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SULEYMAN DEMIREL UNIVERSITY

ENGINEERING FACULTY



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Creation of an automatization system in “Dostyk” Educational Centre

6M070400– «Computing systems and software» speciality

Kaskelen, 2013

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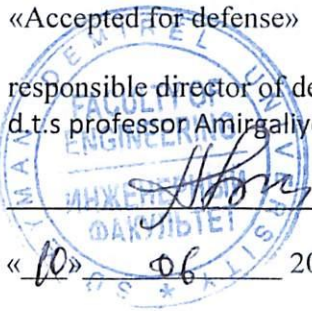
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Master dissertation

CREATION OF AN AUTOMATIZATION SYSTEM IN “DOSTYK” EDUCATIONAL CENTRE

6M070400– «Computing systems and software» speciality

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Abstract

Computers can help school managers in finding creative solutions for complex allocation problems (e.g., teacher allocation, timetable construction) and supporting them in monitoring carefully how the school operates. School information systems can provide managers with the information required for informed planning, policy-making, and evaluation; in addition, School information systems can assist in improving the efficiency and effectiveness of schools. Information Technology in Educational Management also occurs in the form of school office automation: electronic mail, electronic archives, spreadsheets, electronic appointment books, automatic dialing, and desktop publishing. This special issue deals with the design, implementation, and evaluation of computer-assisted information systems for educational organizations. Although the term "information systems" has become very popular it is not always clear what is meant by it. The concept can be used in a very broad sense referring to the information system of an organization which encompasses all formal and informal manual, computer-supported, and verbal activities directed at collecting, distributing, and processing all kinds of data within an organization.

Education is central to development. In order to facilitate and simplify all actions in education one of the major tool is to have automated management system.

Аннотация

Компьютеры могут помочь в школе в поиске творческих решений для сложных проблем распределения (например, правильное распределение учителей, расписание уроков) и оказание им поддержки в мониторинге работы школы. Школьные системы информации могут обеспечить менеджеров информацией, необходимой для осознанного планирования, разработки и оценки, кроме того, школьные системы информация может помочь в повышении эффективности и результативности школы, информационные технологии в организации образовательной деятельности также происходят в виде школьной автоматизации делопроизводства: электронная почта, электронные архивы, электронные таблицы, электронные книги назначения, автоматический набор номера. Это специальные предложения от вопроса с разработки, реализации и оценки с помощью компьютера информационных систем для образовательных организаций. Образование занимает центральное место в развитии. Для того, чтобы облегчить и упростить все действия в сфере образования одним из основных инструментов является наличие автоматизированной системы управления.

Аңдатпа

Компьютерлер мектеп ішіндегі шығармашылық ізденістердің іс-әрекеттерді тарату секілді (мысалы, мұғалімдердің сабақтарын тарату, сабақ кестесін құрастыру) күрделі мәселелерін шешу жолында және мектеп жұмысының мониторингін жасау жұмысында көмектеседі. Мектепішілік ақпараттандыру жүйесі әкімшілікті жұмысты жоспарлауға, бағалауға қажетті ақпараттармен қамтамасыз етуде көп көмек көрсетеді. Сонымен қатар, мектептің жұмыс белсенділігін және әсерлілігін арттыруда, мектепішілік іс-жүргізудің автоматтандырылуында: электронды пошта, электронды мұрағат, электронды кестелер мен кітаптардың жүйелендірілуінде де көп көмегі бар. Бұл - білім беру мекемелерін ақпараттандыруға арналған компьютерлік бағдарламаның құрылуы, іске асырылуы және бағалау жүйесі. Білім – дамудың негізгі критерийлерінің бірі болып табылады. Білім беру саласындағы іс-әрекеттерді жеңілдетудің ең негізгі құралдарының бірі де автоматтандырылған басқару жүйесін құру болып табылады.

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Definitions and abbreviations

UNT-Unified national test
CTE-Complex testing of entrants
OMR -Optical Mark Reader
OCR- Optical Character Recognition
ASCII-American Standard Code for Information
ICR -Intelligent Character Recognition
GUI-Graphical User Interface
VBA-Visual Basic for Applications
VB- Visual Basic
DLL-Dynamic Link Library
ASCT -Automated System of Checking Tests
DF- Automatic Document Feeder
MODI -Microsoft Office Document Imaging
MDI- Microsoft Document Imaging
TIFF- Tagged Image File Format
JPEG- Joint Photographic Experts Group
PC- Personal Computer
IT-Information Technology
TICCIT-Time Shared and Interactive Computer-Controlled Information Television
CAI -Computer Assisted Instruction
DL - Distance Learning
LAN - Local Area Network
PLATO - Programmed Logic for Automatic Teaching Operations
SAT - Scholastic Assessment Test
MS - Management System
PHP - Personal Home Page
URL - Uniform Resource Locator
HTML - HyperText Markup Language
CSS - Cascading Style Sheets
DBMS - database management system
IMS - Information Management Software
IBM - International Business Machines
DB - Database
ERP- Enterprise resource planning
OLTP - Online Transaction Processing
DSA - Dynamic Scalable Architecture
ANSI - American National Standards Institute
SQL - Structured Query Language
POSIX - Portable Operating System Interface
ADF - Automatic Document Feeder
DAB - MonthlyDOSTYK's Test
PKT - RepeatedSubject Test

Introduction

We live in the information age, when there is a computer revolution. We are witnesses to the fact that computers have to take a strong position in many areas of modern life, quickly penetrate into the school and home. Topic of technological and automated tools in education has become particularly relevant in the present day.

The advantages of computer use in terms of efficiency and effectiveness have led to the wide utilization of computer technology for the operation and management of school organizations. Information Technology in Educational Management is rapidly increasing in importance world-wide and is becoming an enterprise of importance in its own right.

Computers can help school managers in finding creative solutions for complex allocation problems (e.g., teacher allocation, timetable construction) and supporting them in monitoring carefully how the school operates. School information systems can provide managers with the information required for informed planning, policy-making, and evaluation; in addition, School information systems can assist in improving the efficiency and effectiveness of schools, Information Technology in Educational Management also occurs in the form of school office automation: electronic mail, electronic archives, spreadsheets, electronic appointment books, automatic dialing, and desktop publishing. This special issue deals with the design, implementation, and evaluation of computer-assisted information systems for educational organizations. Although the term "information systems" has become very popular it is not always clear what is meant by it. The concept can be used in a very broad sense referring to the information system of an organization which encompasses all formal and informal manual, computer-supported, and verbal activities directed at collecting, distributing, and processing all kinds of data within an organization.

Education is central to development. In order to facilitate and simplify all actions in education one of the major tool is to have automated management system.

Automation is the utilization of technology to replace human with a machine that can perform more quickly and more continuously. By automating education

center's management system, documents that took up many large storage rooms can be stored on few disks. Checking students' exams you need the amount of time. An automated system solves this problem. Writing test, the student almost immediately gets the result. Thus, an automated testing system provides for a reduction of time as to the test, and on the checking.

So in our educational center we often make sample UNT tests for student. Teachers will not spent time to check exams they will concentrate to their lessons, an automated system checks sample tests and shows results immediately.

With all these and many other factors, the idea of developing such an automation system in education, which would allow more efficient use of the work of teachers. Use of automated system can efficiently and cost-effectively test the knowledge of large number of students.

1 TECHNOLOGY IN EDUCATION

1.1 Information Technology

Information technology today - is rapidly developing automated methods for processing information. For the implementation, of which computers are used. Information technology – a combination of methods, manufacturing, software and technological tools, combined into a technological chain, ensuring the collection, storage, processing, output and dissemination of information. Information technologies are designed for reducing complexity of the processes of information resources.

The main features of modern Information Technology:

- Computer processing;
- Storing large amounts of data on storage media;
- The transmission of information to any distance in the shortest possible time.

The current production of goods and other spheres of activity are increasingly in need for information servicing, processing huge amounts of information. Universal technical means of processing of any information is a computer that acts as an amplifier of intellectual capacities of man and society in general, and communication tools that use computers are used for communication and information transfer. The emergence and development of computers - is a necessary part of the process of informatization of society.

Computer technology of training - these are processes of preparation and information transfer student, a means of implementation of the computer.

Computer technology training - these are the processes of preparation and communication student, a means of implementation of the computer.

Objectives:

- Formation of abilities to work with the information.
- Preparation of the individual, and "information society"
- To give the student as much educational material as he can assimilate.
- The formation of research skills, ability to make optimistic solutions.

1.2 History

Looking at the use of IT in education, it can be seen that the country is produced in parallel using its technology in education. A number of producing countries ranging with U.S. began to use information technology in education.

The different stages of the use of IT in education can be grouped as follows:

- During the first and second world wars in education have used military movies as a visual aid.

- In the 1950s Began to be used television in educational purposes and in the universities began to be established the audio-visual technology departments.

- In the United States between 1950 – 1960s Ford Foundation has supported education through TV.

- American Research Institute in 1967, has developed an educational program called “The Program for Learning in Accordance”

Educational institutions use the computer for specific steps are as follows:

- In the 1950s computers entered into educational institutions for administrative purposes of major universities .

- The development of computer-based training programs was started in the 1960s. One of these projects is the PLATO.

- In the 1970s, more and more number of schools has begun to use computers for administrative purposes.

- In 1972 TICCIT (Time Shared and Interactive Computer-Controlled Information Television) system started to develop.

- With the development of the Internet in the late 1970s, personal computers, network systems, and has begun a shift towards the Internet.[1]

1.3 An Importance of Technology in Education

Today, technology is the need of the day and one of the most discussed subjects of our everyday lives. Facebook, Twitter, computers, smartphones and now tablets are some of the words almost everyone recognizes. While most of you won't have to

further the knowledge you gained in various school subjects, you can't do the same thing with your knowledge in technology. Why? Because technology is constantly evolving and you have to keep up with all the latest news.

As a student, you should know that no matter what job you have decided to do, you must know how to use the computer and do various tasks in almost any operating system like Windows, Mac OS X, or even Linux sometimes! You must know how to use an office suite and maybe even more programs/applications, depending on your job. There is no need to say that all the companies have such requirements from their employees. You can already see the importance of knowing how to navigate yourself around an operating system. This is one of the main reasons why technology should be one of the main courses in school.

What's more, subjects like history, economy and science would be done much more efficiently with the use of multimedia such as pictures, videos, graphs and more. Just by using projection screens, the lesson would instantly become less boring and students, especially the visual learners, would be able to absorb the material much easier. Today, it's not enough just to know how to pass the information to children and adolescents in order to be a teacher. You have to know how to use an office suite and maybe even more programs/applications to do several tasks. You can't just handwrite some information, photocopy them and hang them to your students. You must know how to write documents on the computer and make spreadsheets to keep an organized students' database, among other, and this is just an example to see the importance of knowing how to use a computer. The teacher's role is not just to read a book in the classroom. A student can do this by himself, or even use an online library, like Wikipedia, which will provide him a plethora of information anywhere, anytime. The teacher's role is to help the student understand his lesson, and this can be easily achieved by using multimedia. If a student sees his history lesson on a video, he will learn things much easier than, by listening his teacher reading it or by reading the book.

Speaking of books, another advantage of technology is that there is no longer need for books. Instead of carrying dozens of books every day, students could just

carry a laptop, netbook, tablet or e-book which will contain all their books, notes and projects. They weight far less than an average of 6 books and 6 notebooks that each student has to carry every day.

Technology can also help in teaching children who are in remote areas, or people with disabilities. Using a computer, students could observe lessons online and send their projects via e-mail to the teacher, who will check it and appreciate it. For example, in Kazakhstan in 2011 under the state program of education for 2011-2014, children with disabilities got necessary equipment for distance learning. As a result, children who do not have access to schools can learn and realize their dreams a reality at home.

1.4 Computer Assisted Instruction (CAI)

As we enter the 21st century in almost all areas of every community feels itself have to do drastic changes. Rapid change in technology, in the field of education to be made of some of the reforms. This is the beginning of reforms in Computer Assisted Instruction (CAI) is coming. Training to become more efficient, which is a product of efforts to promote the individualization lets address the issue of the CAI.

The advancement of today's technology and the increasing importance given to education, training, use of technology, to solve problems has become inevitable. One of these technologies is the computer.

CAI in every one of the applications of computer technology in teaching process. These applications provide information, to make a special teacher, may contribute to the development of a skill. According to recognition of other classes, which are programmed into the computer system by interacting with the CAI, which can hold directly.

Computers being used for the first time since the 1960s gained an important place in the field of education.

Nowadays, it is possible to produce with multi-media techniques (image display, video / audio / animation playback, etc.) a very powerful and training packages in different formats. This type of programs by giving to user the possibility to interact

one-on-one will increase motivation. Such programs in transferring issues are also very strong.

There are different definitions of computer assisted instruction. Some of these are: Computer Assisted Instruction (CAI) involves the use of the computer as a teaching machine. The unit that should be taught presents by computer to student and at this time learning occurs.

CAI is a form of learning in which the student interacts with the learning material, using a computer.

The development of the computer affects the education system. It has given rise to a number of amendments to the obligation.

Objectives of computer-assisted instruction

- High level of students' critical and integrative thinking skills to play an active role in the development;
- To encourage and support teamwork;
- Students develop the ability to think scientifically;
- To increase the motivation of the learner;
- To expand teaching methods;
- To develop the student's individual learning abilities;
- To produce a solution to the problems in a logical;
- To encourage establish a hypothesis.

