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Stručni rad

ACQUISITION OF NOTIONS IN ENGLISH AND INFORMATION TECHNOLOGY BY MEANS OF MICROSOFT ACCESS AND MICROSOFT VISUAL C++¹

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Summary: *The paper presents the media and the means for developing an information system (IS) by the students in the college speciality of Informatics and Information Technology at Shumen University, Bulgaria. Due to the specific character of the subject studied and aiming at developing the students' ESP (English for specific purposes) skills and knowledge, we have chosen software with a menu in English. The paper views the requirements to such a program system and points the peculiarities in building and using such information systems.*

Key words: *information system, database, menu in English*

USVAJANJE POJMOVA NA ENGLESKOM U OBLASTI INFORMACIONIH TEHNOLOGIJA POMOĆU PROGRAMA MICROSOFT ACCESS I MICROSOFT VISUAL C++

Rezime: *U ovom radu su predstavljene mediji i sredstva za razvoj informacionih sistema na odseku Informatika i Informacione tehnologije na Univerzitetu Šumen u Bugarskoj. Zahvaljujući specifičnim osobinama studijskih predmeta, a u cilju razijanja veština i znanja studenata u oblasti engleskog za posebne namene, izabrali smo softver sa menijem na engleskom jeziku. U radu je dat pregled zahteva vezanih za ovaj programski sistem i predstavljene su osobenosti u izgradnji i korišćenju ovakvih informacionih sistema.*

Ključne reči: *informacioni sistem, baza podataka, meni na engleskom*

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1. INTRODUCTION

The modern society is characterized by widespread use of the new information systems and technologies in all spheres of human activity. They have an important role in the development of higher education activities and in their relation to business. This necessitates the development of information culture adequate to the contemporary conditions of work and knowledge about and skills in applying information technologies. The successful career development and the choice of staff at the different companies require speaking foreign languages, especially English. Therefore it is important for the students to acquire the specific IT terminology in English.

Information is first rate production resource necessary for the successful career development of the college students. The qualitative rating of information is done by means of applying a systematic approach in studying the information and the pragmatic direction in the information theory. The students acquire knowledge and skills for developing information systems. They work well with the basic features of any information, namely richness of content (sense, value), value (usefulness, meaning). The value and usefulness of information is determined by its originality (novelty), actuality, necessity. Information is useful only if it is new and contains unknown up to the moment facts and knowledge.

First, the paper outlines information system design by means of MS Access and MS Visual C++6.0 in the college speciality of Informatics and Information technology. Next, we emphasize the fact that using products that are not translated in Bulgarian in their Databases and Applications classes and their Information Systems classes, the students reinforce and acquire better certain ESP notions. Then, a relational model in MS Access is exemplified. Finally, developing ODBC by means of MS Visual C++6.0 is illustrated and conclusions are drawn.

2. MS ACCESS IN THE *DATABASES AND APPLICATIONS SEMINARS AND ENGLISH LANGUAGE SEMINARS*

The great role information takes in all spheres of human activity changes modern society and turns it into “information society”. Making connections is an useful way to cope with information. Therefore, students are exposed to such conditions during their education. They are urged to make interdisciplinary links and apply their knowledge of English during the seminars in *Databases and Applications* and *Information Systems* and vice versa.

2.1. MS Access in the *Databases and Applications and Information Systems*

The information system is realized by means of the database management system MS Access. We have chosen it because our educational system is granted licensed MS Office package which includes MS Access. Due to the parameters of the computers in the college we stop our attention at the other necessary software – Microsoft Visual C++6.0 which is used in the subject Information systems. Its flexibility in creating program objects gives opportunity for adding and modifying the system on the spot. There are a few basic tasks for reaching the purpose, namely description of the subject field, introduction and acquisition of the basic notions and connected to the working medium of Microsoft Access and its opportunities; a relational model of the database; description of the means for

relations between MS Access and MS Visual C++. By means of the object oriented approach the modern tendencies (technologies) in solving problems concerning database creation and management are presented (Milev et al 2002).

