MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE
TERNOPIL IVAN PULUJ NATIONAL TECHNICAL UNIVERSITY
FOREIGN STUDENTS DEPARTMENT
COMPUTER SCIENCE DEPARTMENT

NOBIS-ELENDU CHIKOSOLU N.

UDC 004.891

INFORMATION SYSTEM DEVELOPMENT AND MANAGEMENT OF A COMPUTER REPAIR SERVICE

122 Computer Science and Information Technologies

Abstract of a Master's Thesis

Ternopil
2018

The thesis has been carried out at the Computer Science Department of Ternopil Ivan Puluj National Technical University, Ministry of Education and Science of Ukraine

Supervisor: Ph.D., Lecturer of Computer Science Department
Mykhailo Fryz,
Ternopil Ivan Puluj National Technical University

Reviewer: Ph.D., Associate Professor of Automation of Technological Processes and Enterprises Department
Shkodzinskyi Oleg,
Ternopil Ivan Puluj National Technical University

Defence of a thesis will be held at the Meeting of the Examination Board №29 on February 24, 2018 at $13^{.00}$ in Ternopil Ivan Puluj National Technical University (46001, Ternopil, Ruska st. 46, building №1, room 702)

GENERAL CHARACTERISTIC OF THE THESIS

Actuality of the thesis. This piece of work or project bases itself with the creation and management of an Information for a small company or organization, in this case a Computer Repair Service but on a platform associated with a database, thus it is called Development and Management of an Information System for a Computer Repair Service.

Most of the contemporary Information systems are based on the Database technology as a collection of logically related data, and DBMS as a software system allowing the users to define, create, maintain and control access to the database.

Information Systems, almost all programs in business require students to take a course in something called *information systems*. But what exactly does that term mean? Some popular definitions from Wikipedia and some Textbooks are as follows:

"Information systems (IS) is the study of complementary networks of hardware and software that people and organizations use to collect, filter, create, distribute and process data."

"Information systems are combinations of hardware, software, and telecommunications networks that people build and use to collect, create, and distribute useful data, typically in organizational settings."

"Information systems are interrelated components working together to collect, process, store, and disseminate information to support decision making, coordination, control, analysis, and visualization in an organization."

As you can see, these definitions focus on two different ways of describing information systems: the *components* that make up an information system and the *role* that those components play in an organization.

The process of constructing such kind of systems is not so simple. It involves a mutual development of application program and database. The application program is actually the bridge between the users and the database, where the data is stored. Thus, the well-developed application program and database are very important for the reliability, flexibility and functionality of the system.

The aim of the thesis: To develop a database information system for able use in a small company or organization (in this case, a Computer Repair Service).

Thesis tasks:
1. To create application program for repository of data.
2. To develop the information system to be able to retrieve, inserts, update and delete data according to the discretion of the user.
3. To test the results of database creation.

The object of the research: Optimization of employee data flow in regards to the information system of a Computer Repair Service.

Novelty of the results: The method of database information management system creation for the business has been further developed.

The practical significance: The database information system can be used in any organization or small company for its management needs.

Thesis approbation. The results have been reported at the VI International scientific and technical conference of young researchers and students «Current issues in modern technologies», Ternopil, November 16-17, 2017.

The structure of the thesis. The thesis consists of explanatory notes and graphical presentation. The explanatory notes consists of introduction, 7 sections, conclusions, references, and appendices. The thesis size: explanatory notes – 108 pages of the A4 format, graphical presentation – 10 sheets of the A1 format.

MAIN CONTENT OF THE THESIS

In introduction the importance and actuality of the subject of the thesis have been represented.

In the first section analytical review of research method has been carried out. That is, the fundamentals of photopletismography have been analysed, mathematical background, including functional spaces, orthogonal decomposition, Fourier transform, has been presented. Also the results of information technology development have been considered.

In the second section the problems and solutions are depicted here and how to overcome the problem that arises in general for any person or organization scheduling the appointments, activities or daily work of its employees or employers. The task of scheduling and fixing appointments as well as other activities whether they may be official or personal is time consuming and also may lead to confusion if not properly scheduled.

In the third section is devoted to the Application Development, Programming Environments, Database Analysis, design and Implementation, Database Content, Program Structure and Code Implementation and Performance Testing.

Fourth section is devoted to the software requirements for the information system development and management of the database system designated for the computer repair service.

Fifth section estimation of costs involved in designing the architectural structure of information system and estimation of budget and calculation of cost of goods sold for monitoring data exchange between information systems have been analysed.

Sixth section is devoted to the problems of labour protection, health and safety regulations. That is, the PC User occupational Diseases and the factors affecting the functional state of Computer Users are considered.

Seventh section deals with ecological examination law of Ukraine, environmental protection and ecological development.

Conclusions

1. In this work, an information system's application program has been presented. It was emphasized on the basic steps, consequently taken during the project's development course as a particular attention was turned to the basic operative functions performed upon the data into the database.

2. The system is now able to retrieve, insert, update or delete data according to the users' discretion. The works' content comprises the whole task solution, starting from the programming environments have been selected, going through the database, the application's analysis and construction, and finishing with the code-implementation and test- in samples.

3. The results of the database creation has been presented. The role of such systems is basic and essential within each company that wants to keep a really good control and record concerning its personnel data, functionality and performance on all levels in its structure.

LIST OF PAPERS PUBLISHED BY THE AUTHOR OF THESIS

1. Nobis-Elendu Chikosolu Norbert, B.B. Mlynko. Information Management System for Computer Repairs / Book of abstract of the VI International scientific and technical conference of young researchers and students «Current issues in modern technologies», Ternopil, November 16-17, 2017, vol.2. – Ternopil, TNTU Press. – 1p.

ANNOTATION

Master's thesis is devoted to the development presentation of an information system for managing the staff data within a small company or organization. The system as such as it has been developed is called Development and Management of an Information system for a Computer Repair Service. It consists of functionally related GUI (application program) and database management programs used in the creation, development and maintenance of the program for this report.

The choice of the programming tools is individual and particular.

Keywords: Database Management, Microsoft Access Studio, C# Programming Language, Internet, Microsoft Visual Studio, Information System, Parent Table, Child Table, Table Fields, Primary Key, Foreign Key, Relationship, SQL Queries, Objects, Classes, Controls.