

A. Kapiton¹, R. Baranenko², D. Tyshchenko³, T. Franchuk³

¹ National University «Yuri Kondratyuk Poltava Polytechnic», Poltava, Ukraine

² Uman National University of Horticulture, Uman, Ukraine

³ Kyiv National University of Trade and Economics, Kiev, Ukraine

DEVELOPMENT AND IMPLEMENTATION OF CUSTOMER RELATIONSHIP INFORMATION MANAGEMENT SYSTEM

Abstract. The article analyzes the state of the problem of developing and implementing a customer relationship management system. Features of the concept of "customer relationship management system" are considered. The authors performed an analysis of the developed system and its implementation in the field of professional development of IT professionals. Possibilities of intensification of information process development in the field of professional development of IT specialists are shown and analyzed. A database has been developed to solve the problem of software in the field of professional development of IT professionals.

Keywords: information, information systems, customer relationship management system, software.

Introduction

The customer relationship management system (CRM system) plays a key role for a company of any scale and time of existence, whose main activity is related to sales of products or services. Today, in order to make a profit, companies need to build mutually beneficial and long-term cooperation with their customers, based on constant contact and development of relations between them. Implementation of customer-oriented strategy in modern business is impossible without the appropriate methodology and tools. Therefore, the concept of customer relationship management system is closely related to specialized CRM-solutions - computer programs that implement in their functionality the principles of customer-oriented work. As the human circulatory system carries oxygen to all organs, so the customer relationship management system "feeds" the company with information about customers, their needs and preferences, the state of relationships with them, the results of employees, sales, and others. The modern CRM concept goes beyond the classic framework and, in addition to the above areas, affects the time management of employees who interact with customers, as well as the processes used when working with customers (service, claims processing, satisfaction assessment, etc.).

Analysis of recent research and publications.

The issue of developing the CRM concept should be explored, starting with the analysis of the meaning of words as "customer relationship management system". In particular, U. Parpan believe that special software allows you to automate relevant business processes in marketing, sales and service [7]. The main task of CRM systems analyzes A. Aksyutina, O. Nestertsova-Sobakar, V. Tropin [5, 7]. The main task of CRM systems is to increase the efficiency of business processes focused in the front office and aimed at attracting and retaining customers in marketing, sales, service and service, regardless of the channel through which customer contact takes place [1, 2, 4].

The presented results of researches of experts allow to assert about urgency of the set task of development of the corresponding software. We believe

that there is a problem in the study and application of software in the information space of modern development.

Main part

At the level of CRM technologies, it is a set of applications related to a single business logic and integrated into the company's corporate information environment on the basis of a single database. Special software allows you to automate relevant business processes in marketing, sales and service. As a result, the company can contact the right customer at a certain time with the most effective offer and the most convenient customer channel of interaction. In practice, the integrated system of the developed software product provides coordination of actions of different departments, providing them with a common platform for interaction of all subjects of cooperation.

There are different types of advanced training courses: educational, developmental, professional. In the field of information technology (IT), courses help people much easier, in a short time to gain the necessary knowledge for the initial entry into the profession, or the study of other technologies. The purpose of this work is to automate IT courses by creating a template database and CRM system, which contain tables for participants, teachers, payment, time spent, which will help reduce the cost of resources for their implementation [1, 2, 4].

The dbForge Studio for SQL Server development environment was chosen to implement the database. dbForge Studio for SQL Server includes built-in tools for process automation to help developers speed up the database development process, namely: editing and executing SQL queries; creation of database objects in the visual editor; organization of relationships between tables. Let's move on to creating database tables directly. Creating tables involves adding fields and their types, and entering data values.