Software for audio-visual features to attract the attention of the child and, in particular due to features such as educational games, children remain at the computer for hours, the child's interaction with contemporary and other individuals decreases and this adversely affects the child's socio-psychological development. To prevent this, increase student interaction with other students and the teacher in planning and implementation of educational activities by the teacher is required.

The advent and proliferation of newer technologies such as video playback devices and personal computers have allowed for the widespread use of these media of instruction. Though video and other multimedia have been around since the late 1960's, it is the recent drop in costs that have made these kinds of

materials a practical possibility in a wide variety of classrooms. As such, more and more educators have come to look these tools as media of instruction.

It is generally recognized and accepted that learners should be presented with a diversity of learning experiences based on varying methodologies in order to maximize the acquisition of knowledge. Moreover, learners should be provided with many opportunities to interact with the environment .

Video materials have an advantage because of the innovative features that can be used to make instruction more appealing to learners.

A major advantage is that video materials can focus on information that cannot be readily presented in the classroom because of constraints such as environment, location, noise, etc.[2]

1.5 Distance education

The changes taking place in the world in the transition to a post-industrial society, largely related to emergence and development of information technology. In its turn, information technologies become the driving force of changes. This fully relates to the area of education. Traditional teaching methodologies and resources are insufficient to fulfill the increased level requirements training of university graduates. High rates of technological progress leads to rapid obsolescence of knowledge of professionals working in the industry, which makes it necessary for them to continue the educational process, throughout the active period of life.

The response to the increased demands on the education system has been the emergence of the concept of open education. The global objective of public education is to prepare students for full and effective participation in social and professional areas in the information society.

Public education is based on a number of fundamental principles, which include the student's freedom to choose the school, time, place and pace of learning, in planning their training. It is assumed that a public education will improve the quality of education and resolve the contradiction between supply and demand for educational services. [3]

The principles of open education can only be realized in the application of remote sensing methods.

Distance Learning (DL) is an educational process in which all or part of the training procedure is performed with the use of modern information technology in teaching and spatially separated student and teacher.

Distance learning is demanded by various categories of citizens:

- Students of full-time study, with it they can fill the gaps in their knowledge, caused by missing, for whatever reasons, regular training sessions, and for them it is becoming more affordable so-called second (additional) education, expanding opportunities for talented students to complete training cycle in a shorter time;

- Students branches of educational institutions (if not fully staffed offices of teaching staff and teaching resources), as well as students of the new distance learning in educational institutions open education;

- Persons who combine work and study;
- Employees of enterprises to enhance their skills;
- People with disabilities, which are counter-movement between the place of residence and classrooms;

- Military personnel who wish to receive education during military service;

- People who want to improve their cultural and educational level without reference to a particular institution.[4]

2 ASSESSMENT SYSTEMS IN EDUCATION

2.1 Roles of assessment

Assessing your students is an important and necessary step in the educational process. The assessment process is not only designed to assign a particular grade to a particular student, it is designed to serve multiple roles [5]:

- **Evaluation:** To assign a student a valid and fair grade based on the quality of their work;
- **Communication:** To communicate to the student on how they are achieving, as well as a means of communication to employers, graduate schools and others;
- **Motivation:** To influence the student to succeed, to aid them in their study habits and to determine how involved they become in the course;
- **Organization:** To organize and structure the course.

2.2 Exams and tests

The examination is used to represent the amount a student has learned throughout the term and it determines the extent and nature of the student's involvement in the course. The examination is commonly used and is generally worth a substantial portion of the overall assessment. It is therefore important to examine this method of assessment a little more closely.

2.2.1 Types of exams: advantages and disadvantages

Different courses will require different types of questions on the courses exams and tests. These types of questions include multiple-choice, true-false, essay, etc. Table 1 discusses the advantages and disadvantages of different types of exams.

Table 1 – Types of exams: advantages and disadvantages

Types of exams	Advantages	Disadvantages
Multiple choice	thought to be objective scored easily assess specific knowledge ideal for large classes	requires careful planning construction is time-consuming disliked by many students
Short answer	assess knowledge of details easy to construct allow students to express their thoughts exactly can be scored reliably and objectively ideal for large classes	scoring is time-consuming tend to test recall only of specific facts not suitable for testing complex learning
True-false	easy to construct	cannot test understanding high probability of correct answers by chance
Essay exams	can evaluate students' ability to think critically and objectively ideal for measuring higher-level analysis, synthesis or evaluation perceived as fairer by students allow students to go beyond memorization of details provide good feedback to students if well evaluated	difficult to grade reliably preserving student anonymity is difficult scoring is time-consuming unreliable grading resulting from professor's bias and fatigue

2.2.2 Multiple-choice testing and performance assessment

Although a variety of measures exist for assessing student achievement, multiple-choice testing has been the most commonly used method for the last 40 years [6]. Test questions are generally short, machine scorable items which require students to select answers from among several predetermined answer choices [7].

The significance of conducting quality assessment is that testing drives instruction to a large degree. The pressure to raise standardized test scores pushes teachers to “teach to the test”; in other words, what is tested is what is taught. Unfortunately, teaching methods that are effective in raising multiple-choice test scores are often boring and uninspiring, and deemphasize important areas such as higher-order thinking skills and cooperative learning. Accordingly, current education reform stresses the importance of improved assessment in the improvement of education [8].

The press for improved student assessment has spawned national interest in performance assessment, a method of testing praised as a measure of true learning. The most obvious difference between performance assessment and multiple-choice testing is that performance assessment requires students to construct original responses which are scored by hand. Also referred to as authentic or direct assessment, performance assessment is defined as “an exercise in which examinees apply the skills and knowledge they have mastered by demonstrating specific skills and competencies” [9]. Examples of performance assessment include drawing or painting, conducting science experiments, measuring or using computers in mathematics, using reference materials in reading, and writing essays and letters [10].

One method of testing that has received little attention in the literature, however, which is popular in many educational settings, is the use of short-answer test items. Short-answer items are relatively easy to prepare [11] and may be scored more quickly than essay items. They are not as objective as multiple-choice items because they sometimes do not give adequate information to evoke the desired response even from students who know the subject well. Despite this limitation, they may be useful on teacher-made tests because there is good evidence to suggest that many teachers

are not capable of authoring truly clear and effective multiple-choice items [12]. Since many teachers do use short-answer items, their usefulness in promotion of retention learning is worthy of research.

2.3 University entrance examinations

Student recruitment to universities in many countries of the world are based on various criteria. Trying to measure the students' personal qualities and abilities. The objectives are to ensure the correct placement of the sections. But in recent years, expanding the universities allows students to make changes in the choice of the section. This is allows students to make choices based on their interests and abilities and correct the country's human resources orientation.

Universities in Europe, in general students accept without examination. Students accommodated from secondary schools to universities according to their skills and achievements. In Germany high school education is an important condition to settle down in university. So the success of high school education defines in which section of the university you will study. But in recent years in Germany, especially starting from vocational schools began to make exams.

In most European countries high schools are implemented the proficiency exams. In most European countries implement in high school proficiency exams. These exams are being used to evaluating of high schools and in settlement to universities. The UK system, based on the success of the courses chosen by student in high school. Students can choose courses according to themselves in high school and by the success of these courses they accommodated in university. In fact, In Europe, is one of the most well-functioning system is, the British system.

In the United States there are more than one criteria for entry to universities... The student's success in high school, letters of reference, the most important achievements and the success of the SAT. SAT is a central exam. Students can participate this exam, more than once a year. They use the highest score obtained. When some of the sections supposed to only SAT-1, some sections want to take SAT-2. Students in SAT-1 being asked math and language, in SAT-2 to students

asked the natural and social sciences. These two exams are important criteria of the university placement.

In the Far East is entered in universities by examination. For example, in recent years, in South Korea are there are three conditions for entry into university: First, one is success in high school, and the second "Soonong" exam. This exam central exam and every student who wants to go to university must enter it. Students passed this step by applying universities enter the exam according determined categories of universities. Here are five sections:

- Native language Exam
- Science Exam
- Mathematics Exam
- Examination of Social Sciences
- Foreign Language Exam

Students will gain points by selecting the test according to the department they wish to enter. Each university produces and implements its own test.

The system is similar in Japan. In Japan the system is based on exams. Students as in South Korea enter the central exam before, then according to their scores on the exams they attend to universities' exams. These exams will take several days. Students participate in exams, according to the department wants to win.[13]

2.3.1 University entrance in Kazakhstan

Uniform national testing (UNT) — system of assessing of knowledge of graduates, used in the Republic of Kazakhstan. The results of the UNT is an organization of secondary education as the results of the final state certification, and colleges, higher education institutions – as the results of entrance examinations. The number of points obtained by a student at UNT, depend marks of the final school-leaving certificate, as well as the possibility of entering to universities of Kazakhstan (on paid department and grant). UNT Points are also important at awarding of the Presidential Scholarship Bolashak.

In 2004, Kazakhstan introduced a new model of graduate school and university entrance exams – a uniform national testing (UNT). According to the explanation of the Ministry of Education and Science of the Republic of Kazakhstan UNT provides the combination of state (final) attestation of XI (XII) classes institutions of secondary education and entrance exams for professional higher education institutions, and the replacement of traditional exams (essay, tickets) on testing.

The graduate must pass a test consisting of 125 questions in five subjects from the school curriculum, four of which are compulsory for all graduates (native and non-native languages (Kazakh and Russian languages respectively) mathematics and history of Kazakhstan). The fifth subject is called a profile. On his choice depends on what specialty in high school will be able to enter the entrant.

Testing language depends on the language in which the training passes in school – it is the native language. The Kazakh language – the national language in Kazakhstan, but Russian is the language of international communication. Thus, graduates must possess both languages to pass testing. However, the results of the non-native language is not counted in the competition of educational grants. The maximum number of points that can dial graduate during the Uniform National Testing is equal to 125. Each test on the subject consists of 25 questions. The maximum number of points is accounted during the grant competition is 100 points.

Competition of educational grants of the Republic of Kazakhstan based on the results of UNT. Educational grants – it's totally free education at any university of the Republic of Kazakhstan on the chosen specialty. The competition is held every year, to take part in it may only graduates of the current year of study. Graduates from previous years can take part in the competition by passing Comprehensive Testing.

2.3.2 Rules of holding the Uniform National Testing

UNT is held in five subjects:

1. Kazakh and Russian languages (language training);
2. mathematics;
3. History of Kazakhstan;

4. Kazakh language in schools with Russian language of teaching and Russian language in schools with Kazakh language of teaching;

5. and one of subjects on choice depending on chosen specialty (geography, physics, biology, chemistry, world history, Kazakh literature (Russian literature), foreign language)

For graduates who choose specialty, requiring special or creative training, the subject of choice –is arbitrary. For admission to higher education institutions, educational organizations that provide, post-secondary education for these graduates will be established special or creative examinations that held by admission committees elected by them higher education institutions and educational organizations that provide, post-secondary education.

Terms of reception of applications for participation in the UNT from March 10th to April 25th. Filling in application forms made by graduates in the organization of secondary education in which they are studying.

Testing is carried out from June 1st to 10th.

UNT is carried out using test tasks which being developed by the National Testing Centre on the basis of general education programs, their contents cannot go beyond specified programs. Number of tasks in each subject 25. For carrying out UNT given 3.5 (three and a half) hours (210 minutes).

Retake the UNT is not allowed:

1. In case of unsatisfactory mark;
2. In order to improve a positive mark.

Results of the UNT estimated on 125-point grading system and marks on a five-point system to get a certificate of general secondary education. Transfer of points into marks is made by the State Commission in accordance with the scale, established by the Ministry.

According to results of the UNT, graduates obtained diploma and a certificate confirm sign of "Altyn belgi" certificate "with honors". To participate in competition for the award of educational grants based on the UNT necessary to have minimum of

points – 50 out of 100 points (on four subjects), on profile subject – no less than 7 points, while the rest not less than 3 points.

Validity of the certificate – until December 31st of this year.

For graduates of the organization of general secondary education who do not want in a year of completion of studying to enter to colleges or higher education institutions of the republic, held traditional school examinations.

Complex testing of entrants (CTE) is carried out for:

- graduates of previous years;
- training through the international exchange of students abroad and did not participate in the UNT;
- graduates of secondary schools with Uzbek, Uighur and Tajik languages of studying;
- graduates of national music boarding schools;
- graduates of primary and secondary vocational educational institutions;
- graduated from educational institutions abroad.

CTE held on a 4 subjects: mathematics, native language (language of studying), history of Kazakhstan and subject on choice (geography, physics, biology, chemistry, Kazakh literature (Russian literature), and foreign language. Number of tasks in each subject – 25. Total number of test tasks – 100. Testing time: 2 hours 30 min. In competition on educational grants involving entrants scored on results of CTE 50 or more points on profile subject - 7 points, while the rest not less than 3 points.

Discipline during the UNT

Graduate not supposed to change from place to place, exchange examination materials, write off, bring to the auditorium and use cheat sheets, books and other methodological literature, mobile equipment (pagers, cell phones). In case of violation of rules of discipline by graduate makes an act of detection and removal. By the decision of the state commission graduate removed from the audience, test results be annulled.

Graduates who have passed UNT, issued by:

- certificate on results of the UNT;
- diploma of general secondary education.

The certificate form is approved by the Ministry. Certificate period of validity – until December, 31st of this year. The certificate is filled by the state commission and issued in points of carrying out of the UNT within three days from the date of test passing. In the certificate entered points in each subject which has been passed within the UNT. The certificate is assured by the signature of the chairman of the state commission, representative of the Ministry and sealed with a stamp of the higher educational institution on which base organized unit of carrying out of the UNT or local organ of education control.

