

**Azerbaijan Republic
Ministry of Education**

**Khazar University
School of Engineering and Applied Science**

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THESIS

**Development of University Management
Information systems**

Specialty: Computer Engineering and Management

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Preface

The role of the computer and Information System at the University

As it is known, western educational system is applied in sovereign states that appeared after the decline of the Soviet Union. This system, when compared with the former Soviet educational system is more progressive. Such educational system basically is applied in several private high schools (for example, Gafqaz University, Western University) of the republic. To raise the level of education in such schools, informatization of management and teaching process is more advisable. But in spite of this, problems of establishing information management system at universities of such educational system have not been studied yet.

From this point of view, we tried to create structure and database for the establishment of information management systems in private high schools of western educational system. When creating structure and database of information management system, we chose Khazar University as an example.

Thesis basically consists of Introduction, 3 Chapters and Conclusion.

In first chapter “The role of the computer and Information System in the University of Europe education system” the establishment of information system was investigated from the point of rising the education and management.

Current IT Scheme is described in Chapter 2. The same time university IT scheme is presented.

In order to create convenient relationship within the University each section has to have database. In Chapter 3 Database for SEAS students is given like an example. It is created using Microsoft Access 97. To get needed information it is convenient to use query tables.

Needed program and technical guarantee for Information System that will be established at a high school, depend on the structure of that high school and its

location. From this viewpoint, there will be given basically minimum information that can be needed.

Globalisation of trade, the emergence of information economies, and the growth of the global communications networks have recast the role of information systems in business and management. The global communications networks is becoming the foundation for new business models, new business processes, and new ways of distributing knowledge.

Knowledge is a uniquely human trait. It is the ability to use one's education, experience, values, and expertise as a framework for evaluating data, information and other experiences to choose a response to a given situation.

Knowledge resides in the individual and collective minds of the organization, and often becomes institutionalized in the documents, processes, and practices of the company. What makes knowledge valuable to most organizations, however, is that it provides the ability to make better and faster decisions.

Knowledge management (KM) practices focus on this human aspect of knowledge. Best practices, core competencies, communities of practice, cross-functional teams, and case-based learning are examples of management techniques that support the development and sharing of knowledge in an organization.

Emerging technologies such as discussion databases, document management, Internet search capabilities, case-based reasoning, rule-based systems, data mining, and neural networks are powerful tools that can improve organizational communications and decision-making performance. To be effective however, technology must be aligned with and support the human and selected management practices of the organization.

Information Management utilizes these management practices and emerging technologies to support the human art and management science of underwriting.

Underwriters are expected to analyse and price risks to meet customers' needs for risk management while containing loss within acceptable levels to assure adequate cash flow and return on premium.

Underwriters ask questions, gather information, analyse data, and leverage the knowledge and experience of the organization to make decisions. The higher the probability or potential size of loss, the more questions, information, data, knowledge and experience involved in the underwriting decision-making process.

Chapter 1

The current condition and possibilities, and development directions of the up-to-date computer Information System. (In terms of management)

Globalization of the world's industrial economies greatly enhances the value of information to the firm and offers new opportunities to businesses. Today, information system provide the communication and analytic power that firms need for conducting trade and managing businesses on global scale. Controlling the far-flung global corporation – communicating with distributors and suppliers, operating 224 hours a day in different national environments, servicing local and international reporting needs – is a major business challenge that requires powerful information system responses.

Globalization and information technology also bring new threats to domestic business firms: Because of global communication and management systems, customers now can shop in a worldwide marketplace, obtaining price and quality information reliably, 24 hours a day. The phenomenon heightens competition and forces firms to play in open, unprotected worldwide markets. To become effective and profitable participants in international markets, organizations need powerful information and communication systems.

The knowledge and information revolution began at the turn of the twentieth century and has gradually accelerated. By 1976 the number of white-color workers employed in offices surpassed the number of farm workers, service workers, and blue-color workers employed in manufacturing. Today, most people no longer work on farms or in factories but instead are found in sales, education, healthcare, banks, insurance firms, and law firms; they also provide business services like copying, computer programming, or making deliveries. These jobs primarily involve working with, distributing, or creating new knowledge and information. In fact, knowledge and information work now account for significant 60 percent of the American gross national product and nearly 55 percent of the labor force.

Knowledge and information are becoming the foundation for many new services and products. Knowledge –and information-intense products such as computer games require a great deal of learning and knowledge to produce.

Intensification of knowledge utilization in the production of traditional products has increased as well. This trend is readily seen throughout the automobile industry where both design and production now rely heavily on knowledge-intensive information technology. During the past decade, the automobile producers have sharply increased their hiring of computer specialists, engineers, and designers, while reducing the number of blue-collar production workers.

New kinds of knowledge-and informatio0n –intense organizations have emerged that are devoted entirely to the production, processing, and distribution of information. For instance, environmental engineering firms, which specialize in preparing environmental impact statements for municipalities and private contractors, simply did not exist 30 years ago.

In a knowledge –and information-based economy, information technology and systems take on great importance. Knowledge-based products and services of great economic value, such as credit cards, overnight package delivery, and worldwide reservation systems, are based on new information technologies. Information technology constitutes more than 70 percent of the invested capital in service industries like finance, insurance, and real estate.

Across all industries, information and the technology that delivers it have become critical, strategic assets for business firms and their managers. Information systems are needed to optimize the flow of information and knowledge within the organization and to help management maximize the firm's knowledge resources. Because the productivity of employees will depend on the quality of the systems serving them, management decisions about information technology are critically important to the prosperity and survival of a firm.

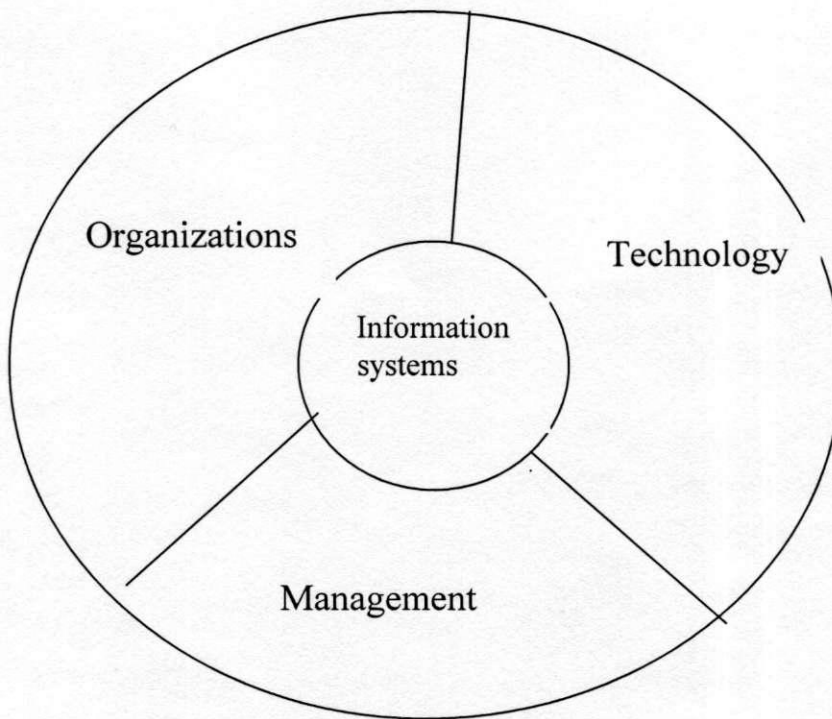
There has been a transformation in the possibilities for organizing and managing. Some firms have begun to take advantage of these new possibilities.

The traditional business firm was – and still is – a hierarchical, centralized, structured arrangement of specialists that typically relies on a fixed set of standard operating procedures to deliver a mass-produced product (or service). The new style of business firm is a flattened (less hierarchical), decentralized, flexible arrangement of generalists who rely on nearly instant information to deliver mass-customized products and services uniquely suited to specific markets or customers. This new style of organization is not yet firmly entrenched; it is still evolving. Nevertheless, the direction is clear, and this new direction would be unthinkable without information technology.

The traditional management group relied- and still does – on formal plans, a rigid division of labor, formal rules, and appeals to loyalty to ensure the proper operation of a firm. The new manager relies on informal commitments and networks to establish goals (rather than formal planning), a flexible arrangement of teams and individuals working in task forces, a customer orientation to achieve coordination among employees, and appeals to professionalism and knowledge to ensure proper operation of the firm. Once again, information technology makes this style of management possible.

Information technology is bringing about changes in organization that make the firm even more dependent than in the past on the knowledge, learning, and decision making of individual employees.