2.2. MS Access in ESP seminars

The notions from MS Access menus are also used in the ESP (English for specific purposes) seminars (Ilieva and Ibryam, 2013: 25). The books we work on during these seminars are Information Technology (Demetriades, 2003) and Keywords Information Technology (Radford and Davies, 2003). They cover the notions from MS Word and MS Excel. Both systems have their menus in Bulgarian as well while MS Access is only in English. The lack of translation of the menus motivates the students for their ESP seminars. Some of the notions from the menus of the three systems are the same which is a solid basis for the acquisition of the MS Access menus. The students are introduced the terminology in the English language seminars and they consolidate the knowledge in their Databases and applications seminars.

2.3. Information Systems

Information systems structure: the data management subsystem uses one or more database and one database management system. It is probably the most important component of an IS because the proper data management is crucial for the success of each IS. The object technology provides a new approach for software development which uses as far as possible standard already developed components. This way the development is speeded up because well tested elements are adapted to the peculiarities of the application. (Peneva, Tuparov 2004)

It is incorrect to view the notions database management system and IS as synonyms. They are different program systems. Database management system is concerned primarily with storage, update and access to data, while IS accentuates the meaning of these data. IS extracts the necessary data by means of database management system and processes them in a way that the information received is meaningful for the user. i.e. database management system provides data and IS by means of processing the data provided shows their meaning.

In projecting the logical model, the objects and the interrelations are presented by means of the data models: network, hierarchical or relational. In this case since we work with MS Access, which is a relational database management system we use a relational model.

2.4. Relational database

Projecting a relational database includes the following stages:

- ✓ Determining the tables necessary.
- ✓ Determining the fields in each table.
- ✓ Determining the primary and outer keys.
- ✓ Determining the relations between the tables.

Using MS Access for database projecting, we notice that all these objects are in the Object

menu satrting with Tables. The queries can be created by clicking queries. The Forms are the third object in database projecting. There is no point in database input and quieries execution if there are no results drawn at the end. The results are the Reports in the Object column.

Figure 1 shows part of the relational scheme of the IS projected. The relational scheme is built when choosing the Relationships button in the Database menu. The "1" sign is shown on the side "one", and the "∞" sign – the side "many". Where these signs are absent a compulsory integrative wholeness is not set. Where there is an arrow on the link, this means that the type of relation is set "left external" or "right external", where there is not – an inner join. The key fields (in English – Primary Key) are in bold.

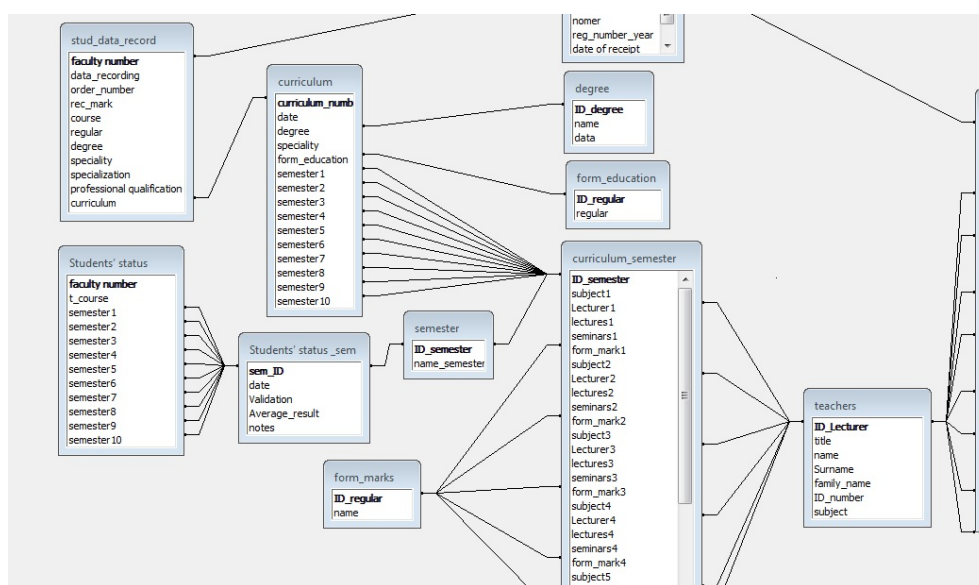


Figure 1: The Relationships window with part of the relations created

The data model presents the basic objects, the attributes that describe them and the relations between the objects themselves.