The "Teacher" table contains information about teachers. It contains fields such as: IdTeacher - is responsible for automatic numbering of rows of the table; LFM - contains information about the name, surname and patronymic of the teacher; Age - contains information about the age of the teacher. The "Students"

table contains information about the list of students enrolled in the courses. It contains fields such as: IdStudent - is responsible for the identification number of students in the system; LFM - contains information about the name, surname and patronymic of the listener; Birthday - contains information about the date of birth of the listener; Sex - contains information about gender; Education - contains information about education; Telephone - contains information about the phone number; Email - contains information about e-mail; Subscribe - contains information on whether the student has an active subscription. The Payment table contains information about each transaction. It contains fields such as: ID_Payment - contains information about the payment index; ID_Student - contains information about the student index; Data - contains information about the date of payment; Sum - contains information about the amount paid.

The "Way" table contains information about possible types of tasks that appear in the list of tasks of the Olympiad. It contains fields such as: ID_Way - is responsible for the identification number of course directions; Name_Way - contains information about destinations; Hour - contains information about the number of hours in this direction.

The "Group" table contains information about the groups studying at the academy. It contains fields such

as: ID_Group - is responsible for the identification number of the group; Auditorium - contains information about the audience in which the lesson takes place, or codes for distance learning; Date_Start - contains information about the start date of classes; Date_End - contains information about the end date of classes; Days_lessons - contains information about the days on which the tasks take place; Time_lessons - contains information about the time of classes; Id_way - contains information about the identification number directly; Id_Teacher - contains information about the teacher's index; Payment - contains information about the payment, how much you need to pay to have access.

The "Set_In_Groups" table contains information about which listeners are connected to which group. It contains fields such as: ID_Group - is responsible for the identification number of the group; ID_Student - contains information about the student's identification number; Type_Payment - type of payment. To establish relationships between tables, you must either: on the toolbar, select the New Relation button and link from the field that requires data from another table to the field with these values; set the Primary Key property for the field that contains the required data and the Foreign Key property for the field that should contain this data. Once the connections are established, the connection diagram looks as shown in Fig. 1.

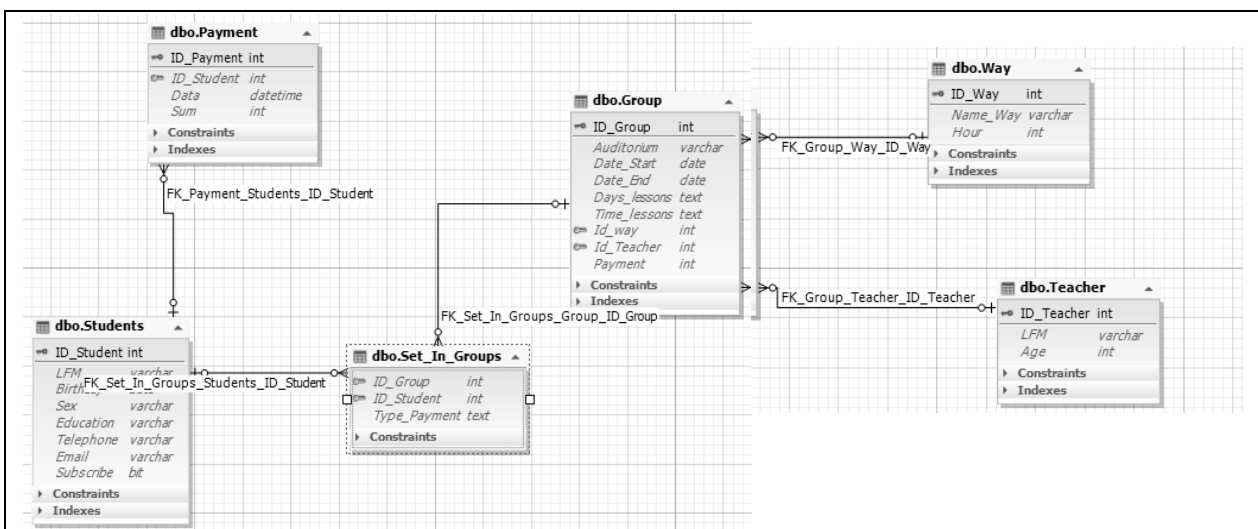


Fig. 1. Database connection diagram

The process of verifying data integrity and database consistency (DB) is called database testing. The importance of database testing is due to the fact that the database is an integral part of the software. Database testing includes checking stored procedures, views, schemas in the database, tables, indexes, keys, checking data and their integrity. In this case, the testing was performed using the dbForge Studio for SQL Server database interface. It involves checking data types in tables, checking data types in primary and foreign keys, zero field values, checking the ability to add, delete and update data.