From a business perspective, an information system is an organizational and management solution, based on information technology, to a challenge posed by the environment. Examine this definition closely because it emphasizes the organizational and management nature of information systems: To understand information systems – to be information systems literate as opposed to computer literate – a manager must understand the broader organization, management, and information technology dimensions of systems and their power to provide solutions to challenges and problems in the business environment. Its discretion is shown below:



Information systems are more than computers. Using information system effectively requires an understanding of the organization, management, and information technology shaping the systems. All information systems can be described as organizational and management solutions to challenges posed by the environment.

Information systems are a part of organizations. Indeed, for some companies, such as credit reporting firms, without the system there would be no business. The key elements of an organization are its people, structure and operating procedures, politics, and culture.

Managers perceive business challenges in the environment; they set the organizational strategy for responding; and they allocate the human and financial resources to achieve the strategy and coordinate the work. Throughout, they must exercise responsible leadership. Management's job is to "make sense" out of the many situations faced by organizations and formulate action plans to solve

organizational problems. The business information systems described in this book reflect the hopes, dreams, and realities of real-world managers.

But less understood is the fact that managers must do more than manage what already exists. They must also create new products and services and even re-create the organization from time to time. A substantial part of management is creative work driven by new knowledge and information. Information technology can play a powerful role in redirecting and redesigning the organization.

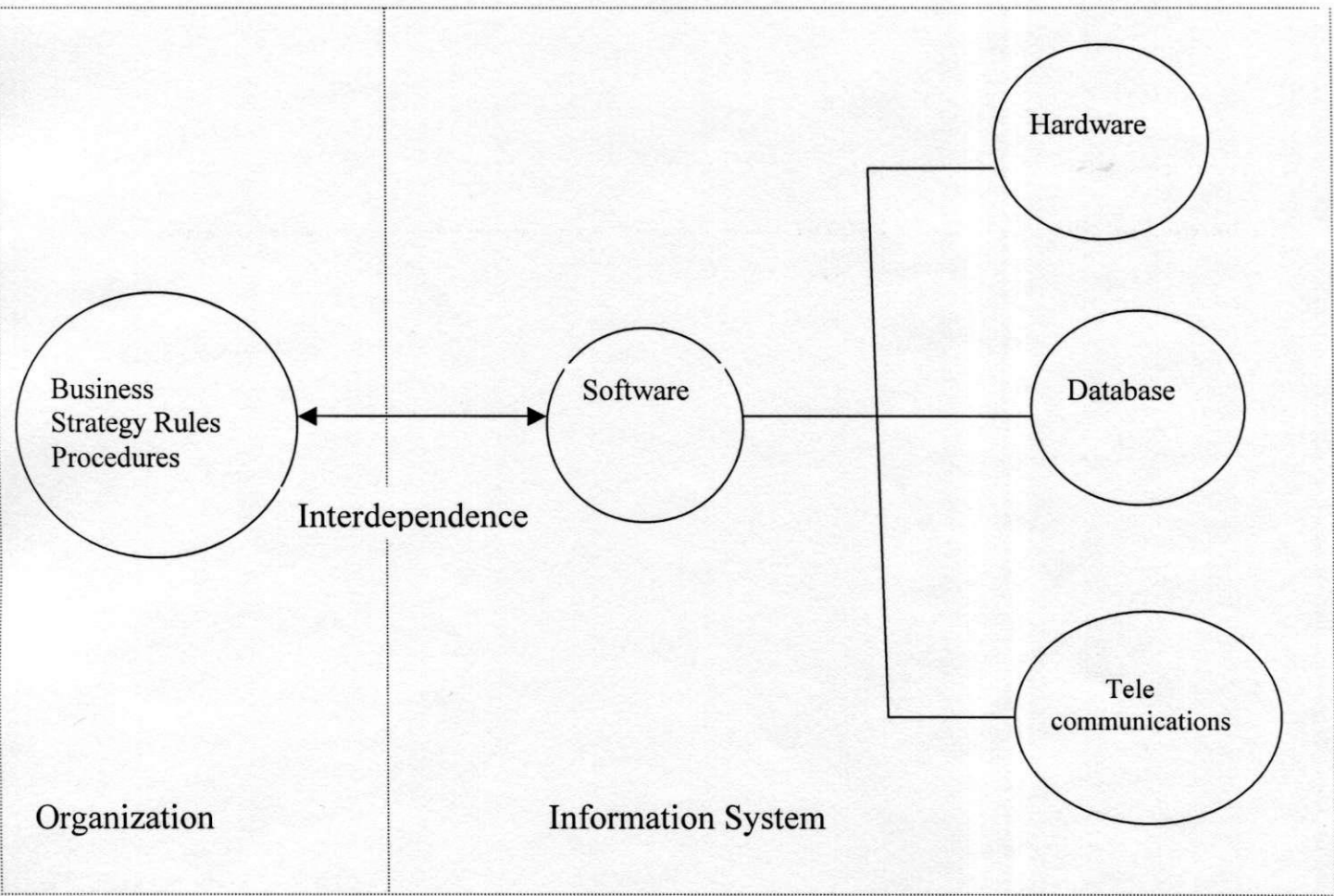
It is important to note that managerial roles and decisions vary at different levels of the organization. Senior managers make long-range strategic decisions about products and services to produce. Middle managers carry out the programs and plans of senior management. Operational managers are responsible for monitoring the firm's daily activities. All levels of management are expected to be creative, to develop novel solutions to a broad range of problems. Each level of management has different information needs and information system requirements.

MIS combines the theoretical work of computer science, management science, and operations with a practical orientation toward building systems and applications. It also pays attention to behavioral issues raised by sociology, economics, and psychology.

Experience academics and practitioners leads us to believe that no single perspective effectively captures the reality of information systems. Problems with systems – and their solutions – are rarely all technical or all behavioral.

Information systems cannot be ignored by managers because they play such a critical role in contemporary organizations. Digital technology is transforming business organizations. The entire cash flow of most Fortune 500 companies is linked to information systems. Today's systems directly affect how managers decide, how senior managers plan, and in many cases what products and services are produced. They play an strategic role in the life of the firm. Responsibility for information systems cannot be delegated to technical decision makers.

In contemporary systems there is a growing interdependence between organizational business strategy, rules, and procedures and the organization's information systems. Changes in strategy, rules, and procedures increasingly require changes in hardware, software, databases, and telecommunications. Existing systems can act as a constraint on organizations. Often, what the organization would like to do depends on what its systems will permit it to do.



One reason information systems play such a large role in organization and affect so many people is the soaring power and declining cost of computer technology. Computing power, which has been doubling every 18 month, has improved the performance of microprocessors 25,000 times since their invention more than 25 years ago. With powerful, easy-to-use software, the computer can crunch numbers,

analyze vast pools of data, or simulate complex physical and logical processes with animated drawings, sounds, and even tactile feedback.

The soaring power of computer technology has spawned powerful communication networks that organizations can use to access vast store houses of information from around the world and to coordinate activities across space and time. These networks are transforming the shape and form of business enterprises and even our society.

The world's largest and most widely used network is the INTERNET. The Internet is an international network of networks that are both commercial and publicly owned. The Internet connects hundreds of thousands of different networks from over 200 countries around the world. More than 150 million people working in science, education, government, and business use the Internet to exchange information or perform business transactions with other organizations around the globe.

The explosive growth in computing power and networks, including the Internet, is turning organizations into networked enterprises, allowing information to be instantly distributed within and beyond the organization. This capability can be used to redesign and reshape organizations, transforming their structure, scope of operations, reporting and control mechanisms, work practices, work flows, products, and services. New ways of conducting business electronically have emerged.

Chapter 2

Functional structure and content of University Information System

Information systems are essential for the life of the University. As we know information systems can be either computer-based or manual. Manual systems use paper- and-pencil technology. The University uses half-automation technology. Although 66 computers at the University Departments are connected to the University Network System.

As we know computer hardware and software are only part of an information systems. Electronic computers and related software programs are the technical foundation, the tools and materials, of modern information systems. Software are sets of operating instructions that direct and control computer processing. There are enough computer hardware at the University.

In the following schemes we have described the ideas about how modern communications may be within and out of the University.

We are going to focus on some parts of the University, describe the relationship between them.

There is great relationship between these sections, so that they are not able to work without each other. If they work using information system, it will improve planning, decision making, leading and control process at the University.