Diploma issued by the education organization in which graduates were studied at the moment of the UNT passing. Into the diploma on general educational subjects which have been passed within UNT, according to the decision of the state commission, put mark which has been taken on the UNT.[14]

Technology of UNT

Single national test of the form of closed testing. Each question has five possible answers, you must select the correct one and mark it on the answer sheet. Each option answers letters of the alphabet. On the answer sheet to paint the circle corresponding to the subject, serial number and issue the letter of the correct answer.

Test sheets responses by using the scanner. Relevant equipment installed in each of putting Testing Center.

UNT results become known on the day of testing in the late afternoon. Those who disagree with the results of their members can file an appeal.

3AUTOMATIZED MANAGEMENT SYSTEMS IN EDUCATION

Over the past few years in the education system are intensively developing information resources, including: telecommunications networks at various levels, organizational and methodological infrastructure and informative content - databases, software to support the work of departments and institutions of the educational process.

There was a need to further improve the quality of information and telecommunication facilities of the education system by automating of document circulation and provide information support for the organizational activities of the university. The automated information system is one of the main factors to increase the efficiency of the university through the use of modern information technologies to work together, solving problems on the reflection of the curriculum, teaching schedules and timetables, tracking timely payments of the students, rapid access to current progress.

3.1 Why we need Management System in Education?

- To search a student's record in 2 seconds, you need MS.
- To know which classroom is used by which class, you need MS.
- To know who is teaching whom, you need MS.
- Print student performance in less than a minute, you need MS.
- To view a class timetable in under 5 seconds, you need MS.
- To know where your properties are and how much they're worth, you need MS.
- To automatically send emails or short text messages to students' parents if something happens, you need MS.

3.2 What is School Management System?

School Management System is a large database system which can be used for managing your school's day to day business. School Management System allows users to store almost all of their school's information electronically, including information on students, employees, properties, teaching materials etc. Most

importantly, this information can be easily shared with authorized users, records can be easily searched, and reports can be easily generated.

School Management System is configurable and can be configured to meet most individual school's needs. It is a multi-user system and can be used by hundreds or even thousands users at same time. General speaking, it is platform running on a Local Area Network (LAN). However, if the School Management System server is configured to be a public server - with a static IP or domain name - it would not have a boundary limitation. Wherever you are, once you have an Internet connection and School Management System client installed, you can logon to the School Management System server easily just the same as if you were sitting in the school office. However, the speed limitation is up to both your client's and server's Internet speed.

School Management System could make your school staff's life easier than ever. Using School Management System, finding student information is just a few seconds away which might have cost hours, or even days, before. At the end of the semester, printing students' statement becomes just a few minutes' job (the speed limitation determined by your printer), but it could be a nightmare without using School Management System. If a student is absent, an email or even a short text message could be sent automatically to their parents' email address or mobile phone...[15]

3.2.1 What can be done with School Management System?

Feature	Feature
Email functions	✓ Timetable management ✓
Room reservation management	✓ Attendance records management ✓
Room usage management	✓ Documents management ✓
Notice board management	✓ Management of inter-school relationships ✓
Repairs management	✓ Student feature study management ✓

Stock inventory management	✓	Supper reports generator ✓	
Workplace accident management	✓	Student semester statement with barcode ✓	
Semester management	✓	User management ✓	
Class management	✓	System configuration ✓	
Student management	✓	Student payments management ✓	
Student search	✓	Payments Overview ✓	
Student behavior management	✓	Fees management	✓
Subjects and assignments management	✓	Overdue students list printing	✓
Student assignment results management	✓	Employee management	✓
Warning letter printing for overdue students	✓	Position management	✓
Subject groups management	✓	Print individual teacher's timetable	✓
Teaching diary management	✓	Student ID card with barcode	✓
Barcode scanning functions	✓	Short message services functions	✓

3.2.2 The system of electronic journals

Consider the management of student academic performance. In schools, it can use the electronic diaries. The system of electronic journals - a simple, easy and free way to share information about student achievement with his parents. Availability and high speed of information exchange - a symbol of XXI century. The school should not stand still, and must to keep up with the time. The introduction of electronic journals in the educational institution can bring the necessary information

about the achievements of the child to the parents instantly and anywhere in the world, and also makes possible the easy start of the school informatization.

Teachers:

Having an electronic journal at school is a great help to the teacher. Applying it in their work, the teacher may at any time make the necessary information, such as: assign homework, leave a message for the parents of a student's academic achievement to see the statistics for each student and the class as a whole and, most importantly, will automatically generate the required reports. In this case, it is not necessary at this point is in the workplace. So how to work with an electronic diary use web-based interface, then work with the electronic diary and the data contained therein, the teacher can from home or from a mobile phone, it is desirable, however, still have a phone with a screen that allows you to view and edit information on the Internet.

Students:

Electronic journal allows you to not only be honest and open with their parents, but also gives the student the opportunity at any time to see what is for homework for the study.

Parents:

The electronic diary journal can find information about the child's performance, its schedule of lessons on homework, attendance or tardiness. In addition, access to the program gives an opportunity to communicate with the teachers of the school. Almost everyone at work have access to the Internet. To carve out a few minutes at lunchtime to see child's performance in school, it is very simple.[16]

4OPTICAL SCANNING SYSTEMS

An optical scanning device combines specialized computer hardware and software. The hardware devices capture an image and software converts the image to computer-readable data.

Optical scanners are devices used to read text or graphics and convert them into a digital format which can be processed by computers. This basic function of optical scanners is utilized in various applications in conjunction with suitable software for processing the input data.

4.1 Optical Mark Reader (OMR) Technology

4.1.1What is OMR?

Optical Mark Reader (OMR), also called “mark sensing”, is a method of scanning technology in which data is input via marks made in predefined positions on a form and entering data into a computer system. Therefore, OMR is best for handling discrete data, where values fall into a limited number of values. For examples, sex, occupation, religion, etc. OMR is a technology that detects the absence or presence of a mark, but not the shape of the mark. OMR software interprets the output from the scanner, and translates it into the desired ASCII output. Forms are scanned through an OMR scanner. The forms contain small circles, referred to as bubbles, or boxes that are filled in by the respondent.

The Functions of Optical Mark Reader (OMR)

Optical Mark Reader (OMR) reads marks written by pencil or ballpoint pen in the pre-defined positions on the questionnaire sheet. The OMR can judge the existence of written marks by recognizing their depth (darkness) on the sheet. With such a rather simple logic, a high- speed device can be realized at a comparatively low price. At the same time, the way of marking is simple for anyone. Thus, the OMR has widely been used as a direct input device for data of censuses and surveys as well as other commercial and administrative data. With the spread of the optical

character reader (OCR) and partly with the spread of the distributed processing practice, however, the use of the OMR has been on the decrease. OMR is a data capture technology that does not require a recognition engine.[17]

What is a Mark?

A mark is response position on the questionnaire that is filled by survey collectors or respondents. If the position is filled (marked) then the scanner will registers significantly less light than the surrounding questionnaire. In order to be detected by a scanner, a mark has to be positioned correctly on the questionnaire and be significantly darker than surrounding of the questionnaire. Since most scanners use infrared light, an acceptable mark should be dark enough to absorb a high proportion of infrared light contrasted to questionnaire.

When to Use OMR?

- A large volume of data must be collected and processed in a short period of time
- Data are to be collected from a large number of sources simultaneously
- Questionnaires mainly comprise the selection of categories or "tick box" answer to multiple choice questions
- Survey collectors are limited or self-filling by the respondents
- Highly accurate process is expected, like in scanning examination sheet.

4.1.2 Advantages and Disadvantages of OMRs

Advantages of OMRs

- Simplicity or easiness of filling questionnaires since "box answers" are marked by the survey collector or the respondents with an ordinary pencil or pen
- High speed of reading / recognition, the scanners can read up to 7500 sheets/hour (double sided).
- Reliability of Less recognition errors.

Disadvantages of OMRs

- Marking needs larger area on the sheet compared to writing of characters.
- Marks are not easy for people to read and the factor is crucial in questionnaire designing.

• Since OMR forms have to be absolutely precise, OMR requires high quality printing[18]

4.2 Optical Character Recognition (OCR) Technology

4.2.1 What is OCR?

OCR (Optical Character Recognition) also called Optical Character Reader is a system that provides a full alphanumeric recognition of printed or handwritten characters at electronic speed by simply scanning the form. More recently, the term Intelligent Character Recognition (ICR) has been used to describe the process of interpreting image data, in particular alphanumeric text.[19]

Function of OCR

Forms containing characters images can be scanned through scanner and then recognition engine of the OCR system interpret the images and turn images of handwritten or printed characters into ASCII data (machine-readable characters). Therefore, OCR allows users to quickly automate data capture from forms, eliminate keystrokes to reduce data entry costs and still maintain the high level of accuracy required in forms processing applications.

What is ICR?

Intelligent Character Recognition (ICR) is the module of OCR that has the ability to turn images of hand written or printed characters into ASCII data. Sometimes OCR is known as ICR.[20]

The Different of ICR, OCR and OMR

ICR and OCR are recognition engines used with imaging; while OMR is a data collection technology that does not require a recognition engine. Therefore, basically OMR cannot recognize hand-printed or machine-printed characters. However, in the OCR technology, answer for question in “tick” or “mark” is also known as OCR.[21]

4.2.2 Advantages and Disadvantages

Advantage Using Images Rather Than Paper Questionnaires

- There were significant savings in costs and efficiencies by not having the paper questionnaires

- The scanning and recognition of questionnaires allowed us to efficiently manage and plan the rest of the processing workload. Once the questionnaires are recognized we knew how much work (repair work, edit failures) we have to do.

- Reduced long term storage requirements because questionnaires could be destroyed after the initial scanning, recognition and repair. When performing editing, which required some documents to be reprocessed; the electronic questionnaires could be found very quickly and sent back for reprocessing. This would be very time consuming if the questionnaires had to be located from a physical storage area and they are randomly scattered throughout. The more often the paper questionnaires are moved from the storage area the more likely they will not be put back in the correct place

Disadvantages

- **Accuracy**

While OCR technology can be effective in converting handwritten or typed characters, it does not give as high accuracy as of OMR for reading data, where users are actually marking forms.

- **Additional workload to data collectors**

OCR has severe limitations when it comes to human handwriting. Characters must be hand-printed with separate characters in boxes.

4.3 Comparisons between OMR and OCR/ ICR

1 Optical Mark Reader (OMR)

a. Forms

An OMR works with specialized document and contains timing tracks along one edge of the form to indicate scanner where to read for marks. It also contains form ID marks, which look like black boxes on the top or bottom of a form. The cut of the form is very precise and the bubbles on a form must be located in the same location on every form.

b. Storage

With OMR, the image of a document is not scanned and stored.

c. Accuracy

Considering that OMR is simpler than OCR, and if the forms and the system are designed properly, then OMR has accuracy more than of OCR.

2. OCR/ ICR

a. Forms

OCR/ ICR is more flexible since no timing tracks or block like form IDs required. In addition, the image can float on a page. The ICR/ OCR technology uses registration mark on the four-corners of a document, in the recognition of an image. Respondents place one character per box on this form. The color is very important because the use of drop color reduces the size of the scanner's output and enhances the accuracy.

b. Storage/ retrieval

If document needs to be electronically stored and maintained, then OCR/ ICR is needed. Because with OCR/ ICR technologies, images can be scanned, indexed, and written to optical media as shown in table 2.[22]

Table2 – Comparison Table

Items	OCR/ICR	OMR
Handprint recognition	Y	N
Machine print recognition	Y	N
Recognition of checks and "X"s	Y	Y
Requires timing tracks/ form IDs	N	Y
Requires registration marks	Y	N
Electronic image storage and retrieval	Y	N

5USED TECHNOLOGY

5.1 What is Drupal

There are many ways to manage the content of your web-site, from a simple mechanism for web-log (blog), allowing limited publishing content to a full-featured integrated application system on which you can build your own content management system.

Drupal – is software that allows you to easily publish, manage and organize a variety of content on the web-site. Drupal includes features that let you create content management systems, blogs, collaborative environment for creative activities, forums, newsletters, image galleries, the system downloads and much more.

Drupal is a program with open source software, which uses the license GPL, managed and developed by a community of thousands of users and developers. Drupal is free to download and use.

5.1.1 The Drupal Content Management

The Drupal content management system stores its content in a database. Within the database, the content is stored in the form of nodes and other high-level objects, such as users and comments. There are many different, predefined types of nodes, including the notes, blocks and voting.

Drupal generates a page containing one or more pieces of information in the form of nodes, blogs, and other elements. Each page typically consists of a central column of content on the left and right side panels, as well as a header or headline, footer, or footnote. Except for the central column, the remaining regions are optional.

The center column is used to display the main site content, and optional areas are for the additional content. To fill the optional areas with small pieces of information using Drupal blocks. Optional areas usually contain navigation links (for example, the most popular sites), and other short content. Similarly, any content block can be dependent on the user's role, ensuring thus a specialized kind of information.

One of the most important features of Drupal is the ability to extend the types of available nodes (for example, for the specific content of your application) by writing a custom node modules.

The separation of content from presentation is a system that forms the topic pages based on templates. Much of the content can be easily structured and formalized by defining templates (or tpl), files and functions of the subject.

Nodes can be organized into categories or taxonomies. Appeal to any content produced through the authority to control access and modify the content of web-site.