In the IS developed the basic objects in the database management system and their attributes are connected to: the specialities, the qualification degree, the term of education, the subjects studied, the form of assessment, data about the lecturers, general data about the students, their data when entering the college, the curriculum, the practices during their education at the college and the relations between them.

For each speciality there is a code which has an important role in creating the student’s faculty number, the term of education as a number of semesters – for a three years’ study there are six semesters, for a four years’ study there are eight semesters, for a five years’ study there are ten semesters. The subjects studied are input in English in each curriculum, the form of assessment is determined later. The data about the lecturers contain a code, name, surname, family name, identity number, the discipline taught. They are also

introduced in English. The general data of the students include faculty number, first name, family name, date of birth, hometown, municipality, region, country, citizenship, secondary school diploma (certificate) and data connected with the residence. Enrolment data include faculty number, date of enrolment, the number of the enrolment order, the admission score, the form of education, the qualification degree, the speciality, the specialization, the professional qualification and last but not least the curriculum. The curriculum consists of number, date, degree, speciality, form of education, semesters depending on the degree of education from 1 to 10 respectively. In the database developed this way, there is an opportunity to register new data (in the structures mentioned above) as well as reference requests and taking out of records.

There is usually a table to record the data that refer to one class of objects. The number of the tables in a relational database (RDB) depends on the number of the depicted classes of objects. If the definition of the table is incorrect, it is possible to have some problems called anomalies: redundancy anomaly, update anomaly, switching on anomaly, and switching off anomaly.

After the structure project of the given table is ready and stored, it is possible to input data in it. For example, in order to input the results from the exams of a certain student in a certain table, it is necessary to open the form for inputting results from the studied disciplines. The MS Access forms are an electronic analogue of the paper forms which present the information from tables or requests the way the user likes it.

In the form there are columns to be filled in with the results from the studied disciplines. Depending on what choice is made concerning the semester, it is possible to input some marks from the exam a particular student has been sitting for. The disciplines of the corresponding semester appear automatically from the falling Combo box field because they are input in advance in the curriculum according to which the student has been enrolled. After inputting the results it is possible to update the information by clicking Save. The keys in the form are built through Visual Basic codes.

3. MS VISUAL C++

What have been mentioned up to now concerns, in its greater part, the MS Access software of Microsoft. In order to enrich their vocabulary with words and phrases in English, the students are acquainted with Microsoft Visual C++ environment. It includes classes that are built up on ODBC (Open Database Connectivity) systems which means an open standard for database connection. Another powerful implement is DAO (Data Access Objects) which entitles objects for data access. When an application connected with DB is created with the help of App Wizard in Visual C++, we use the multitude of ODBC- classes, some of them are CDatabase, CRecordset и Crecord View. To make some connections between the Visual C++ application and the things they have done in MS Access, it is necessary for the students to choose from the Control Panel the ODBC Data Source Administrator. This is the place they choose DSN (User DSN) and press the Add button. This is not difficult for the students because the meaning of the word Add has already been explained during the previous lecture. From the New Data Source window that has appeared they choose the drivers for MS Access - Microsoft Access Driver. They press Finish and confirm the changes that have been made. In the window that appears they input Data Source Name -

Student. Databases about the students are input in the Description field. The next step is to choose databases they are going to work with. This happens with the help of Select button. There the students search for the students.mdb file and then press the OK button. This way the system is adjusted and ready for using database from student.mdb by means of the Microsoft Access ODBC driver. After they have registered the source of data it is necessary to build the basic application. For this purpose they choose New from the File menu of the Visual C++ that has been started. From the New window they choose Projects and afterwards MFC AppWizard (exe). On the right side part of the open window the students have to input the name of the project in the Project Name field. The way to the file where they want the files to be put in is shown in the Location field and they press Create button (see Figure 1).