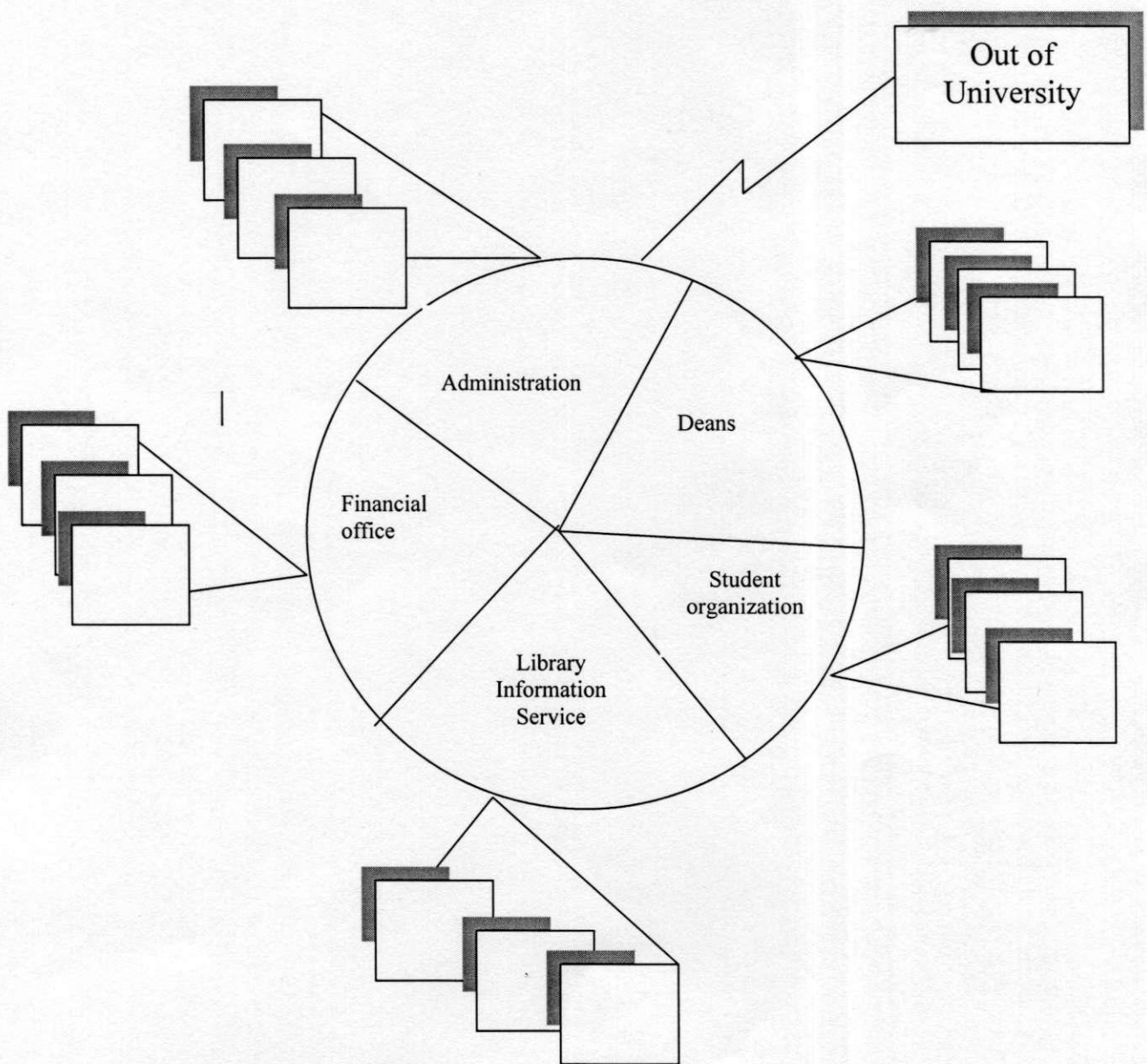
When Departments get information from other sections depending on their needs they will use Read-only options. Half-automation technology creates some difficulties and takes much time. For example, if deans want to get information about a student he has to ask from Student committee. Then at that department as they do not have date base of facts about information they will open folders and get facts about him.

The same problem can occur with employees too. At the Human Resources department there is not date base about the employees.

We suggest first of all each department has to create its own date base that will allow other departments to use the needed information. Deans should have access to

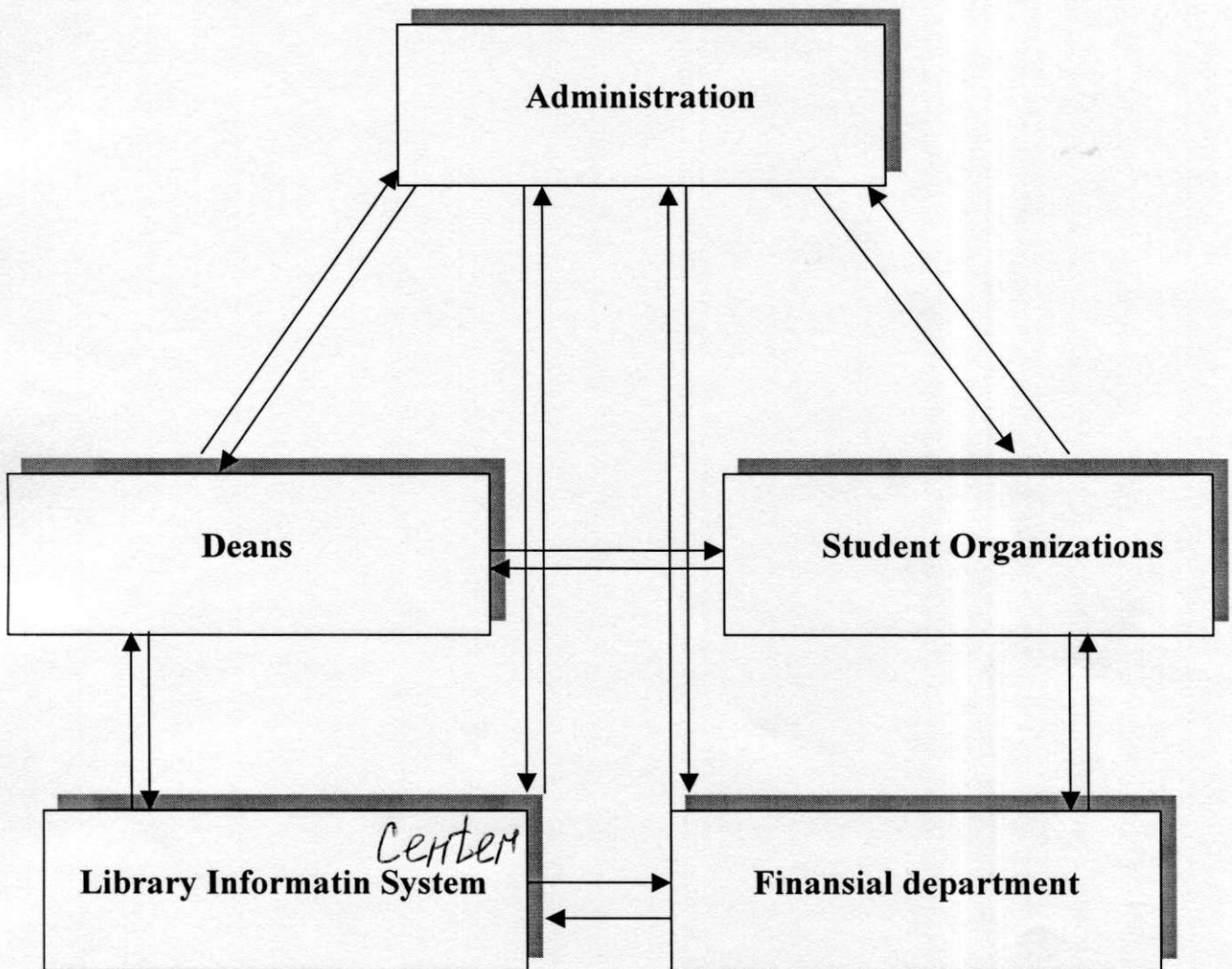
Student Organization database where he or she can get all the information about students. Every instructor will be able to access Library database and get information about publications. It will be better give every student chance to check his grades using The Registration and Record Office database. Each student will be able to get information only about his grades. A student will choose subjects using his access to Deans office, from the file prepared for this goal.

We describe here all information sources from where Administration, Financial office, Library Information Service, Deans and Student Organization get information.



Administration, Deans, Financial office, Library Information System and Student organization work connected with each other. As using half-automation system they lost much time.

Here are relations between those parts.