5.1.2 Nodes

An important concept in Drupal is that all the contents stored in a node. They are the basic building block for the system, and provide a foundation that can be expanded content stored in Drupal. Create new modules nodes allows developers to define and maintain the additional fields in the database that are specific to a particular website. The nodes are classified according to their type. Each node type may be processed and rendered differently on the basis of embodiment using it.

5.1.3 Taxonomy

Drupal taxonomy system allows the classification of nodes, which makes it possible to organize the contents of the nodes on the displayed web-page. Such categorization may also be used to change navigation web-site.

Categories are defined tags or elements (terms). Sets of elements can be grouped into the dictionary. Drupal can automatically classify the content of the node to the elements or the contents of the site can be classified manually using the assigned dictionaries. Drupal also allows you to use tags, allowing users to define their own elements to the site content.

5.1.4 Blocks

Blocks are small, self-contained data elements, usually displayed in the navigation area, or side panels, but which can also be placed in any area of the page.

They provide small types of information embedded in the representation of the other nodes. Modules provide basic units used to display the contents. Administrators can create new units on the basis of existing ones, and also to write PHP-code is to directly query and visualize the contents inside the unit.

In phase configuration, you can:

- enable or disable the registered units;
- sort the display of information by assigning weights (from 10 to 10, with a smaller number of elements appear higher in the group);
- place the blocks on the left or the right side, in the title, in a footnote or in the content area.

5.1.5 Modules

Modules are the primary mechanism for expanding Drupal. They implement a well-defined interface that allows new modules to interact with the system and the system to communicate with the module. Drupal is a function of the interface traps. Drupal traps are grouped into three categories and are used in the modules that are:

- provide additional user authentication mechanisms;
- to respond to and interact with the Drupal core code;
- provide a new type of node in the system.

5.1.6 Design URL

Drupal uses a menu system to determine navigate web-site. When creating custom modules, you can specify how your module should serve content based on the URL. When you receive a request to the page system finds the best match based on the hierarchical structure of the tract. If the path is registered, it uses a specific function as a callback to the formation of the represented content. Any portion of the ways you can use to choose how to present content.

5.1.7 Members

Another aspect of the high-level object in the system is the user, which allows you to set up accounts for different users coming to the site. As an administrator, you can create different roles for different access rights to content. Users can then be assigned to one or more roles.

Please note that only the first user account that is created when you configure your Drupal installation, has the authority to change any of the settings in the system.

The administrator can assign any user roles as defined in the access control administration interface Drupal.

5.1.8 Setting up the appearance of the web-site

Drupal separates content from presentation using a system of support for those. You can make a theme for your content using a variety of mechanisms to support the Drupal themes. Although you can set the theme entirely in PHP, a support mechanism that provides an integrated environment for the development, which can save time.

Advantages of Drupal over other software

- Versatility
- The stability of the nucleus
- Scalability
- Unmatched Flexibility
- Intelligent Architecture
- Excellent quality modules
- Content-based ideology
- Real multisite
- Documented API

What is the best Joomla or Drupal?

It depends on the objectives pursued. Joomla and Drupal versatile CMS. For fast results without diving into the specifics of web development (HTML, CSS), attention

should be devoted to Joomla. Once you have downloaded it for free template, you can add originality to your site with minimum time loss.

It will have to put up with the high complexity of adapting the standard Joomla modules under the required conditions, because the architecture of the engine is not designed to solve non-standard problems. Architecture Joomla as "sharpened" under the "boilerplate business" of its founders, and that is its fundamental and major drawback for professional development.

If you want full control of both the appearance and functionality of the, if not satisfied with the work of the existing modules, Joomla, Drupal then this is a good choice. Change the functional modules of Joomla is the same as trying to implement something that is not provided for developers. Since Drupal is much easier.

5.2 Database

In the most general sense database - is a set of texts and files that are organized in a special way. One of the types of databases is documents, typed in a text editor and grouped by subject. Another type – files with spreadsheets that are grouped by the nature of their use. Organized person, using the special structure of directories and subdirectories may cope with hundreds of spreadsheets. In this case he is a database manager. But what to do when the problem under consideration is too big? How to gather information about all of its customers and their orders, if these data are scattered on separate text files and spreadsheets? How to maintain communication between the files when you enter new information? How to make sure that data is entered correctly? What if the same information may be requested by multiple users, but it is inconceivable that two people in the same time corrected the same data? In such cases, you need a database management system (DBMS).

5.2.1 Relational Databases

Almost all modern systems are based on the relational model of database management. The name "relational" due to the fact that each entry in such a database contains information related to only one specific object. In addition, two types of data

(for example, customer and order) is possible to work as a unit, based on the values of the associated data. For example, if include the name and address of the client in each of its order, it would lead to a repetition of information storage. Therefore, in the relational system, information about orders a data field where you enter the client code, in which information of each order is combined with the data on the corresponding client.

Some of the terms relational databases

- **Attitude** – information about objects of the same type, such as customers, orders, employees. In relational databases, the ratio is usually stored in a table.
- **Attribute** – some information about some object - for example, the address of the client or the salary of the employee. Attribute is usually stored in the form of a column or a table field.
- **Communication** – the way in which information is related in one table with data in another table. For example, a customer orders a type of bond – a "one-to-many", as one customer can place many orders, but any order relates to only one client.
- **Integration** – the process of joining tables or queries based on the shared values of certain attributes. For example, customer information may be combined with information about orders by the code of the client.

In a relational database all the processed data are presented in tabular form. Information about the objects of a particular type (for example, customer) is represented as a table - table columns and their range of characteristics of these objects - attributes (such as customer addresses), and the rows are intended to describe the values of all the attributes of a particular object (for example, data about a particular client). Even in the case when you use the database to select information from one or more tables (i.e., execute the query), the result is also presented in a tabular form. Moreover, you can query using results from another query. You can combine information from multiple tables or queries. For example, to find out what orders issued or that customers can combine customer information with data about

orders, but in order to determine which staff worked with the order, we can combine the order information with information about employees.[24]

5.2.2 Opportunities of Database

- Data definition – defines what information is to be stored database, define the structure of data and its type (for example, the number of digits or characters), and to specify how the data is related. In some cases, as specified formats and criteria for data validation.

- Processing data – data can be processed in various ways. You can select any of the fields, filter and sort data. Data may be combined with other related information, and calculate totals.

- Data management – specifying who is allowed to meet with these, correct or add new information. Can also define rules for shared data.

5.2.3 Reasons for the transition to the advisability of using the database:

- Reason 1. Too many individual files, or any of the files contain a wealth of information, making it difficult to work with the data.

- Reason 2. Use of data in various ways: for information on specific transactions (e.g., invoices) for the final analysis (e.g., quarterly sales), or to predict certain situations. Therefore, we must consider that data from different sides, which makes it difficult to create satisfying all your needs unified structure of data.

- Reason 3. There is a need to use the same data by different specialists. For example, they enter, update and analysis of the various people involved. If the spreadsheet document or may alter only one person, the database can interact at the same time, multiple users by modifying the contents of the same table. In the database ensures that users are always working with the latest modifications to the data.

- Reason 4. You have to protect your data from unauthorized access, monitor their values and maintain the integrity of the database - in fact have access to the data

many users, these data are used in the work of your firm and interrelated (e.g., customers and orders).

5.2.4 Types of Database

Microsoft Office Access: MS Access is currently one of the most popular desktop software database management systems. Among the reasons for this popularity should be noted:

A high degree of flexibility and reasonableness of the interface, which is designed to work with users of very different skills. In particular, the implemented control system database objects, allowing flexibly and promptly to move from mode to mode of constructing their immediate use; Developed a deep integration with other software products that are part of MS Office, and any software products that support the technology OLE. A rich set of visual tools.

MS Access – High Performance (32-bit) system is a relational database management, which is part of the professional version integrated with Microsoft Office.

MS Access is designed for the development of desktop database and creating database client-server architecture, running operating systems Windows. This system is available to the user at any level.

MS Access works with objects, which includes tables, queries, forms, reports, macros, and modules. All related objects are organized in a single file, called a database.

The main sections of the main window correspond to the types of objects that can contain a MS Access database. This is the Tables, Queries, Forms, Reports, Macros, Module.

The interface works with database objects is unified. For each of them there are standard modes of operation:

New – designed to create a structure of objects,

Designer – designed to change the structure of objects

Open – designed to work with database objects.

An important means of facilitating work with MS Access for beginners is the master-special software add-in designed for creating database objects in the sequential dialogue. For advanced users, there is the possibility of more flexible management of resources and capabilities database objects in Design view.

A specific feature of MS Access database is that all information relating to the same database, stored in a single file. The file has the extension '.mdb'.

IBM DB2: A database management system (DBMS) design IBM, along with a member of the Informix database family of products for IBM Information Management (Information Management Software, IMS). The family of IMS with an excess covers the needs of the corporate user in terms of storing, managing and retrieving data. Over the past ten years, DB2 consistently among the top three databases, the leading sales in Russia.

In DB2 information architecture refers to the middleware, ensuring the creation, deployment and operation of the business applications of a wide range of applications. DB2 can act as a support database for accounting systems, ERP systems and ERP-solutions - "1C", SAP and others. In particular, the company «1C» offers substantial benefits when purchasing DB2 in the making, and when migrating to DB2 production systems.

IBM DB2 – the most powerful and high-performance database engine in the world. Its main unique competitive advantage – the ability to expand (zoom) of the system without any problems. This means that any application written for DB2, will work with the data servers, DB2, running on any distributed platform supported by DB2 (Windows, HP-UX, Sun Solaris, Linux, Mac OS X and AIX ®).

Although the DB2 product line contains wording for personal use, small and medium-sized businesses, including the free DB2 Express-C, DB2 stored in a characteristic for all IBM products focus on the problem of corporate clients. DB2 is designed to build geographically distributed, heterogeneous systems that handle large volumes of data subject to increased requirements for functionality, performance, and data protection.

The typical task of a large enterprise, the solution of which specialists refer to DB2, is to optimize the performance of information systems. The most appropriate implementation of IBM DB2 database in the following situations:

- The system is constantly working more than 100 people;
- Heavily loaded system (high volume and data usage);
- The availability of peak loads (for example, during the closing statement);
- Availability of a company-by branch and remote offices.

In functionality, in this case fit the older version of DB2. After the transition to DB2 performance production system can grow by 2-4 times.

Informix is a family of relational database management systems (DBMS), manufactured by IBM. Informix is positioned as the flagship DBMS IBM, designed for online transaction processing (OLTP), as well as a database for integrated solutions. The latest version - 11.7. Informix - (own funds development of client applications-Informix-View Point, Informix-CLI, Informix-ESQL / C, Informix Universal WebConnect). Informix Dynamic Server has high operation-traditional characteristics. Server Informix database products are relational or object-relational. All modern servers you full-on architecture Informix Dynamic Scalable Architecture (DSA) and supports ANSI standards in SQL. In this family, there are a few servers that are fully compatible and vary in size tasks.

Microsoft SQL Server: Developed by Microsoft. The primary query language used – Transact-SQL, created jointly by Microsoft and Sybase. Transact-SQL is an implementation of the standard ANSI / ISO's Structured Query Language (SQL) with extensions. Used to work with databases ranging from personal to large enterprise databases, competing with other databases in this segment of the market.

Microsoft SQL Server 2005 is a platform for working with databases, providing the possibility of large-scale online transaction processing (OLTP), data storage and handling applications for e-commerce, as well as a business intelligence platform to create solutions for data integration, analysis and drafting reports.

Postgre SQL: This function operates with the localization set in the operating system and the requirements of the standard POSIX. In practice, this means that you

can work with several dozen languages, including the Russian language in all possible encodings: koi8-r, cp1251, iso8859-5 and UTF-8. Ability to work properly.

Postgre SQL with specific encoding depends on the correct support by means of the encoding of the operating system. Through the use of the library gettext, error messages, and utilities have been translated into many languages, including in Russian.

5.2.5 What is MySQL

MySQL - this is one of the most popular and most widely used DBMS (database management system) on the Internet. It is not designed to handle large volumes of information, but its application is ideal for Internet sites, both small and large enough.

MySQL differ a good performance, reliability and flexibility. After it usually does not cause big problems. Support for the MySQL server is automatically included in the supply of PHP.

Another important factor is that it's free. MySQL is distributed under the general license GNU (GPL, GNU Public License).

Earlier long-term storage of information, we have worked with files: put them in a certain number of lines, and then retrieve them for future work. The task of long-term storage of information is very common in programming, Web-based applications: people counting in the counter, storing messages in the forum, remote management of information content on the website, etc.

Meanwhile, professional techniques for working with files is very time-consuming: it is necessary to take care of putting them information about her sorting, retrieving, thus we should not forget that all these actions will be performed on the host server provider, which very likely is one variant of Unix - hence the need to also take care of access rights to files and their placement. At the same time greatly increases the amount of code, and to make a mistake in the program is very simple.

All these problems are solved by the use of the database. Databases that take care of the security of information and its sorting and allow you to retrieve and post information through a single line. Code using the database is more compact and

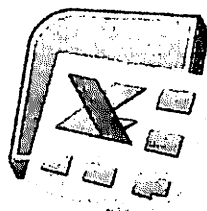
easier to debug it. Also, do not forget about speed - selection of information from the database is much faster than from the files.[25]

Note

Application in PHP that uses a database to store data (in particular MySQL) always faster application built on files. The fact that databases are written in C++, and write a PHP program that would work with hard disk performance of the database - the problem unsolvable by definition, as PHP programs, in principle, are slower than programs on C++, since PHP - interpreter, and C++ - compiler.

Thus, the main advantage of the database is that it takes all the work with the hard drive and doing it very effectively.