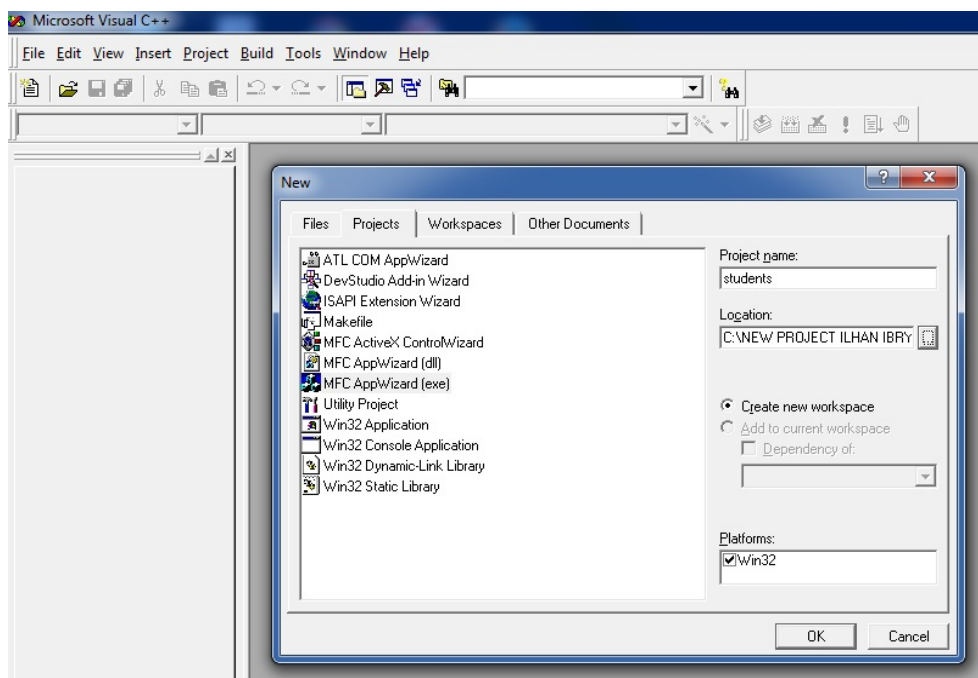


Figure 2: Visual C++ window for creating a new project with the help of MFC AppWizard(exe)

The next step in creating a new project is to choose the basic type of the application. The students choose Single Document and then press the Next button (figure 2).