There's some descriptions of several sections of University

Short tour around University will describe the difficulties of work without information system. According to them we are able realize what kind of information they could pass each other.

Let us have a short trip around Khazar University.

Library and Information Services

The Khazar University Library and Information Services (KU LIS) mission is to promote reform in education by developing a modern learning laboratory, serving as a gateway to the world of information, and introducing readers to the culture of information use.

The main purpose of the KU LIS is to provide an effective information service to improve teaching, provide learning and research opportunities and to increase academic achievement. To attain that end, the KU LIS is working to become a leading information and research center in Azerbaijan.

The KU LIS primarily meets research, instructional and informational needs of the KU Community, but in accordance with the Rules of Membership, serves the public as well.

To support the academic goals of KU as well as the interests of citizens, the KU LIS collects printed and electronic materials in the fields of Business Studies, Economics, Education, Social Sciences, Political Science, International Relations, Legal Studies, Arts and Literature, History, the Medical Sciences, Engineering and Environmental Studies. Besides purchases, the LIS collections have grown through donations and various grants, allowing development of target collections. About 70% of the library materials are in English language. The KU LIS has an extensive reference collection including monolingual and bilingual dictionaries and encyclopedias. The general library collection consists of materials in Azeri, English, Russian, Turkish, French, German, and other modern European and Oriental languages.

To facilitate physical access to information, a policy of self-service has been chosen, with open access to the stacks located within the reading hall areas. The holdings are classified and arranged according to the Dewey Decimal Classification System. Librarians assist users in finding relevant information. Available books can be borrowed for a fixed period as well as used in the quiet study spaces offered in the reading rooms. Modern computer workstations connected to the KU local computer network as well as to the Internet are available to users. All printed English-language items are searchable through the KU LIS OPAC (On-line Public Access Catalog). Users can also use reference CD-ROM databases available through the local CD-ROM server and conduct information search in full-text databases over the Internet. KU LIS affiliates with other academic and public libraries of Baku. Relationships with various international academic libraries are also being developed.

Student Organizations play main role in the University

The Student Union (SU) is the main student organization of KU; it is governed by the Student Senate composed of the SU President, Vice-President and Committee leaders. Although each University student is eligible to become a member of the Union, the student must pass the selection procedures of the Student Senate.

It is available to get information about students, their activities, about cultural activities of University from this organization.

The Center for International Students and Scholars

This Center provides full time support services for the Internationals visiting the University for studying, research, teaching or other purposes. Support services include:

- Visa registration
- Arrival arrangements
- Housing information and host family programs
- Orientation programs on personal, financial, legal, health-related needs, national values and culture

- Meeting arrangements, including planning programs and activities for internationals and their families)
- City guidance

From this center we can get information about the people who come from abroad, both scholar and student.

The Registration and Records Office

The Registration and Records Office manages all information necessary for the evaluation of a student's progress. Students must report to this Office about any changes they make while registering.

Students may obtain two types of information from the Registration and Records Office:

- Official Transcripts
- Grade Lists

The Official Transcript provides information about the academic progress of a student, including classes, grades and credits for each semester. It also includes notes about other activities of the student such as withdrawn, transferring, Dean's Honor List, etc. The Grade List contains analyzed information about the cumulative progress of the student for each sub-division. This information is useful in planning and in finding solutions to a student's problems.

The Registration and Records Office is also responsible for preparing statistics on individual departments and the University as a whole. Information includes lists of classes, statistics about the student registration (graduate and undergraduate), different comparative departmental and school statistics, etc. Such statistics can be useful and interesting as academic departments and the Dean's Offices make plans for successive terms.

Research in the field of Information Technology and Educational Administration is an integral part of the activities of the Registration and Records Office.

The Career Center

Career experts from European and American Universities provide ongoing support to the newly established Center through training its personnel and donating library and information resources.

The Center assists University students in the transition from undergraduate and graduate studies to careers, by offering an opportunity to explore career options through consultation and by providing access to materials related to career development, including online resources, and a wide variety of alternative services.

Academic departments give facts to Administration, Deans, Library and Information Services.

Department of Applied and Medical Physics offers a wide range of courses in applied and medical physics, such as general physics, medical physics, biophysics, astronomy, semiconductor and dielectric physics, electro physics, physical bases of medical diagnostics and therapeutics and etc.

Department of Arts and Cultures

The main objective of the Department is to provide opportunities for all students to study arts, music, cultures and to practice certain fields. The Department offers elective courses and professional training in music, dancing, chorus and costumes design. These courses constitute a part of the University Requirements. Art History, World Arts and Cultures, particularly Asian and European Cultures, are also taught in the Department. In addition, this Department plays a key role in organizing cultural activities at Khazar University. It is possible to get information about the cultural activities at University. Using the date base it is not difficult to get any cassette of the special date.

The Department of Azerbaijani Philology

Such University requirements courses as Azerbaijan Language and Azerbaijan Literature are obligatory for all KU undergraduate students, no matter what their major is, and are being taught due to the standards of the newly developed programs by the Department.

Department of Biological Sciences

The Department of Biological Sciences is multidisciplinary and has strengths in the fields of cell biology, membranology, genetics and environmental biology.

The Department encompasses a wide breadth of teaching with particular emphasis on Molecular, Cellular and Developmental Biology, Human Anatomy, Genetics, Microbiology, Ecology and Environmental Biology.

Department of Chemistry and Biochemistry

Nowadays the department is practicing in the School of Engineering and Applied Science the following subjects on chemistry:

- chemistry
- physical chemistry
- oil chemistry
- environmental chemistry

The following subjects are taught in the School of Medical Sciences:

- organic chemistry and chemical analysis
- biochemistry

Chemistry is implied as an elective for the General Education Requirements for students of other schools of the university.

Department of Computer Science

- Computer Science (BS)
- Computer Engineering and Management (BS)
- Computer Science and Management (MS, Ph.D.)
- Computer science and computer engineering are concerned with the modeling, analysis, design and applications of computer-related systems.

Department of Eastern Languages

The Department is developing strongly specified curricula for the Arabic and Persian languages, which at the moment have the status of the minors, on the one hand (The School of Humanities), and Foreign languages, on the other.

Department of Economics and Management

The Department of Economics and Management (DEM) offers flexible and innovative undergraduate, graduate and professional degree programs that cover the main areas of business majors. All of the departmental programs are designed to meet the requirements of the students and professionals through building a strong platform for their future career development.

Department of English

Today it is the largest department at Khazar University. The faculty members of the Department include very experienced teachers of English. Most of them represent a wide range of expertise in language-related research. Department of English intends that its students will acquire strong communication skills, establish research methods, develop flexibility in facing complex situations, and increase their awareness of the humanities tradition. In its offerings, the department serves the traditions of language and literature, while it responds to the needs of today's students.

Department of History

is a university division with wide educational and research interests. It offers comprehensive undergraduate programs providing fundamental courses on the history of world civilizations, which cover such issues as history of ancient and medieval human societies, and history of Asian, European and American Societies.

Department of International Relations and Political Science

The academic undergraduate program is interdisciplinary and offers a broad array of courses in international relations, regional studies and political science leading to the Bachelor of Arts degree in International Relations or in Political Science. The department provides its students with a thorough understanding of theory and history as well as superior analytical and critical skills.

Department of Journalism offers both a Bachelor of Art and Master of Art degrees. The Department is specialized in the following three fields of Journalism:

- TV and Radio Journalism
- Newspaper and Magazine Journalism
- Marketing and Advertising in Mass Media

Department of Law

The Department of Law is one of the first academic divisions established at Khazar University. High degree of innovation in both teaching and scholarship is one of the basic orientations of the Department in order to achieve new level of legal education required by the social life.

It is the School's and Department's Administration policy to compose the faculty of the specialists with a broad range of professional experience and wide academic interests and committed to teaching.

Department of Mathematics offers programs leading to Master of Science and Ph.D. degree in Mathematics and Applied Mathematics. Some interdepartmental

programs within Mathematics are available to students willing to combine their interests in Mathematics with other concentrations.

All programs and coursework reflect a broad range of areas in theory and application within the mathematical sciences. There is a choice of courses, which are similar in subject, but different in level.

Department of Medical Sciences is the coordinating centre for specialists in various areas of biomedicine and medicine (Physiology, Clinical Biochemistry, Pharmacology, Clinical Medicine) that ensures implementation of the Department's general task of instruction and professional training of highly qualified medical cadres for taking up careers in various fields of medical sciences.