5.3 MS EXCEL



Microsoft Excel has the basic features of all spreadsheets, using a grid of cells arranged in numbered rows and letter-named columns to organize data manipulations like arithmetic operations. It has a battery of supplied functions to answer statistical, engineering and financial needs. In addition, it can display data as line graphs, histograms and charts, and with a very limited three-dimensional graphical display. It allows sectioning of data to view its dependencies on various factors for different perspectives. It has a programming aspect, Visual Basic for Applications, allowing the user to employ a wide variety of numerical methods, for example, for solving differential equations of mathematical physics, and then reporting the results back to the spreadsheet.

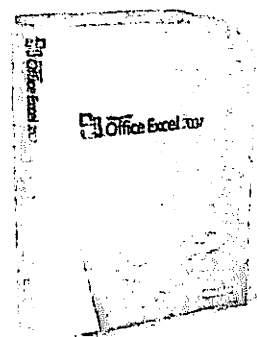
One of the most original ideas in the field of computer information technology was the idea of the spreadsheet. Many companies - developers of software for personal computers have created their own versions of table processors. Of these, the best known company acquired Lotus 1-2-3 Lotus Development, SuperCalc company Computer Associates, Multiplan company Microsoft. One of the leaders in a series of spreadsheets is now the MS Excel.

Fields of application Excel:

- Excel represents a ready table, Excel is often used to create documents without all the calculations just having a table view
- Excel can be used in a set of standard functions - financial, mathematical, logical, and statistical.
- In Excel you can easily create different types of graphs and charts that take data for the construction of table cells
- It can be used for normal users elementary calculations
- Excel is used extensively in the accounting department - in many companies is the main tool for the execution of documents, calculations and create charts;
- Excel can even work as a database.

A Brief History of Microsoft Excel

The program didn't start off being called Excel. Instead, it was a simple spreadsheet program titled Multiplan, which was released in 1982. While it was wildly popular on CP/M systems, those who used MS-DOS weren't as happy with it as they were with Lotus 1-2-3. To try to remedy that, Microsoft released it as Excel in 1985 for Mac and in 1987 for Windows, which was the first time that it was marketed under the name Microsoft Excel in the mainstream computer software market. Since Lotus 1-2-3 was a bit slow on their game to bring their program to Windows, Excel capitalized on this flaw and managed to get in and steal most of the market before Lotus ever got their program switched over. By the time that Lotus 1-2-3 managed to get its program into the mainstream Windows market, Excel was already outselling all of the competition. In fact, it was this push that gave Microsoft the edge and helped it grow into the leading software developer in the world.



With its status firmly planted, and its sales growing in leaps and bounds, Microsoft was able to push Lotus off of its position as the top spreadsheet seller and was able to begin showing off its future visions for developing GUI software. The crew at Microsoft took full advantage of their new top position and began to produce regular releases, about every year and a half, so that users would constantly have an updated version with better features.

But, with every success story comes some problems, and Excel was no different. In 1993, Microsoft Excel was the subject of a major lawsuit from another software company who was selling a product named “Excel” as well, except it was more for the financial sector. The courts decided that Microsoft had to call its product “Microsoft Excel” in all of its formal documents, such as press releases and software packaging. Although Microsoft made sure to do this, over the years the program has gone back to being called simply “Excel” once more. So, the company finally decided to go ahead and purchase the trademark of the other program that shared the Excel name.

In the past few decades, Excel has grown and offers so many different features for users. From their earliest, simple spreadsheets to the wonderful program that it is today, there have been many changes in the overall format of the program. But, the essence of the software is still the same. In fact, just like in the very first version, Excel of today still uses the same program, called VisiCalc, which displays the cells of the sheet, organized into neat columns and rows. This program also allows users to input information into the cells, such as numbers, and reference them to other cells in the spreadsheet.

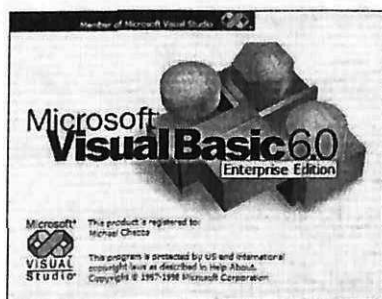
Microsoft Excel was actually the first spreadsheet program out that actually allowed users to change up the overall look of the spreadsheet, such as the font, cell appearance, width and length. It was also the first program to give users an intelligent cell computation, which meant that users could total a number of cells together in one specific cell with a simple formula. This made the program invaluable to users, especially in the financial industry.

While 1993 saw that major lawsuit from another company over the name of the product, it also saw one of the most successful pairings of Excel with several other great Microsoft products in one package called Microsoft Office. In this one package, Excel was paired with Word and PowerPoint to create a powerful, user-friendly suite that offered everything that a person could need in one software package.

Since then, Excel has grown to include VBA, (Visual Basic for Applications), which is a specific programming language that is based on Visual Basic. This gives users the ability to create automatic tasks and functions in the different worksheets to make creating them easier. As Excel continued to grow and add new features, VBA became more and more important to the program, and to users. [26]

5.4 VISUAL BASIC

What is Microsoft Visual Basic?



Visual Basic is a third-generation event-driven programming language and integrated development environment from Microsoft for its COM programming model first released in 1991. Visual Basic is designed to be relatively easy to learn and use. Visual Basic was derived from BASIC and enables the rapid application development of graphical user interface applications, access to databases using Data Access Objects, Remote Data Objects, or ActiveX Data Objects, and creation of ActiveX controls and objects. VBA is effectively the same language as Visual Basic but VBA-code is tied to Microsoft Office and can only run within that environment. The scripting language VBScript is a subset of Visual Basic.

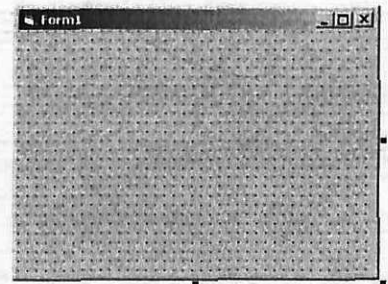
A programmer can create an application using the components provided by the Visual Basic program itself. Programs written in Visual Basic can also use the Windows API, but doing so requires external function declarations. Though the program has received criticism for its perceived faults, version 3 of Visual Basic was

a runaway commercial success, and many companies offered third party controls greatly extending its functionality.

Like the BASIC programming language, Visual Basic was designed to be easily learned and used by beginner programmers. The language not only allows programmers to create simple GUI applications, but to also develop complex applications. Programming in VB is a combination of visually arranging components or controls on a form, specifying attributes and actions of those components, and writing additional lines of code for more functionality. Since default attributes and actions are defined for the components, a simple program can be created without the programmer having to write many lines of code. Performance problems were experienced by earlier versions, but with faster computers and native code compilation this has become less of an issue.

Although VB programs can be compiled into native code executables from version 5 onwards, they still require the presence of runtime libraries of approximately 1 MB in size. Runtime libraries are included by default in Windows 2000 and later, however for earlier versions of Windows, i.e. 95/98/NT, runtime libraries must be distributed together with the executable.

Forms are created using drag-and-drop techniques. A tool is used to place controls (e.g., text boxes, buttons, etc.) on the form (window). Controls have attributes and event handlers associated with them. Default values are provided when the control is created, but may be changed by the programmer. Many attribute values can be modified during run time based on user actions or changes in the environment, providing a dynamic application. For example, code can be inserted into the form resize event handler to reposition a control so that it remains centered on the form, expands to fill up the form, etc. By inserting code into the event handler for a keypress in a text box, the program can automatically translate the case of the text being entered, or even prevent certain characters from being inserted.



Visual Basic can create executables (EXE files), ActiveX controls, or DLL files, but is primarily used to develop Windows applications and to interface database systems. Dialog boxes with less functionality can be used to provide pop-up capabilities. Controls provide the basic functionality of the application, while programmers can insert additional logic within the appropriate event handlers. For example, a drop-down combination box will automatically display its list and allow the user to select any element. An event handler is called when an item is selected, which can then execute additional code created by the programmer to perform some action based on which element was selected, such as populating a related list.

The Visual Basic compiler is shared with other Visual Studio languages (C, C++), but restrictions in the IDE do not allow the creation of some targets (Windows model DLLs) and threading models. [27]

5.5 Microsoft Office Document Imaging (Modi)

Microsoft Office Document Imaging (MODI) is a Microsoft Office application that supports editing scanned images. MODI provides an object model based on 'document' and 'image' (page) objects. One feature is MODI's ability to convert scanned images to text using an Optical Character Recognition (OCR) engine.

Microsoft Office Document Imaging (MODI) adds programmability features to the document scanning and viewing tools that Microsoft Office 2002 (XP) included for the first time. Programmers can take advantage of a simple object model built around the Document and Image (page) objects to display and read a scanned document as easily as a paper document, perform optical character recognition (OCR), search for text within scanned documents, copy and export scanned text and images, combine multiple pages into a single compressed file, and reorganize scanned document pages as easily as rearranging papers in a folder.

Image capturing and other image recognition technologies are used for indexing and conversion of document images into plane text. A universal way to handle various document formats is to create images of the pages by using scanners and digital cameras for papers and books, or rendering page images for electronic files.

Many Libraries have already scanned millions of pages, with Google being an ideal example.

Microsoft Office Document Imaging OCR technology is used to extract text tokens, prototypes and templates. Document image contains various kinds of block diagrams, charts and graphs. So the main objective is to take apart the actual text from graphics image. There are number of methods have been already developed. By considering the MODI approach it utilize OCR for what it does well which is text extraction and then use low level and high level techniques which commonly focus on image identification, locating regions. MODI mask out the text from the page image and does picture segmentation on page image by putting together the non-text pixels.

Microsoft Office Document Imaging (MODI) is a discontinued Microsoft Office application that supports editing documents scanned by Microsoft Office Document Scanning. It was first introduced in Microsoft Office XP and is included in later Office versions including Office 2007. It is no longer available in Office 2010, although it is possible to install MODI from a previous version of Microsoft Office along with Office 2010. MODI allows users to Scan documents, recognize images using OCR, and view a scanned document and Annotate scanned documents including using ink on a Tablet PC.

While the native file format of MODI seems to be MDI, MODI can read and write a small variety of TIFF files. It can also save OCR text into the original TIFF file. However, MODI produces .tif files which violate the TIFF standard and are usable only by the Microsoft Office Document Imaging products. JPEG format images can be recovered from these files using data carving recovery tools designed to cull intact files from images of damaged hard drives such as Foremost. The OCR text in these files is visible in a binary editor.

In its default mode, the OCR engine will de-skew and re-orient the page where required. If the `objectname.save()` method is called it will save the de-skewed reoriented images back into the original image file.

A simple example in Visual Basic .NET follows:

```
Dim inputFile As String = "C:\test\multipage.tif"
Dim strRecText As String = ""
Dim Doc1 As MODI.Document

Doc1 = New MODI.Document
Doc1.Create(inputFile)
Doc1.OCR() ' this will ocr all pages of a multi-page tiff file
Doc1.Save() ' this will save the deskewed reoriented images, and the OCR text,
back to the inputFile

For imageCounter As Integer = 0 To (Doc1.Images.Count - 1) ' work your way
through each page of results
    strRecText &= Doc1.Images(imageCounter).Layout.Text ' this puts the ocr
results into a string

Next

File.AppendAllText("C:\test\testmodi.txt", strRecText) ' write the OCR file
out to disk

Doc1.Close() ' clean up
Doc1 = Nothing
```

6 AUTOMATED SYSTEM OF “DOSTYK” EDUCATIONAL CENTRE

“Dostyk” Educational Centre working to build an automated information management system of 16 branches. The system is built on the basis of document databases, online databases, historical databases, databases, e-learning materials, distance learning systems. The main functions of the system are: maintenance of a centralized database system operation, providing a single user interface and the formation of typical documents, the creation of a centralized digital library, support for distance education and independent testing, exchange of electronic information.

The automated system of electronic testing allows access to testing; find information about training, finding the necessary test items; exhibit marks for testing, perform the update database of test items.

The results of the learning process are recorded in the statistics block. The monitoring system would greatly facilitate the analysis of learning outcomes and choose the most effective management strategy, as well as to help in the process of self-learning.

Development and implementation of an automated information management system of “Dostyk” Educational Centre will:

- Create the basis of the information management for branches of Dostyks;
- Optimize and upgrade the learning process;
- Automate the preparation of reports;
- To plan the educational process;
- Contribute to the development of intellectual and creative abilities of students, analysis of information skills, research, the principles of hierarchical structure, variability, personal orientation of the learning process;
- Implement a comprehensive information and methodological support of the educational process;
- To provide an immediate diagnosis and management of educational process;
- To reduce the financial costs through the effective use of information and
- Telecommunication resources.

6.1. Automated Student's Course Registration Using DT Form

In this part aims to introduce automated student's courses registration using DT form. The number of students joining is increasing fast through most education centers. Manual registration results in crowding a huge number of students inside the registration halls. Online registration techniques help a lot but still many problems encountered. The reason is due the huge number of students trying to access the web at the same time. Accessing the web through the Internet becomes a very slow and tedious process. Registration Using DT Form is used to solve these problems. DT form special form for optic scanners which students fills their information. In registration to UNT in Kazakhstan similar system is used like DT form. DT form consists of these parts:

NAME: First name of student.

SURNAME: Last name of student.

SEX: Male or female.

STUDY LANGUAGE: Kazakh or Russian.

STUDY PERIOD: Morning or afternoon. Study language and study period is important to generate classes.

