Аренда зала	3,000.00
Total	14,788.00

Figure 40: Planned expenses of projects

Project planning Processes and projects Reports about work Control points of projects Reports on projects Articles of expenses of projects

Processes and projects planning

Select period Update Hours

Starting date: 5/1/2012 End date: 4/30/2013

Project selection: Unit: Client:

Include completed stages

Employees selection: Executor: Responsible:

Executor / Project / Stage	May 12	Jun 12	Jul 12	Aug 12	Sept 12	Oct 12	Nov 12	Dec 12
TIME RATE (Industrial calen...								
⊕ Vladimir Ivanov Kracinski					184.0	160.0	120.0	
⊕ Valentina Stanislavovna Bakinska								
⊕ Julia Serg								
⊕ Ana Sergeeva Petrova		168.0					176.0	
⊕ Svedlin Yavor Petrov		40.0						
⊕ Alexander Fischer								
⊕ Andrei Viktorov Ignatiev				48.0	160.0			
⊕ Ivanka Petrova Abnakova			176.0					
⊕ George Vladimirov Abakov			9.0					

Create Find... Cancel search Breakdown by months More

Executor	Project	Stage	Start	End	<>	%	T	Description
⊕ Ana Sergeeva Petrova	Projects budgeting	Сопровождение	6/25/2012	6/30/2012	6	100.00	40.0	

Records of plans Gantt chart Control points

Figure 41: Processes and projects planning

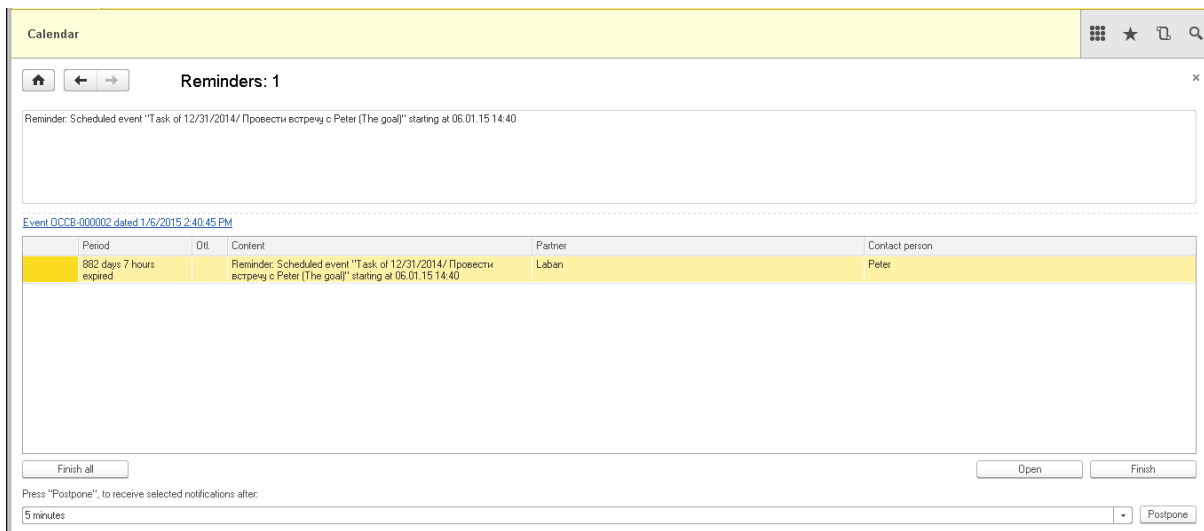


Figure 42: Example filling "reminders"

The application can be used by the customer, entering the necessary information about the event and making a request for an order.

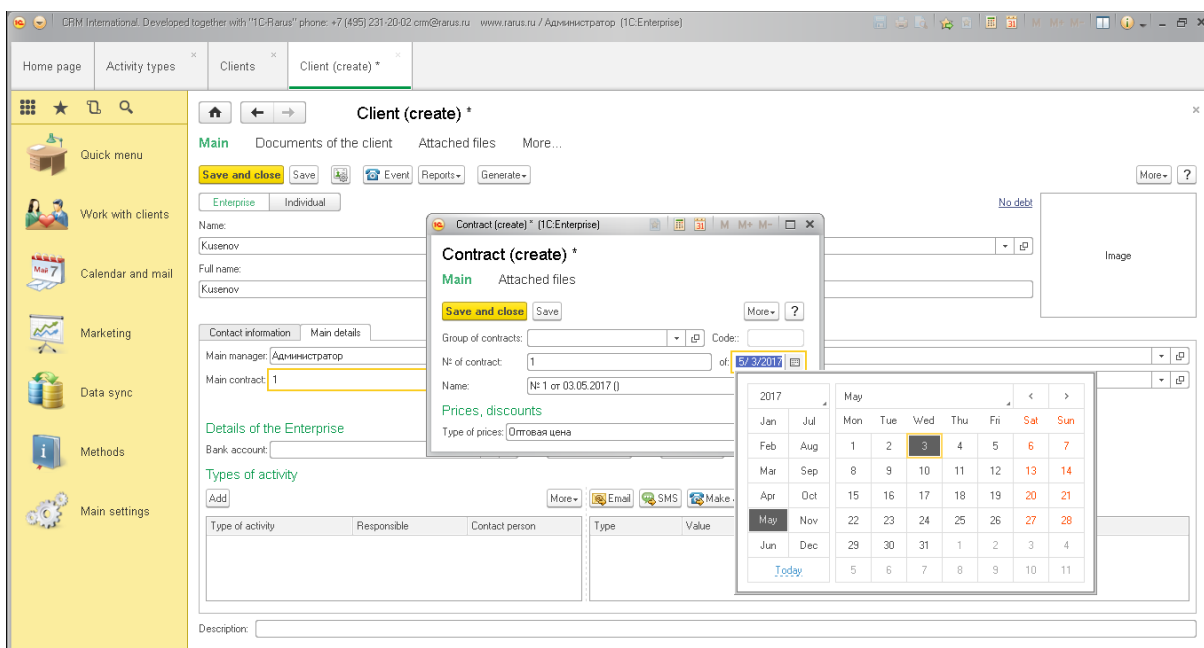


Figure 43: Buyer's order