Department of Petroleum and Environmental Engineering

Department offers BS, MS, and Ph.D. programs in the majors:

- Petroleum Engineering and Management
- Environmental Engineering and Management

Petroleum Engineering is concerned with exploration, drilling and production of oil and gas. The program graduates are able to create innovative knowledge and technology in drilling, production and reservoir engineering topics for oil and gas resources and use their capabilities to find solutions to the international, societal and environmental problems related to petroleum industry.

Department of Philosophy and Social Sciences

The department aimed to provide teaching and research in various fields of humanities and social sciences. The mentioned spheres were declared as the two branches of academic orientation of the department. The progress of the university and intensive growth of the department allowed to differentiate from the latter of some its strengthened divisions.

Department of Psychiatry and Behavioral Sciences

The department of Psychiatry and Behavioral Sciences is organized as an academic unit aimed to provide teaching and research in various fields of psychology and psychiatry.

The Department offers interdisciplinary courses related to the mental health issues for medical students. These courses cover historical and theoretical questions of behavior, theories of personality, basic psychopathology and psychological consequences of physical illness.

Department of Western Languages

Tremendous social significance, sharp need for highly qualified specialists having two different languages, and the claims laid to the University Education policy were the principal imperatives for creation of the department of Western Languages. French, German, Spanish and some other languages are taught at the Department.

Research and Training Centers give information to information to Administration and to each other. They all use LIS' services to get facts from departments and Student organization.

The Dictionary and Encyclopedia Center

The Dictionary and Encyclopedia Center (DEC) of Khazar University, has evolved into one of the leading linguistic research centers within the University. The University furnished the Center with all necessary equipment for accomplishing intended projects. The DEC has a wide range of lexicographic literature, numerous dictionaries and encyclopedias.

The Translation Studies Center

The main objective of The Khazar University Translation Studies Center (TSC) is to translate the academic, fiction, philosophical and technical works that assume importance owing to the West-East synthesis of the Khazar University system of education. The best examples of the spiritual treasure of Azerbaijan culture are being translated into various languages, as well. The Center is involved in research and teaching of translation as subject fields.

Continuing Education Center for Librarians/Information Specialists

The KU Continuing Education Center for Librarians and Information Specialists was established to promote modern, Western-oriented approaches to the professional development of librarians and information specialists in Azerbaijan. The Center addresses an urgent need of the contemporary Azerbaijani society to reconsider the stereotype of the last decade, of the library lagging behind, into the library as a gateway to knowledge, and librarians as the gatekeepers.

The Teacher Training Center

The KU Teacher Training Center (KU TTC) was established to strengthen the community services provided for high school and university level teachers and trainers. The TTC activities have become possible due to the projects run earlier by the KU Center for Education and Information Studies. It offered numerous training programs in different fields of Social Sciences and Humanities, including summer schools in Economics, Human Rights and Library/Information Science (funded by the OSI, Soros Foundation). The KU Academic Quality Assurance Center and the KU Center for Economics and Business Management Education have made sound contributions to this area.

Society's Eastern Department

This Bureau aims to restore and expand research and teaching in the history and culture of the ancient and medieval East.

The Bureau plans to host a series of workshops dedicated to the interrelations of early Eastern cultures, and the interrelation of Azerbaijani culture with cultures of other nations and regions.

Women's Studies Center is a nonprofit organization to improve women's rights at the University as well as on the national and international levels. KU WSC members come from urban and rural areas; they are women of different professions and various national, religious, political and cultural backgrounds. Currently the Center is becoming more and more involved in research and education activities.

From this center we can get information about the workshops topics, about their activities.

Offering Date bases for some sections of University

To realize information system first step is to create date bases for each department.

Here are some examples of date bases.

To create date bases for countries, employees, students will help us in creating other date bases.

Following date bases are for to get information about Student organizations, In addition departments and deans are able use these date bases.

Country

Name field	Type	Length	Description
CC	text	2b	Country code
CN	text	20b	Country name

Date base for students will be used by departments, schools, register office, library, student organization.

Students

Name field	Type	Length	Description
SC	text	2b	Student code
SN	text	20b	Student name
SM	text	20b	Student mid-name
SS	text	40b	Student surname
SBP	text	10b	Student birth place
SB	number	6b	Student birth date
SCA	text	40b	Student's current address
EY	number	10b	Entrance year

Date base of employee will be used by departments, student organization, deans, and library.

Employee

Name field	Type	Length	Description
EC	text	20b	Employee code
EN	text	20b	Employee name
EB	number	5b	Employee birthday
EBP	text	40b	Employee birth place
EF	text	40b	Employee field
ED	text	40b	Employee degree
EPh	number	20b	Employee phone

Date Base for The Center for International Students and Scholars includes following Date Base tables. We use date bases of "Country", "Students", "Employee"

Scholars

Name field	Type	Length	Description
CC	text	2b	Country code
ScN	text	40b	Scholar name
ScB	number	6b	Scholar birth date
ScF	text	50b	Scholar's field
ScD	text	40b	Scholar's degree
ScCA	text	50b	Scholar's current address

For department, for schools and deans one of important date base is date base of subjects

Subjects

Name field	Type	Length	Description
SC	number	2b	Subject code
SN	text	40b	Subject name
SK	number	4b	Subject credits
SH	number	4b	Subject hours

We are also able to create another date base. Deans using it, for example, can find out how many students take English or IMS. Students using this date base are able to

choose the teacher. This data base is important as we always use list of students, teachers or subjects.

Name field	Type	Length	Description
TC	Number	2b	Teacher's code
SC	Number	2b	Student's code
SC	Number	2b	Subject's code

One of the significant area of university is Library. Creating accurate data base for it is very meaningful.

Library and information services

Name field	Type	Length	Description
IN	number	6b	Inventory number
ISBN	number	10b	International Standard Book Number
BA	text	40b	Author of the book
BN	text	60b	Book name
BC	number	2b	Book code
PD	number	10b	Publishing date

Following data base will help to get information about students about how many students use library service and which books are more demanded.

Name field	Type	Length	Description
SC	number	2b	Student code
BC	number	2b	Book code
GD	number	6b	Given date
DL	number	6b	Dead line

Using from the date bases of employee and subjects we can create date base for each academic departments.

Departments

Name field	Type	Length	Description
SC	Number	2b	Subject code
EC	Number	2b	Employee code

These date bases are projects. They could be changed. It will depend on the goal of the section.

The Career Center

Name field	Type	Length	Description
CN	Text	40b	Company names
VP	Text	40b	Vacancy for the position
VR	Text	40b	Vacancy requirement
DL	Number	6b	Dead line for applications

Translation Studies Center

Name field	Type	Length	Description
BN	Text	40b	Books name
AN	Text	40b	Author's name
BP	Number	40b	Book pages

The date base for the Departments of Arts and Cultures

Name field	Type	Length	Description
CC	Number	2b	Cassette code
CN	Text	40	Cassette name
CD	Number	6b	Cassette date
CT	Text	10b	Cassette type

Employment of database for the students of SEAS of Khazar University

A date base management system can be a useful tool, but only if we first carefully design our database to represent our data requirements accurately. In database determine the fields, tables, and relationships needed to satisfy our data and processing requirements. Most data requirements and their resulting database designs are much simpler however, and these are the ones we will consider in following example.

For SEAS students of Khazar University we have created database using Microsoft Access.

There are 12 tables in the database.

Personal data

Profession code

Cities

Majors

Personal comskill

Academic record

Computer skills

Employment record

Languages

Marks

Personal language level

KU SEAS Program

The common structure of database for SEAS students is following:

1. First necessary information is in Table 1.

2. Most of SEAS students are working. To show their profession we have create Table 2, and tried to give profession by code. Name of the table is “Profession code”. Profession name and code are shown in this table.
 3. In the database there is information about students’ hometowns. We give that information using cities code. Table 3.
- In order not to use students’ name every time we use Person Code (PC). That is key code.
4. In Table 4 there is information about students’ majors.
 - 5.Using Table 5 we can know about students’ personal comskill.
 6. There is information about students’ studies years and about the Universities where they got Bachelor Degree in Table 6.
 7. To know the students’ computer skill code we can use Table “Computer skills” Table 7.
 8. It is very important to know SEAS students work address and phone, E-mail and so on. In the table “Employment record” we can get all these. Table 8.
 9. Students speak to or more languages. To identify this we use Table 9 where there is information.
 10. e.g.: Who can speak Azeri, English, Russian, German and etc. It is possible to know the level of language knowledge. We estimate these levels “excellent”, “good”, “poor”. To use them easily we have coded them too. Table 10
 11. Using Table 11 we define every students’ language skill.
 12. Table 12 gives information when student enter the University and what specialist he/she studies.