ADDRESS: Living address.

BIRTHDAY: Date of birth.

CONTACT NUMBER: Parents and students mobile phone numbers. During the lessons absence of students can be easily contact with students or parents.

TYPE OF COURSE: Students can be registered different types of course. 6th, 9th, 10th, 11th class courses, language courses, IELTS, accelerated and normal courses. Prices of each course are different. According to these filled information, system registers course type, class and automatically calculates student payments for chosen course.

SUBJECTS: In this part students can be choose one or many subjects. Also this information affects to calculation of payments.

After filling all this information, DT form scanned by optical scanner and output .txt file uploaded to portal. Uploading .txt file to portal registration process is

finished. For every registered students system automatically generates unique ID number. ID numbers contains 8 digits. First two digits determine which branch of educational center. Also each branch of educational centers has their own ID. After registration students take their ID cards. So registered students can easily access their personal account using their ID number. By default username and password is generated same as students ID. Then students can change their account information. .

6.2. Automated System of Checking Test

ASCT (Automated System of Checking Tests) is a software system for checking test.

By creating a list of students and assigning each its own ID number as shown in picture 1.

Each student has different selective subjects (fifth lesson). So defining each selective subject's numbers from 1 to7:

1-PHYSICS

2-CHEMISTRY

3-BIOLOGY

4-GEOGRAPHY

5-ENGLISH LANGUAGE

6-HISTORY

7-LITERATURE

	A	B	C	D	E	F
1		ЕНТ-12				
2		Внести в Базу данных			Очистить	
3						
4	УЧАЩИЕСЯ	ID	Variant	5 пан	Класс	Группа
5	АБДРАХМАНОВ ОНДАСЫН	24107	8020	1	11А	Русский
6	АДИЛОВ УЛУКБЕК	24108	7020	6	11А	Казахский
7	АЙМУРЗИНОВ НУРЖАН	24109	8020	1	11А	Русский
8	АЙТЖАН МАРЛЕН	24135	7020	5	11В	Казахский
9	АЛИЕВ АЙБЕК	24110	7020	1	11А	Казахский
10	АНУАРБЕКОВ ДАНИЯР	21684	8020	5	11В	Русский
11	БЕКИШЕВ ДАНИЯР	24137	8020	1	11В	Русский
12	Бердімбет Ержан	40005	7020	3	11А	Казахский
13	ГАЛИМОВ ПАВЕЛ	24113	8020	3	11А	Русский
14	ЕРАЛИН ДИНМУХАМЕД	24115	7020	3	11А	Казахский
15	ЕРМЕК ШЫНҒЫС	24116	7020	5	11А	Казахский
16	ЖОЛДЫБАЕВ БАУЫРЖАН	24065	7020	1	11А	Казахский
17	КАЛЫБЕКОВ БАҚЫТЖАН	24143	8020	1	11В	Русский
18	КЕНЖЕБАЙ ҰЛЫ АБЫЛАЙХАН	24146	8020	3	11В	Русский
19	КОЗЫБЕКОВ НҰРБОЛ	24147	7020	3	11В	Казахский
20	МУСА НАРИМАН	24123	8020	1	11А	Русский
21	КҮЛДЕЕВ ЖАНГЕЛДІ	24121	8020	5	11А	Русский
22	ҚАДЫР ҚУАНЫШ	24148	8020	5	11В	Русский
23	ҚОЖАХМЕТ ДӘУРЕН	24095	7020	5	11В	Казахский
24	НАЗЫМБЕКОВ АБДУЛХАН	24125	8020	1	11А	Русский
25	МЕЙРАМОВ МАДИЯР	24126	7020	2	11А	Казахский
26	МУСАТАЕВ ДИДАР	24149	8020	2	11В	Русский
27	МҰРАТОВ ЕРНҰР	24070	7020	1	11А	Казахский
28	МҰХАМЕДИН МҰРАТБЕК	24072	7020	5	11А	Казахский

Picture 1 – Creating Students List

Variants of first numbers digit defines language of test which student chosen before. For example: VARIANT-8020

8020-first digit 8 so students exam language is Russian. 7-Kazakh.

Then we'll print out the forms for the answers. An individual form for each student is automatically generated from a list of the test. What has all coordinates cell responses are preset for further recognition as shown in picture 2.

ЕНТ-12

Учащийся: ШАРИПОВ ДАУЛЕТ

7020

24132

Қазақшй язык	Русский язык	История Қаз-на	Математика
1. (A) (B) (C) (D) (E)	1. (A) (B) (C) (D) (E)	1. (A) (B) (C) (D) (E)	1. (A) (B) (C) (D) (E)
2. (A) (B) (C) (D) (E)	2. (A) (B) (C) (D) (E)	2. (A) (B) (C) (D) (E)	2. (A) (B) (C) (D) (E)
3. (A) (B) (C) (D) (E)	3. (A) (B) (C) (D) (E)	3. (A) (B) (C) (D) (E)	3. (A) (B) (C) (D) (E)
4. (A) (B) (C) (D) (E)	4. (A) (B) (C) (D) (E)	4. (A) (B) (C) (D) (E)	4. (A) (B) (C) (D) (E)
5. (A) (B) (C) (D) (E)	5. (A) (B) (C) (D) (E)	5. (A) (B) (C) (D) (E)	5. (A) (B) (C) (D) (E)
6. (A) (B) (C) (D) (E)	6. (A) (B) (C) (D) (E)	6. (A) (B) (C) (D) (E)	6. (A) (B) (C) (D) (E)
7. (A) (B) (C) (D) (E)	7. (A) (B) (C) (D) (E)	7. (A) (B) (C) (D) (E)	7. (A) (B) (C) (D) (E)
8. (A) (B) (C) (D) (E)	8. (A) (B) (C) (D) (E)	8. (A) (B) (C) (D) (E)	8. (A) (B) (C) (D) (E)
9. (A) (B) (C) (D) (E)	9. (A) (B) (C) (D) (E)	9. (A) (B) (C) (D) (E)	9. (A) (B) (C) (D) (E)
10. (A) (B) (C) (D) (E)	10. (A) (B) (C) (D) (E)	10. (A) (B) (C) (D) (E)	10. (A) (B) (C) (D) (E)
11. (A) (B) (C) (D) (E)	11. (A) (B) (C) (D) (E)	11. (A) (B) (C) (D) (E)	11. (A) (B) (C) (D) (E)
12. (A) (B) (C) (D) (E)	12. (A) (B) (C) (D) (E)	12. (A) (B) (C) (D) (E)	12. (A) (B) (C) (D) (E)
13. (A) (B) (C) (D) (E)	13. (A) (B) (C) (D) (E)	13. (A) (B) (C) (D) (E)	13. (A) (B) (C) (D) (E)
14. (A) (B) (C) (D) (E)	14. (A) (B) (C) (D) (E)	14. (A) (B) (C) (D) (E)	14. (A) (B) (C) (D) (E)
15. (A) (B) (C) (D) (E)	15. (A) (B) (C) (D) (E)	15. (A) (B) (C) (D) (E)	15. (A) (B) (C) (D) (E)
16. (A) (B) (C) (D) (E)	16. (A) (B) (C) (D) (E)	16. (A) (B) (C) (D) (E)	16. (A) (B) (C) (D) (E)
17. (A) (B) (C) (D) (E)	17. (A) (B) (C) (D) (E)	17. (A) (B) (C) (D) (E)	17. (A) (B) (C) (D) (E)
18. (A) (B) (C) (D) (E)	18. (A) (B) (C) (D) (E)	18. (A) (B) (C) (D) (E)	18. (A) (B) (C) (D) (E)
19. (A) (B) (C) (D) (E)	19. (A) (B) (C) (D) (E)	19. (A) (B) (C) (D) (E)	19. (A) (B) (C) (D) (E)
20. (A) (B) (C) (D) (E)	20. (A) (B) (C) (D) (E)	20. (A) (B) (C) (D) (E)	20. (A) (B) (C) (D) (E)
21. (A) (B) (C) (D) (E)	21. (A) (B) (C) (D) (E)	21. (A) (B) (C) (D) (E)	21. (A) (B) (C) (D) (E)
22. (A) (B) (C) (D) (E)	22. (A) (B) (C) (D) (E)	22. (A) (B) (C) (D) (E)	22. (A) (B) (C) (D) (E)
23. (A) (B) (C) (D) (E)	23. (A) (B) (C) (D) (E)	23. (A) (B) (C) (D) (E)	23. (A) (B) (C) (D) (E)
24. (A) (B) (C) (D) (E)	24. (A) (B) (C) (D) (E)	24. (A) (B) (C) (D) (E)	24. (A) (B) (C) (D) (E)
25. (A) (B) (C) (D) (E)	25. (A) (B) (C) (D) (E)	25. (A) (B) (C) (D) (E)	25. (A) (B) (C) (D) (E)

Picture 2 – Form for the Answers

After finishing examinations students fill true answers on answer sheets. While filling the answers students can use pen or pencils. Then we can scan completed answer sheets using any scanner. Scanning process must be accurately. Also using scanner with automatic document feeder (ADF) will help us to easily scan multiple-page documents without having to manually replace each page. Then, with the help of the program Paper Port scanned all the files can be combined into a single file in a format *.tiff. This format allows you to store multiple images in one file as shown in picture 3.



Учащийся: ШАКЕНОВ БАҚТИЯР

7066

12394

Қазақшi ябық

1. (B) (C) (D) (E)
2. (A) (C) (D) (E)
3. (A) (B) (D) (E)
4. (B) (C) (D) (E)
5. (B) (C) (D) (E)
6. (A) (B) (C) (E)
7. (A) (B) (D) (E)
8. (A) (B) (C) (D) (E)
9. (A) (C) (D) (E)
10. (B) (C) (D) (E)
11. (B) (C) (D) (E)
12. (A) (B) (C) (E)
13. (B) (C) (D) (E)
14. (A) (B) (C) (E)
15. (A) (B) (D) (E)
16. (A) (C) (D) (E)
17. (A) (C) (D) (E)
18. (A) (C) (D) (E)
19. (A) (B) (C) (D) (E)
20. (A) (B) (C) (E)
21. (A) (B) (C) (D) (E)
22. (A) (B) (C) (E)
23. (A) (B) (C) (E)
24. (A) (B) (C) (D) (E)
25. (A) (C) (D) (E)

Русский ябық

1. (A) (B) (C) (E)
2. (A) (B) (C) (D) (E)
3. (A) (B) (C) (D) (E)
4. (A) (B) (C) (E)
5. (B) (C) (D) (E)
6. (A) (B) (C) (E)
7. (A) (B) (C) (D) (E)
8. (A) (B) (C) (D) (E)
9. (A) (C) (D) (E)
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11. (A) (B) (C) (E)
12. (A) (B) (C) (D) (E)
13. (A) (C) (D) (E)
14. (A) (B) (D) (E)
15. (A) (B) (D) (E)
16. (A) (B) (C) (E)
17. (A) (B) (C) (D) (E)
18. (A) (C) (D) (E)
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20. (A) (B) (C) (E)
21. (A) (C) (D) (E)
22. (A) (B) (C) (E)
23. (A) (B) (C) (E)
24. (A) (B) (C) (D) (E)
25. (A) (B) (D) (E)

История Казань

1. (A) (C) (D) (E)
2. (B) (C) (D) (E)
3. (B) (C) (D) (E)
4. (B) (C) (D) (E)
5. (B) (C) (D) (E)
6. (A) (B) (C) (E)
7. (A) (B) (D) (E)
8. (A) (C) (D) (E)
9. (A) (C) (D) (E)
10. (A) (B) (D) (E)
11. (B) (C) (D) (E)
12. (A) (B) (C) (D) (E)
13. (A) (C) (D) (E)
14. (A) (B) (D) (E)
15. (B) (C) (D) (E)
16. (A) (B) (D) (E)
17. (B) (C) (D) (E)
18. (A) (B) (C) (E)
19. (A) (B) (D) (E)
20. (A) (C) (D) (E)
21. (A) (B) (C) (E)
22. (B) (C) (D) (E)
23. (A) (B) (D) (E)
24. (B) (C) (D) (E)
25. (A) (C) (D) (E)

Математика

1. (A) (B) (C) (E)
2. (B) (C) (D) (E)
3. (A) (B) (D) (E)
4. (B) (C) (D) (E)
5. (A) (B) (C) (E)
6. (A) (B) (C) (D) (E)
7. (A) (B) (D) (E)
8. (A) (B) (D) (E)
9. (A) (B) (C) (D) (E)
10. (B) (C) (D) (E)
11. (A) (B) (D) (E)
12. (A) (B) (C) (E)
13. (A) (B) (C) (E)
14. (A) (C) (D) (E)
15. (A) (B) (C) (D) (E)
16. (A) (B) (C) (E)
17. (A) (B) (C) (D) (E)
18. (A) (B) (C) (D) (E)
19. (A) (B) (C) (E)
20. (A) (B) (C) (E)
21. (A) (B) (C) (E)
22. (A) (B) (C) (E)
23. (A) (B) (C) (E)
24. (A) (B) (C) (D) (E)
25. (B) (C) (D) (E)

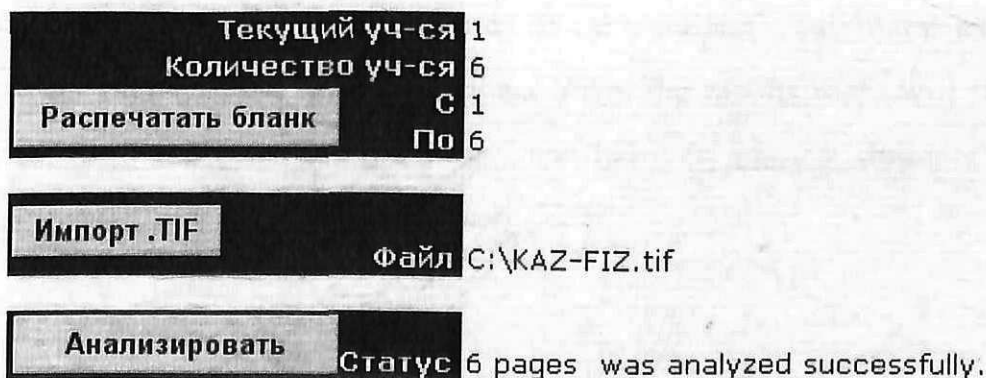
Picture 3– Filled Answer Sheet

ASPT reads the ID number and finds the desired test from the list. Then recognizes tags coordinates cell and enters the student's answers in front of his name. Comparing the answers of the test is performed with the correct scoring in the picture 4.