The "heart" of any CRM system is a database of both individuals and legal entities that interact with your

company in the enterprise. These are not only customers, but also branches of the company, partners, suppliers, competitors. Customer information itself is a valuable asset, and competent data management in the system allows you to use it to work with maximum efficiency. The customer base is consolidated, the organization receives complete information about its customers and their preferences and, based on this information, builds a strategy of interaction.

CRM program reduces time to daily routine. The system provides all the necessary tools to manage both external and internal document management of the company. These tools provide tools for automatic document generation by template, preparation of printed

forms of documents, support for the latest version of documents, quick search of documents in the system, creating an electronic document repository and more. When maintaining documentation in CRM, you can organize teamwork with documents with flexible delimitation of access rights, electronic visas, as well as accounting for relationships between documents.

It is impossible to increase the profitability of the enterprise without an in-depth analysis of information about customers, their values and profitability, identifying "bottlenecks" in the company's business processes, analysis of the sales system. Standard reports provide an opportunity to analyze and monitor all typical business tasks. With the built-in report generator, you can create analytical forms that meet the specific objectives of each enterprise. CRM system functions: basic integrations do not require the participation of programmers; versatile analytics; prognostication; real-time notification.

In the same way we create a group for course participants. After forming groups, select the Contacts module and enter information about each student and teacher, not forgetting to mark the corresponding contact group in the Account Name field. To create, you need to select a link to create a new one from the existing modules.

After entering all the records for the groups available in the academy, the list of records is configured by selecting the fields to be displayed.

An office suite such as Zoho Office Suite, namely Zoho CRM, was used to complete the task of creating a CRM system.

The main advantages of this CRM system are: accounting for contacts, transactions, customers and orders of suppliers, invoices, customer referrals,

products and more; the ability to create your own modules; automation of business processes; free version for 30 days; Integration with a huge number of proprietary applications and third-party vendors.

To get started you need to register, then you will be able to view the available applications, among which we are interested in Zoho CRM. After registration, select the Accounts module to create two groups of users - students and teachers who read the course.

Conclusions

During the work, a database and CRM-system on the topic "Academy of IT courses" were developed, which allows to automate the process of conducting group formation classes and checking the payment of classes.

The database contains tables with fields for accounting of students and teachers, for payment transactions, for areas in which there are groups, for the groups themselves. In turn, the CRM system provides a user-friendly interface and opportunities to expand and develop the project by connecting additional modules. To develop a database.

DbForge Studio for SQL Server database management system was used to establish connections, enter data, create connections and query charts, and ZohoCRM client relationship management system was used to create CRM system.

The practical result of the work is the development and implementation of information system for IT courses by creating a template database and CRM system, which contain tables for participants, teachers, payment, time spent, which helped not only reduce the cost of resources, but to solve a number of other in the study of tasks.

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Розробка та впровадження інформаційної системи управління взаємовідносинами з клієнтами

А. Капітон, Р. Бараненко, Д. Тищенко, Т.Франчук

Анотація. Стаття аналізує стан проблеми розробки та впровадження інформаційної системи управління взаємовідносинами з клієнтами. Розглянуто особливості поняття «система управління взаємовідносинами з клієнтами». Авторами виконано аналіз розробленої системи та впровадження її в сфері підвищення кваліфікації фахівців ІТ галузі. Показані та проаналізовані можливості інтенсифікації розвитку інформаційного процесу в сфері підвищення кваліфікації фахівців ІТ галузі. Розроблено базу даних для вирішення проблеми програмного забезпечення в сфері підвищення кваліфікації фахівців ІТ галузі.

Ключові слова: інформація, інформаційні системи, система управління взаємовідносинами з клієнтами, програмне забезпечення.