PERSONAL DATA : Table

Field Name	Data Type	Description
Last name	Text	
First name	Text	
Middle name	Text	
C C	Number	City Code
Address	Text	HOME ADDRESS
Date of brithday	Date/Time	
Telephone h/w	Text	HOME PHONE
E-mail	Text	
PC	Number	Personal code
MjC	Number	Major code
Gender	Text	

PERSONAL DATA : Table

	Last name	First name	Middle name	C C	Address	Date of brit	Telephone	E-mail	PC	Mj	Ger
+	Hasanov	Shakir	Teymur	4	S.Vurgun 2 ap. 23	17.11.1968	613172	T_hasanov@yahoo.com	1	3	mail
+	Talibova	Kamala	Mammad	2	Ganbarov 3, AP.76	02.07.1981	627368	Ktalibova@hotmail.com	2	4	fem:
+	Ismayilova	Nargiz	Xasay	1	Vidadi12, AP.23	01.10.1978	770902	Nnismaxx@hotmail.com	3	1	fem:
+	Huseynov	Mahir	Farman	7	Nizamil ST. 4.AP.32	20.06.1966	445534	Hmahir@khazar.org	4	2	mail
+	Yusubova	Ayna	Baqif	1	Bashir Safarouglu 3. AP.24	05.10.1976	763845	Ayusubova@hotmail.com	5	4	fem:
+	Aliyeva	Aynura	Akif	6	Xagani st.31	03.07.1978	8503118703	Aaliyeva@yahoo.com	6	3	fem:
				0					0	0	

profession code : Table

Field Name	Data Type	Description
Profession name	Text	
Profession code	Number	

profession code : Table

Profession name	Profession code
office manager	1
secretary	2
translator	3
driver	4
accounter	5
marketing manager	6
finance manager	7
teacher	8
security officer	9
*	0

Cities : Table			
	Field Name	Data Type	Description
▶	Name of cities	Text	
	CC	Number	City Code

Cities : Table		
	Name of cities	CC
	Baku	1
▶	Ganja	2
	Shaki	3
	Mingechevir	4
	Moskva	5
	Nakhchivan	6
	Khachmaz	7
*		0

Majors : Table			
	Field Name	Data Type	Description
▶	Major name	Text	
🔑	MjC	Number	Major code

Majors : Table		
	Major name	MjC
▶	Computer engineering	1
	Petroleum engineering	2
*		0

Personal comskill : Table			
	Field Name	Data Type	Description
▶	PC	Number	Personal code
	CSC	Number	Computer skills code

Personal comskill : Table		
	PC	CSC
▶	2	2
	3	2
	4	2
	5	2
	6	3
	10	3
*	0	0

ACADEMIC RECORD : Table

	Field Name	Data Type	Description
▶	NAME	Text	
	CC	Text	City Code
	Dates of study	Text	
	Personal code	Number	

ACADEMIC RECORD : Table

	NAME	CC	Dates of study	Personal code
	Khazar Universuty	1	1992-1996	1
▶	Azerbaijan State University	1	1997- 2001	2
	Khazar University	1	1997-2002	3
	Azerbaijan Civil Engineering Universit	1	1992-1996	4
	Azerbaijan Agricultural Academy	2	1993-1997	5
	Azerbaijan Technological Institute	2	1997-2001	6
*				0

Computer skills : Table			
	Field Name	Data Type	Description
▶	Computer skills code	Text	
	CSC	Number	Computer skills code

Computer skills : Table		
	Computer skill	CSC
▶	Using beginner	1
	User	2
	Advanced user	3
*		0

EMPLOYMENT RECORD : Table			
	Field Name	Data Type	Description
▶	Proffesion code	Number	Profession code
	Company name	Text	
	Dates of employmnet	Text	
?	PC	Number	

EMPLOYMENT RECORD : Table				
	Proffesion code	Company name	Dates of employmnet	PC
▶	7	British petrolium	1996-2001	1
	2	Amoca	2001-current	2
	3	Khazar University	2000-current	3
	6	Alibeyli	1997-current	4
	1	Most Bank	1998-current	5
	5	Space	1999-current	6
*	0			0

Languages : Table		
Field Name	Data Type	Description
Languages	Text	
LC	Number	

Languages : Table		
Languages	LC	
Azeri	1	
English	2	
French	3	
Russian	4	
German	5	
Spanish	6	
Arabic	7	
Chinese	8	
Persian	9	
*	0	

Marks : Table			
	Field Name	Data Type	Description
	Mark	Text	
	MC	Number	
▶			

Marks : Table		
	Mark	MC
▶	Exellent	1
	Good	2
	Poor	3
*		0

Personal language level : Table

Field Name	Data Type	Description
PC	Number	Personal code
LC	Number	Language code
MC	Number	Marks code

Personal language level : Table

	PC	LC	MC
▶	1	1	1
	1	2	2
	1	4	2
	2	1	1
	2	4	2
	2	2	1
	3	1	1
	3	2	1
	4	1	1
	4	2	2
	4	4	1
	5	2	1
	5	4	2
	6	1	1
	6	2	2
	6	4	1

KU MBA PROGRAM : Table			
	Field Name	Data Type	Description
▶	MjC	Text	Major code
	Date of entrance	Text	
⚙	PC	Number	Personal code

KU MBA PROGRAM : Table			
	MjC	Date of entrance	PC
▶	3	1998	1
	4	2001	2
	1	2002	3
	2	2001	4
	4	1998	5
	3	2001	6
*			0

Now we create query using Database for the SEAS students. We should notice that such queries are been using at Universities a lot.

To get useful information about students we create query between the tables. When we create query it is convenient to use codes.

For instance, we need the names of the students, who study specialist of management.

For this we enter code of specialty Parameter Value and click OK. Table 1`

Then we get information according the created query.

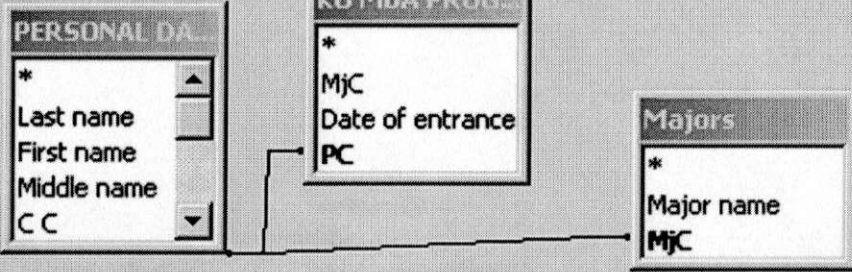
To know the students who know, for example English well we enter the Parameter Value code of the English language. After that we get table-select Query with needed information. Table 2`

Select Query Table 3` show name of the students who enter Khazar University the same year.

By the Select Query Table 4` - we define the students who are the same city. For example code of Ganja is 2. We enter 2 to the Parameter Value window. Then I get the names of students who are from Ganja.

The using rule of queries and their results are following:

entrance years : Select Query



Field:	Last name	First name	Middle name	PC	Date of entrance	MjC	Major name
Table:	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	KU MBA PROGRAM	Majors	Majors
Sort:							
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					[enter]		
or:							

Design | New | X | [Icons]

Name	Description	Modified
Create query in Design view		
Create query by using wizard		
cities1		17.01.200
entrance years		08.01.200
Enter Parameter Value		08.01.200
enter		08.01.200

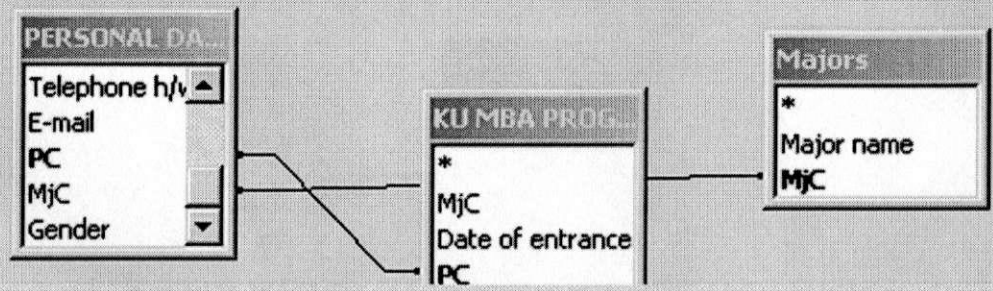
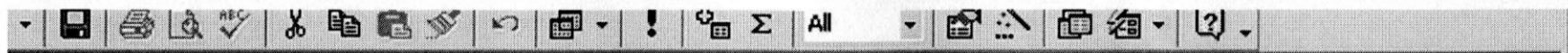
enter