A	G H I		J K L		M N O		P Q R		S T		U
	Казахский язык Количество Вариантов 5		Русский язык Количество Вариантов 5		История Каз-на Количество Вариантов 5		Математика Количество Вариантов 5		5 Предмет Количество Вариантов 5		
УЧАЩИЕСЯ	Правильно	Не Правильно	Правильно	Не Правильно	Правильно	Не Правильно	Правильно	Не Правильно	Правильно	Не Правильно	Общий
АБДРАХМАНОВ ОНДАСЫН	25	0	21	4	20	5	23	2	22	3	111.0
АДИЛОВ УЛУКБЕК	22	3	21	4	15	10	24	1	11	14	93.0
АЙМУРЗИНОВ НУРЖАН	24	1	15	10	18	7	21	4	17	6	95.0
АЙТЖАН МАРЛЕН	21	4	22	3	18	7	14	11	20	5	95.0
АЛИЕВ АЙБЕК	21	4	22	3	17	8	14	11	11	14	85.0
АНУАРБЕКОВ ДАНИЯР	20	5	23	2	22	3	19	6	21	4	105.0
БЕКИШЕВ ДАНИЯР	25	0	17	8	16	9	21	4	18	7	97.0
Бердімбет Ержан	21	4	19	6	20	4	23	2	21	4	104.0
ГАЛИМОВ ПАВЕЛ	22	3	15	10	19	6	19	6	19	6	94.0
ЕРАЛИН ДИНМУХАМЕД	21	4	23	2	18	7	22	3	21	4	105.0
ЕРМЕК ШЫҒЫС	21	4	17	8	16	9	18	7	21	4	93.0
ЖОЛДЫБАЕВ БАУЫРЖАН	23	2	21	4	23	2	23	2	16	9	106.0
КАЛЫБЕКОВ БАҚЫТЖАН	24	1	19	6	22	3	19	6	17	8	101.0
КЕНЖЕБАЙ ҰЛЫ АБЫЛАЙХАН	23	2	23	2	17	8	19	6	21	4	103.0
КОЗЫБЕКОВ НҮРБОЛ	19	6	14	11	23	2	21	4	16	9	93.0
МУСА НАРИМАН	24	1	15	10	19	6	21	4	17	8	96.0
КҮЛДЕЕВ ЖАНГЕЛДІ	24	1	21	4	22	3	17	8	20	5	104.0
ҚАДЫР ҚУАНЫШ	25	0	22	3	22	3	23	2	17	8	109.0
ҚОЖАХМЕТ ДӘУРЕН	20	5	20	5	20	5	18	7	21	4	99.0
НАЗЫМБЕКОВ АБДУЛХАН	24	1	17	8	22	3	17	8	14	11	94.0
МЕЙРАМОВ МАДИЯР	23	2	25	0	16	9	19	6	17	8	100.0
МУСАТАЕВ ДИДАР	24	1	21	4	22	3	22	3	17	8	106.0
МҰРАТОВ ЕРНҮР	22	3	23	2	21	3	22	3	21	4	109.0
МҰХАМЕДИН МҰРАТБЕК	22	3	24	1	22	3	24	1	22	3	114.0

Picture 4 – Results of Students

To manage students and printing their answer sheets there is special control panel sheet. An individual answer sheet form for each student is automatically generated from a list of the test. Importing .tiff files is also controlled in this sheet. After importing we can press Analyze button to get results of students as shown in picture 5.



Picture 5 – Control Panel

Database of correct answers with their variants is located in variant sheet as shown in the picture 6.

	7001	8001	7002	8002	7003	7004	7066	8066	7020	8020
К	Е	Д	С	А	В	А	А	А	В	А
а	А	Е	Д	С	В	В	В	В	А	В
з	С	А	С	А	С	В	С	С	С	А
а	В	Е	А	А	В	А	В	В	В	А
х	В	А	В	А	Д	Д	Д	Д	Е	Е
с	С	Е	А	С	Е	С	Е	С	С	В
к	С	Е	Е	В	Е	В	В	В	А	С
и	А	Д	С	А	Е	А	Д	Д	В	А
й	А	Е	С	Д	Д	А	Е	А	Е	А
я	Д	А	С	Д	В	Д	С	Д	В	Д
з	А	В	В	В	А	В	А	А	В	А
ы	С	С	В	В	А	В	А	А	С	Е
к	Е	С	А	Д	Е	Е	Д	Е	С	А
р	Д	В	С	Е	С	Е	С	С	В	С
у	Д	С	А	Д	Д	Д	Д	Д	В	С
н	С	А	Д	Д	Д	Д	Д	Д	В	С
панель	Тест	Результаты	Вариант	База Данных						

Picture 6 – Control Panel

After finishing all process results of students' scores can be send to database sheet. Normally in results sheet scores of each subject's calculates as sum of true and sum of false. When we send to database sheet the results there will store only sum of trues for each subject. Also database sheet helps to analyze students' performance as shown in picture 7.

№	УЧАЩИЕСЯ	Вариант	Группа	Класс	5 Предмет	Казахский язык	Русский язык	История Казахстана	Математика	5 Предмет	Общий
1	АБДРАХМАНОВ ОНДАСЫН	8020	Русский	11A	Физика	25	21	20	23	22	111
2	АДИЛОВ УЛУКБЕК	7020	Казахский	11A	Всемирная История	22	21	15	24	11	93
3	АЙМУРЗИНОВ НУРЖАН	8020	Русский	11A	Физика	24	15	18	21	17	95
4	АЙТЖАН МАРЛЕН	7020	Казахский	11B	Английский язык	21	22	18	14	20	95
5	АЛИЕВ АЙБЕК	7020	Казахский	11A	Физика	21	22	17	14	11	85
6	АНУАРБЕКОВ ДАНИЯР	8020	Русский	11B	Английский язык	20	23	22	19	21	105
7	БЕКИШЕВ ДАНИЯР	8020	Русский	11B	Физика	25	17	16	21	18	97
8	Бердімбет Ержан	7020	Казахский	11A	Биология	21	19	20	23	21	104
9	ГАЛИМОВ ПАВЕЛ	8020	Русский	11A	Биология	22	15	19	19	19	94
10	ЕРАЛИН ДИНМУХАМЕД	7020	Казахский	11A	Биология	21	23	18	22	21	105
11	ЕРМЕК ШЫНҒЫС	7020	Казахский	11A	Английский язык	21	17	16	18	21	93
12	ЖОЛДЫБАЕВ БАУЫРЖАН	7020	Казахский	11A	Физика	23	21	23	23	16	106
13	КАЛЫБЕКОВ БАҚЫТЖАН	8020	Русский	11B	Физика	24	19	22	19	17	101
14	КЕНЖЕБАЙ ҰЛЫ АБЫПайХАН	8020	Русский	11B	Биология	23	23	17	19	21	103
15	КОЗЫБЕКОВ НҰРБОЛ	7020	Казахский	11B	Биология	19	14	23	21	16	93
16	МУСА НАРИМАН	8020	Русский	11A	Физика	24	16	19	21	17	96
17	КУЛДЕЕВ ЖАНГЕЛДИ	8020	Русский	11A	Английский язык	24	21	22	17	20	104
18	ҚАДЫР ҚУАНЫШ	8020	Русский	11B	Английский язык	25	22	22	23	17	109
19	ҚОЖАХМЕТ ДӘУРЕН	7020	Казахский	11B	Английский язык	20	20	20	18	21	99
20	НАЗЫМБЕКОВ АБДУЛХАН	8020	Русский	11A	Физика	24	17	22	17	14	94
21	МЕЙРАМОВ МАДИЯР	7020	Казахский	11A	Химия	23	25	16	19	17	100
22	МУСАТАЕВ ДИДАР	8020	Русский	11B	Химия	24	21	22	22	17	106
23	МҰРАТОВ ЕРНҰР	7020	Казахский	11A	Физика	22	23	21	22	21	109
24	АБДУРАХМАНОВ АБДУРАХМАН	7020	Казахский	11A	Английский язык	22	21	22	21	22	111

Picture 7 – Database sheet

After finishing scanning examination sheets using OMR or OCR scanner, output txt file should upload and automatically gets results. Students who have finished examination they can get their results by log in to their personal account on the same day. Also in their account there is examination part which students can see their own answers, answer key and their mistakes. Also system generates short statistic about that exam. In examination part yellow color defines answer key, green color defines student's correct answer and red color defines student's wrong answers as shown in picture 8.

ДОСТЫК Қазақ / Русский

Басты бет Сауалнама

Home » My account

My account

View Edit Емтихандарымды көру Күрсіт қарау

Exam Name	Exam Date	
ДАБ-3(6 сынып)	2012-12-23	
Variant:1665		
ПРЕДМЕТЫ	МАТЕМАТИКА ЛОГИКА	РЕЗУЛЬТАТ ТЕСТИРОВАНИЕ ЖАЛПЫ
ПРАВИЛЬНЫЕ	6 5	11
НЕПРАВИЛЬНЫЕ	19 13	32
НЕЗАКРАШЕННЫХ	15 2	17
БАЛЛ	1.25 1.75	3
Variant	КОД ПРАВИЛЬНЫХ ОТВЕТОВ	
ПРЕДМЕТЫ	1 2 3 4 5 6 7 8 9	10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28
29 30 31 32 33 34 35 36 37 38 39 40		
МАТЕМАТИКА	A B E A D	A D A A
ЛОГИКА	A C B A A A A A A A	A A A D
КОД ОТВЕТОВ	D B E B C A B E A D A E C D E B A E D B B C A E A C B C	
КОД ОТВЕТОВ	D E B C C B C D C A C A B B D A A D D A	


Picture 8 – Examinations results.

Also it is possible to get all examinations' detailed statistical information that students participated before.

6.3. Student payments management

In the payment section registered students payments calculated automatically according to start date and end date. During calculating payments starting and ending course dates must be determined in system. According that dates calculates number of weeks. Sometimes students pay for educational materials like examinations, books, etc. In the system also can be added material cost. For some students can be made discounts as in picture 9. There are discounts for orphans, top ten students, etc.

Аты-жөні	ALI VELI
hours per week	6
price per week	8000
start date	09/09/13
end date	01/06/14
material cost	0
Discount	no discount



Picture 9 – Student Payment Registration.

The system totally calculates all payment of students such:

Total Price=(Number of subject x hours per week x total week) + material cost

Total price with discount= Total Price x discount %.

After finishing calculation payment data stored to database. Total price divided per month automatically to pay monthly fee. Moderators can easily manage every student's payment information. Every month can control list of debtors and reminds about their debt. Also students can access their payment information from personal account. There student can see their payment date, payment price and debt as in picture 10.

My account

View	Edit	Елтихандарыңды көру	Курсті қарау			
start date	17/04/13					
end date	02/06/13					
discount	0		%			
period	payment date	payment price	payed at	payed	debt	comment
1	05/04/13	48000	05/04/13	48000	0	Пікір жоқ
1		48000		48000	0	

Picture 10 – Student's payment information

6.4. Announcements and Annual Plans

In academic annual plan of “Dostyk” Educational Centre monthly planned many examinations like DAB,PKT. For these examinations students must attend every month. Planned examinations controlled easily dostykbilimdostyk_exams table in MySQL. In the picture 11 shown detailed information about exams.

id	name	class	layout	start_date	end_date	status	status2
0	ДАБ (11 сынып)	11	D1	2012-10-20	2012-10-30	ACTIVE	INACTIVE
1	ДАБ (6 сынып)	6	D3	2012-10-29	2012-10-30	ACTIVE	INACTIVE
2	ПҚТ	11	D1	2012-11-03	2012-11-04	ACTIVE	INACTIVE
3	ДАБ-2(11 сынып)	11	D1	2012-11-25	2012-12-07	ACTIVE	INACTIVE
4	ДАБ-2(6 сынып)	6	D3	2012-11-25	2012-12-07	ACTIVE	INACTIVE
5	ДАБ-3(11-сынып)	11	D1	2012-12-19	2012-12-23	ACTIVE	INACTIVE
6	ДАБ-3(6 сынып)	6	D3	2012-12-23	2012-12-24	ACTIVE	INACTIVE
7	ПҚТ2	11	D1	2013-01-16	2013-01-21	ACTIVE	INACTIVE
8	ДАБ-4(6-сынып)	6	D3	2013-01-22	2013-01-28	ACTIVE	INACTIVE
9	ДАБ-5(6 сынып)	6	D3	2013-02-17	2013-02-23	ACTIVE	INACTIVE
10	ДАБ-4(11 сынып)	11	D1	2013-02-17	2013-02-23	ACTIVE	INACTIVE
11	ПҚТ-3	11	D1	2013-03-13	2013-03-20	ACTIVE	INACTIVE
12	ДАБ-6(6-сынып)	6	D3	2013-02-13	2013-03-20	ACTIVE	INACTIVE
13	ДАБ-7(6-сынып)	6	D3	2013-04-20	2013-04-27	ACTIVE	INACTIVE
14	ДАБ-8(6-сынып)	6	D3	2013-04-20	2013-04-27	ACTIVE	INACTIVE
15	ДАБ-5(11-сынып)	11	D1	2013-04-20	2013-04-27	ACTIVE	INACTIVE
16	ДАБ-6(11-сынып)	11	D1	2013-05-20	2013-05-27	ACTIVE	ACTIVE
17	ДАБ-7(11-сынып)	11	D1	2013-05-25	2013-06-05	ACTIVE	ACTIVE

Picture 11 – Annual Plan of Examinations.