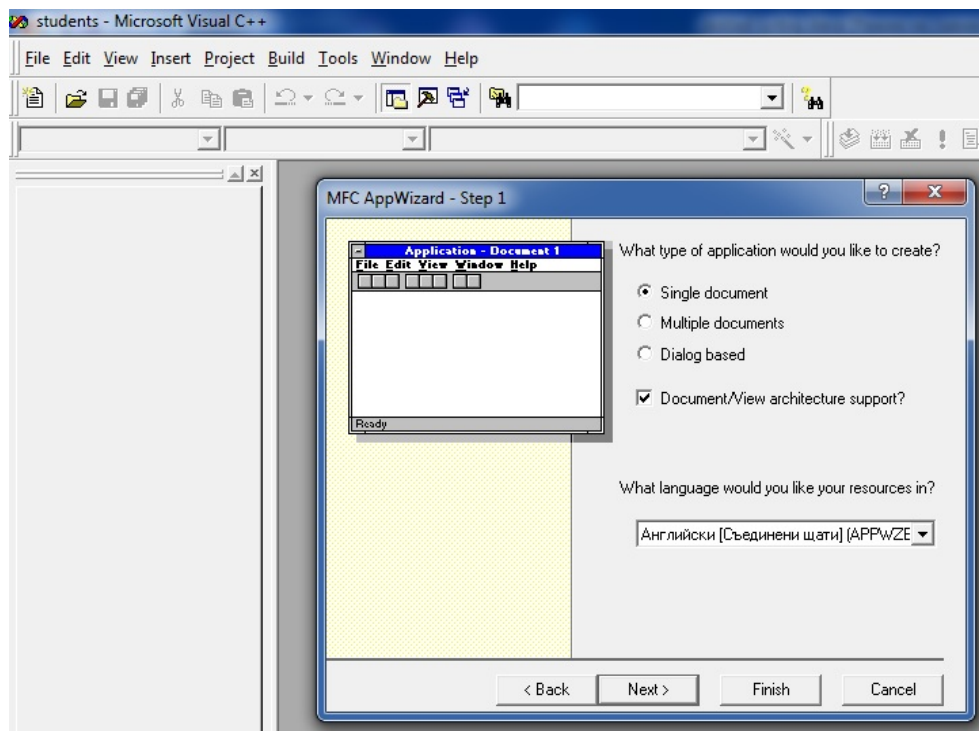


Figure 3: Choosing the basic type of application

Then they choose the Database View Without File Support option. They have the chance to adjust the database from the Data Source button. In the Database Options window that appears, the students have the chance to choose the source of data - student from the drop-down menu of ODBC, and then press the OK button again. Then they choose the tables they will work with. Thus a particular table from the databases is associated with the students application of Visual C++. Following the last two or three steps the students manage to create the basic application called students. They can compile and relate its executable file by pressing the Build button or by pressing F7. After the compilation has been completed, they start the program with Build Execute command or by the key combination of Ctrl+F5. Thence fields from the table can be associated with the help of controls. Following these steps the students practise their IT skills and reinforce the vocabulary acquired during their ESP seminars.

4. CONCLUSION

In order to be able to set up new information necessities and define the priorities in the information supply of the students as much correct as possible, the specialists should be able to use the contemporary information technology. It is not enough to know the functional features of the applied program product and technology but one should also have the abilities to master it successfully and use it effectively and last but not least to be able to

cope with the manus in English. It is important to have the skills to organize and control the execution, supply the appropriate software, motivate the students and overcome the social and psychological barriers, be able to use of the reached results, etc.

As a result of our crosscurricular work including ESP, Databases and Applications, and Information Systems, we can draw the following conclusions:

- By using software that is not translated in the students' native language, they:
 - are motivated to study ESP;
 - improve their ESP knowledge and skills;
 - are prepared to take part in different international projects;
 - are qualified and not limited to find a job only in the boundaries of their own country (some of the students who are in this program have already been offered a job by a web programming firm dealing with web-based applications).
- Following our interdisciplinary program, the students acquire better idea about developing IS and have the opportunity to fulfil individual projects according to given conditions and criteria.

Consequently, our work towards activating the relations between ESP and the students' special subjects i.e. Databases and Applications, and Information Systems helps them realize how necessary ESP is in their career development and that using specialized software improves their English.

5. REFERENCES

- [1] Demetriades (2003): D. Demetriades, Information Technology, Oxford: Oxford University Press.
- [2] Ilieva, Ibryam (2013): Zh. Ilieva, I. Ibryam, Teaching ESP to IT Students. *The Magic of Innovation: New Techniques and Technologies in Teaching Foreign Languages*, Moskva, 2013, pp. 221-226
- [3] Milev et all (2002): Милев, П., Р. Христова, В. Дянкова. Базы от данни и приложения. Шумен, УИ Епископ К. Преславски. Milev, P., R. Hristova, V. Dyankova. Bazi Danni I prilozheniya. Shumen, Konstantin Preslavsky Publishing House (in Bulgarian). Milev, P., R. Hristova, V. Dyankova. Databases and applications. Shumen, Konstantin Preslavsky Publishing House.
- [4] Peneva, Tuparov (2004): Пенева, Ю, Тупаров, Г. Базы от данни, София: Регалия 6. Peneva Yu., G. Tuparov, Bazi ot Danni, Sofia: Regaliya 6 (in Bulgarian). Peneva Yu., G. Tuparov, Database, Sofia: Regaliya 6.
- [5] Radford, Davies (2003): L. Radford, R. Davies, Keywords Information Technology, Cimla: Peppermint Publications Limited.