1998

OK

entrance years : Select Query

Last name	First name	Middle name	PC	Date of entrance	MjC	Major name
Hasanov	Shakir	Teymur	1	1998	3	petroleum engineerin
Yusubova	Ayna	Baqif	5	1998	4	enviromental engin

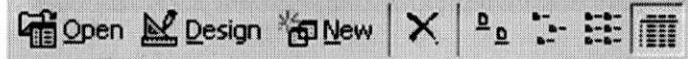


Field:	Last name	First name	Middle name	PC	MjC	Major name
Table:	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	KU MBA PROGRAM	Majors
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					[enter]	
or:						

majorsq : Select Query

Last name	First name	Middle name	PC	MjC	Major name
Huseynov	Mahir	Farman	4	2	computer engineering

students : Database



- Objects
- Tables
- Queries
- Forms

- Create query in design view
- Create query by using wizard
- cities1
- entrance years

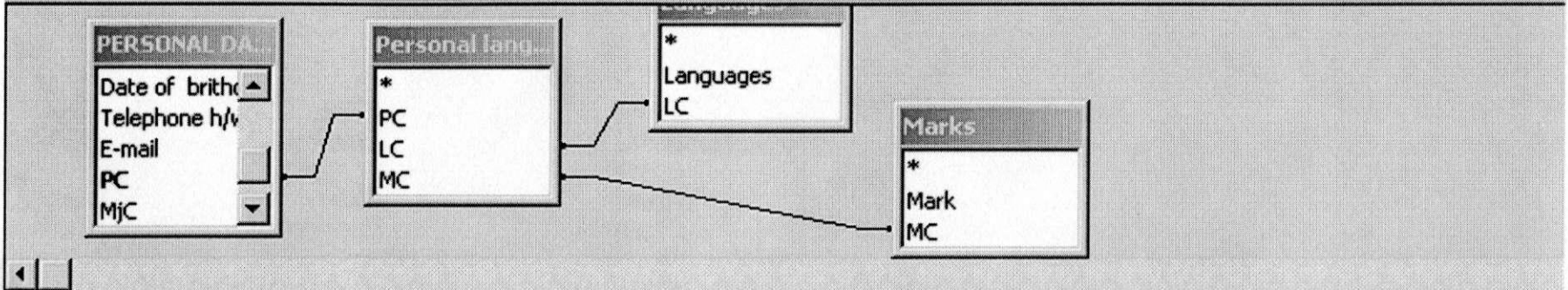
Enter Parameter Value

enter

2

OK Cancel

language : Select Query



Field:	Last name	First name	Middle name	PC	LC	MC
Table:	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	Personal language l	Marks
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:					[ENTER]	
or:						

language : Select Query

Last name	First name	Middle name	PC	LC	MC
Hasanov	Shakir	Teymur	1	2	2
Talibova	Kamala	Mammad	2	2	1
Ismayilova	Nargiz	Xasay	3	2	1
Huseynov	Mahir	Farman	4	2	2
Yusubova	Ayna	Baqif	5	2	1
Aliyeva	Aynura	Akif	6	2	2

students : Database

Open Design New

Objects

- Tables
- Queries
- Forms
- Reports
- Pages
- Groups

Name	Description
Create query in Design view	
Create query by using wizard	
cities1	
entrance years	
language	
majorsq	

Enter Parameter Value

ENTER

2

OK

cities1 : Select Query

PERSONAL DA...

*
Last name
First name
Middle name
CC

Cities

*
Name of cities
CC

Field:	Name of cities	Last name	First name	Middle name	PC	CC
Table:	Cities	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	PERSONAL DATA	Cities
Sort:						
Show:	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Criteria:						[enter]
or:						

Enter Parameter Value

enter

2

OK Cancel

Queries

- Create query by using wizard
- cities1 17.01.20
- entrance years 08.01.20
- language 08.01.20
- majorsq 08.01.20

Forms

Reports

Pages

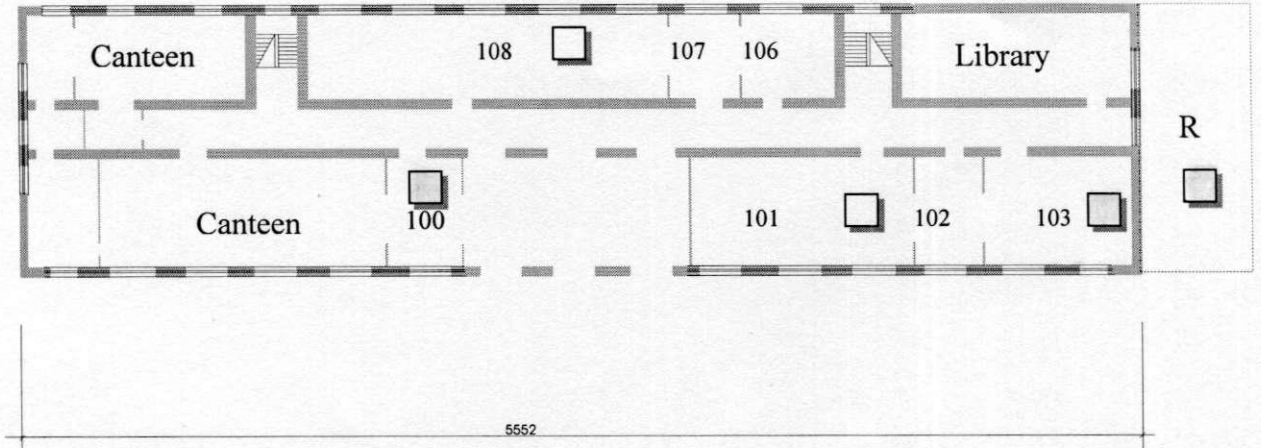
Macros

cities1 : Select Query

Name of cities	Last name	First name	Middle name	PC	CC
Ganja	Talibova	Kamala	Mammad	2	2