For every registered user can be easily reminded about date of that examination. Students can see examination dates before. Announcements are making the job easier for everyone. Announcements can be private for each group or for everyone.

Sometimes to compete students whole groups examination results can be announced. Competition motivates students to study. Also the latest timetable for each student can be announced and other announcements about lessons, school, holidaysetc.Example in the picture 12 shown time table of 9th class.

The screenshot shows the 'ДОСТЫК' website interface. At the top, there are two buttons: 'Басты бет' (Home) and 'Сауалнама' (Questions). Below these, there are links for 'My Dostyk', 'My account', and 'Log out'. The main heading is '9 СЫНЫП САБАҚ КЕСТЕСІ'. A table displays the lesson schedule for '9 К-1'.

9 К-1		
ДҮЙСЕНБІ	АҒЫЛШЫН	15:00-16:20
	ФИЗИКА	16:25-17:50
СӘРСЕНБІ	МАТЕМАТИКА	16:25-17:45
ЖҰМА	МАТЕМАТИКА	15:00-16:20
	ҚАЗАҚ ТІЛІ	16:25-17:05

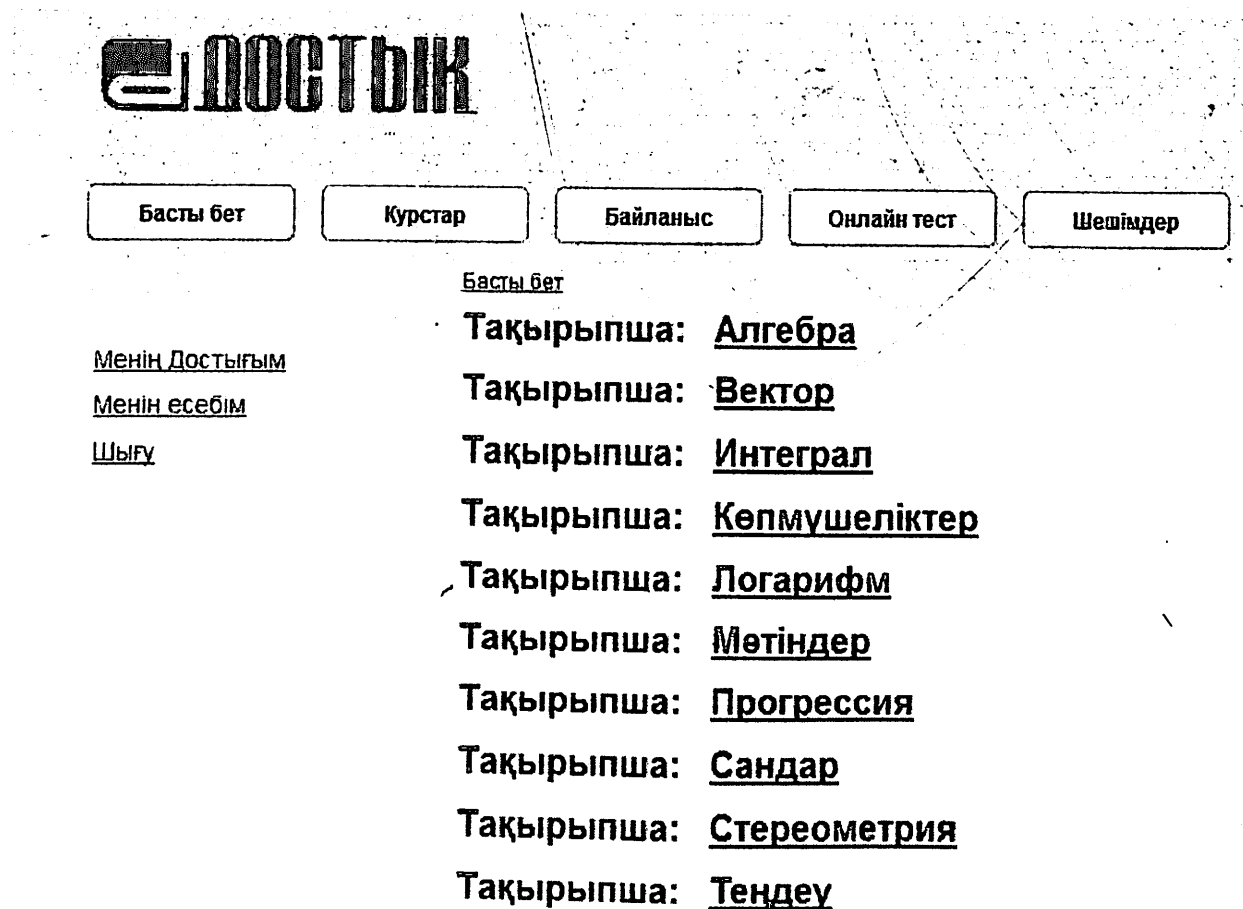
Picture 12 – Announcements

6.5. Video Lessons

Video lessons have an advantage because of the innovative features that can be used to make instruction more appealing to learners. As such, more and more educators have come to look these tools as media of instruction. A major advantage is that video materials can focus on information that cannot be readily presented in the classroom because of constraints such as environment, location, noise, etc.

Registered every student can access video lessons by some categories like language and subject type. There are approximately 800 short videos located. Video lessons generally how to solve some problems, teachers demonstrate solution of some questions by topic. There lessons categorized according to Russian and Kazakh

languages and according to subjects like math, history. Also all subjects' video lessons are located by topic. So students who have difficulties in understanding topic and solving questions, by watching the course they can understand the topic and solve the problem easily. For example in picture 13 chosen by order:



Picture 13 – Video Lessons

Kazakh language->Mathematic lesson->Logarithm. For this topic there are available 4 video lessons.

6.6. Management of whole branch system online

Establish and management information system in educational center is not easy. Also if there are many branches it becomes more difficult. Nowadays in Kazakhstan there are 16 branches of “Dostyk” Educational Centre. In database dostykbilimcontent_type_dostyk table branches are located and each branches ID shown in picture 14.

	vid	nid	field_organization_value	field_mn_value	field_dostyk_id_value
dostykbilimblocks	522	522	ТОО "Шыккент Достық"	582109250701	28
dostykbilimblocks_roles	511	511	"Астана-Достық" білім беру орталығы ЖШС	620209302080	16
dostykbilimboxes	512	512	ИП ДОСТЫҚ АХМЕТ РТ	302010605838	23
dostykbilimcache	523	523	ТОО "ТАРАЗ ДОСТЫҚ БІЛІМ БЕРУ ОРТАЛЫҒЫ"	211500226991	27
dostykbilimcache_bill	524	524	ТОО "Образовательный центр Достық-Костанай"	391700237329	21
dostykbilimcache_block	525	525	ТОО "ДОСТЫҚ-АКТАУ"	430100241597	11
dostykbilimcache_content	526	526	ИП САРСЕНГЕЛЬДИН М.М	511713369805	26
dostykbilimcache_content	527	527	ИП "Кокше-Достық"	339120254619	19
dostykbilimcache_filter	528	528	ТОО "ДОСТЫҚ АТЫРАУ"	150109240325	17
dostykbilimcache_furn	529	529	ТОО "ДОСТЫҚ ББО"	480100229498	20
dostykbilimcache_furn	530	530	almaty 1	123456789012	13
dostykbilimcache_furn_update	531	531	ТОО "Центр АЛМАТЫ ДОСТЫҚ"	600500546037	14
dostykbilimcache_menu	532	532	ТОО "Достық-КЗ" Білім беру орталығы	600400619428	15
dostykbilimcache_page	533	533	ИП "Достық"	451520188971	25
dostykbilimcache_update	534	534	ТОО "Достық Ақтобе"	61800246015	12
dostykbilimcache_views	552	552	ЖК Хамитов А.А.	181711714218	24
dostykbilimcache_views_data	555	555	Қызылорда-Достық	Қызылорда-Достық	22
dostykbilimckeditor_role	569	569	ИП Гайманшина А.А	031411564694	29
dostykbilimckeditor_settings	661	661	Достық тіп курсы	123456789012	30
dostykbilimcomments	670	670	Экспастуз достық	Экспастуз достық	18
dostykbilimcontent_access					
dostykbilimcontent_node_field					
dostykbilimcontent_node_field_instance					
dostykbilimcontent_type_dostyk					
dostykbilimcontent_type_front					
dostykbilimcontent_type_left_sds					
dostykbilimcontent_type_page					
dostykbilimcontent_type_press					
dostykbilimcontent_type_slide_image					
dostykbilimtools_css_cache					
dostykbilimtools_object_cache					

Picture 14 - Branches ID

Management system of all branches became easier by establishing the portal. Especially:

- Class management
- Student management
- Student assignment results management
- Student payments management
- Documents management
- Timetable management
- Notice board management
- User management
- Student ID card

All these managements controlled by administrator. For example in picture 15 shown number of students in each branch.

Дұрыс жауаптарды еңгізу	"Алматы 1" Достық ББО	191
Debt[Borc]	00-TEST-00	4
Report		
Төлемдерді көру	almaty 2 walyarina	412
My Dostyk	almaty 3 baizakova	344
Емтихан тексеру	Астана-Достық	209
Емтихандар	Астана-Достық 2	265
Қарыз тізімі	Атырау-Достық	647
Report	Ақтау-Достық	268
Lesson hours per week	Ақтөбе-Достық	284
Study price	Достық тіл курсы	28
Discountss	Кокшетау-Достық	93
Оқушылар тізімін жүктеу	Орал-Достық	29
Оқушылар тізімін көру	Павлодар-Достық	106
Төлемдерді көру	Семей-Достық	90
ID Card	Тараз-Достық	621
My account	Шымкент-Достық	375
Create content	Экибастуз достық	22
Administer	Қарағанды-Достық	202
Files	Қостанай-Достық	183
Log out	Қызылорда-Достық	89
	Өскемен-Достық	110

Picture 15 – Number of Students in each Branch.

By managing of branches it is possible to easily get rating of all students according to their examination results. Also branch rating is also generated according students' performance. So rating of students and branches are exhibited monthly.

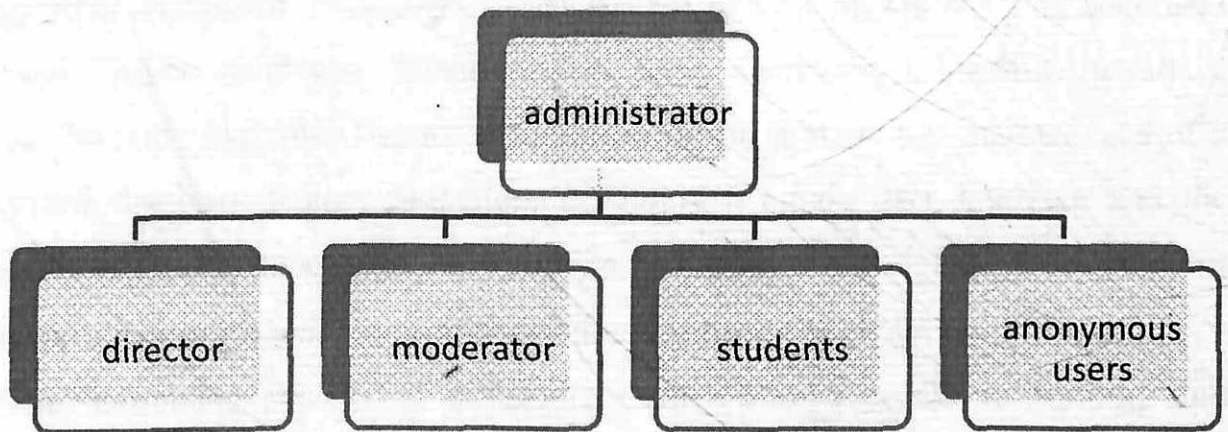
Roles.

dostykbilim_role table assigns roles of users. There are 5 roles:

- anonymous user
- student

- moderator
- director
- administrator

The hierarchy of roles shown in picture 16.



Picture 16 – The hierarchy of roles

CONCLUSION

In this thesis an automated management system developed that facilitates the various activities taking place “Dostyk” Educational Centre.

“Dostyk” Educational Centre working to build an automated information management system of 16 branches. The system is built on the basis of document databases, online databases, historical databases, databases, e-learning materials, distance learning systems. The main functions of the system are: maintenance of a centralized database system operation, providing a single user interface and the formation of typical documents, the creation of a centralized digital library, support for distance education and independent testing, exchange of electronic information.

The automated system of electronic testing allows access to testing; find information about training, finding the necessary test items; exhibit marks for testing, perform the update database of test items.

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