**Current and proposed
computerizing scheme of
Khazar University**

I FLOOR



100. Doctor's room

**101 Library Information Service, Natural and applied Sciences,
Reference Training room – 3**

102 Xerox

103 Printing house

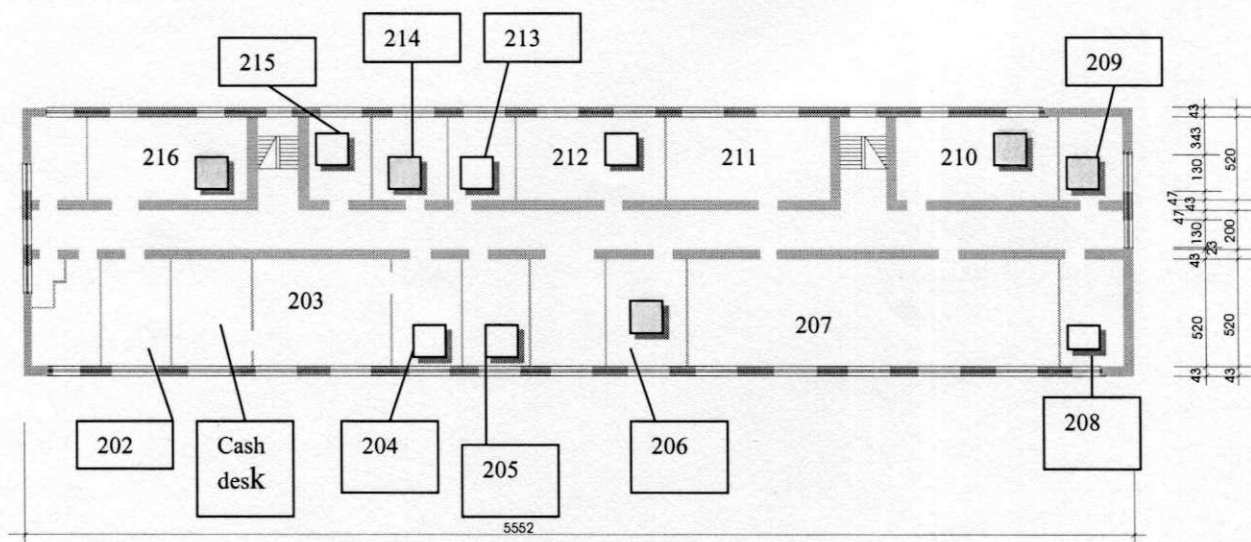
107 Cloak room

106-

108 Library Information Service (Social Sciences, Humanities, Periodicals) - 1

Reference hall -5

II FLOOR



202 Cash desk

203 –

204 Chancellor's office -2

205 Account's department -1

206 Personnel department

207 Assembly hall

208 Career Development Center-2

209 Audio-Video photo Center

210 Department of biological

211 Lecture room

212 Academic Quality Assurance Center –3

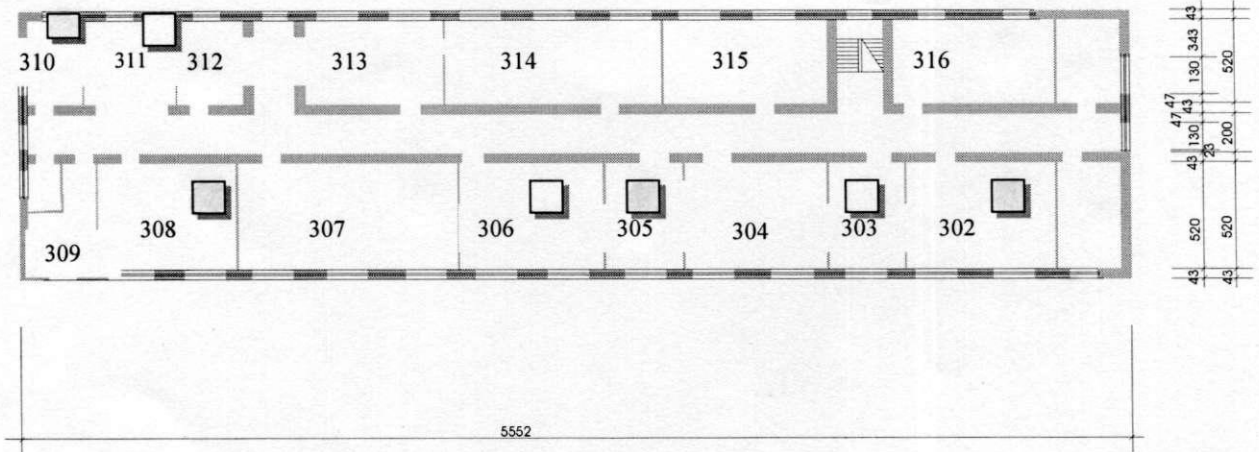
213 Khazar University Press-4

214 Assistant of the chancellor

215 Women Studies Center –1

216 Department of Chemistry and biochemistry

III Floor



310 Administrative department

311 School of Humanities - 1

312 Lecture room

313 Lecture room

314 Lecture room

315 Lecture room

316 Lecture room

309 Lecture room

308 Department of Eastern languages

307 Lecture room

306 School of medical sciences - 1

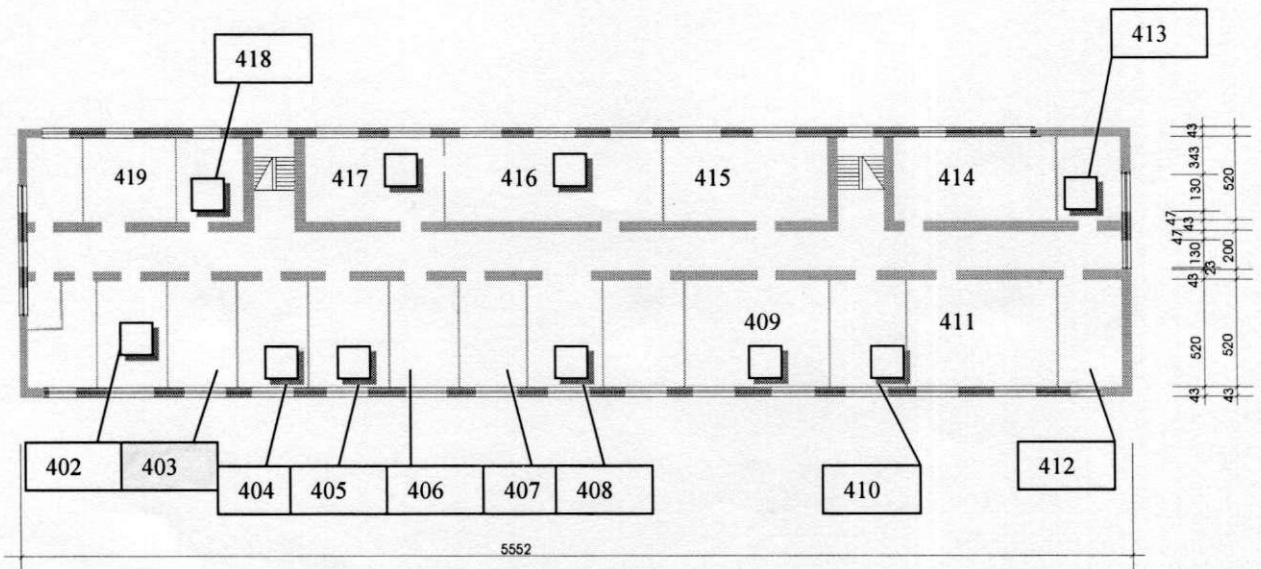
305 Audio-video center

304 Lecture room

303 Department of biology

302 Household manager

IV FLOOR



402 Department of history -1

403 *Student's Committee*

404 School of Economics and management, Deans office -1

405 School of Economics and Management. Master of Business Administration program -1

406 Lecture room

407 Lecture room

408 Translation Studies Center -2

409 Dictionary and Encyclopedia Center- 2

410 Basic English Department -1

411 Lecture room

412 Lecture room

413 School of Engineering and applied science -1

414 Lecture room

415 Lecture room

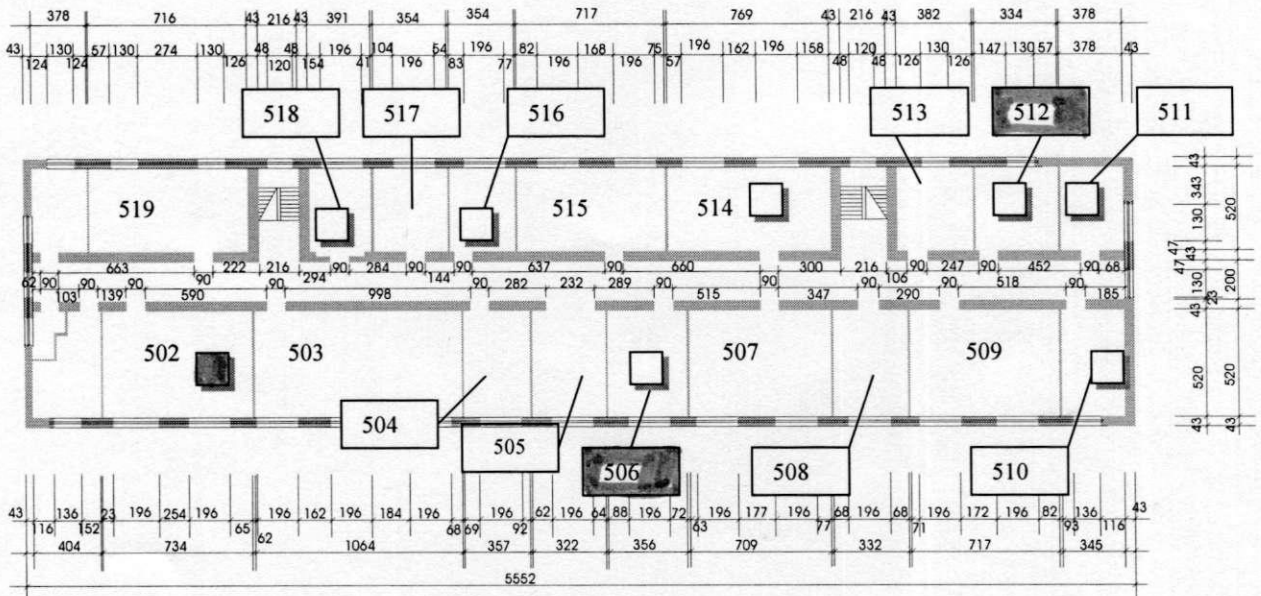
416 Computer Center - 12

417 Department of Engineering and computer Sciences-12

418 Center for Education and Information Studies

419 Pray room

V FLOOR



502 Department of philosophy and social science

503 Laboratory

504 Lecture room

505 Lecture room

506 Student Union

507 Lecture room

508 Lecture room

509 Lecture room

510 Department of Law -2

511 Reception room for clinical clients - 1

512 Legal clinics

513 Laboratory

514 Department of International relations and Political Sciences - 3

515 Lecture room- 1

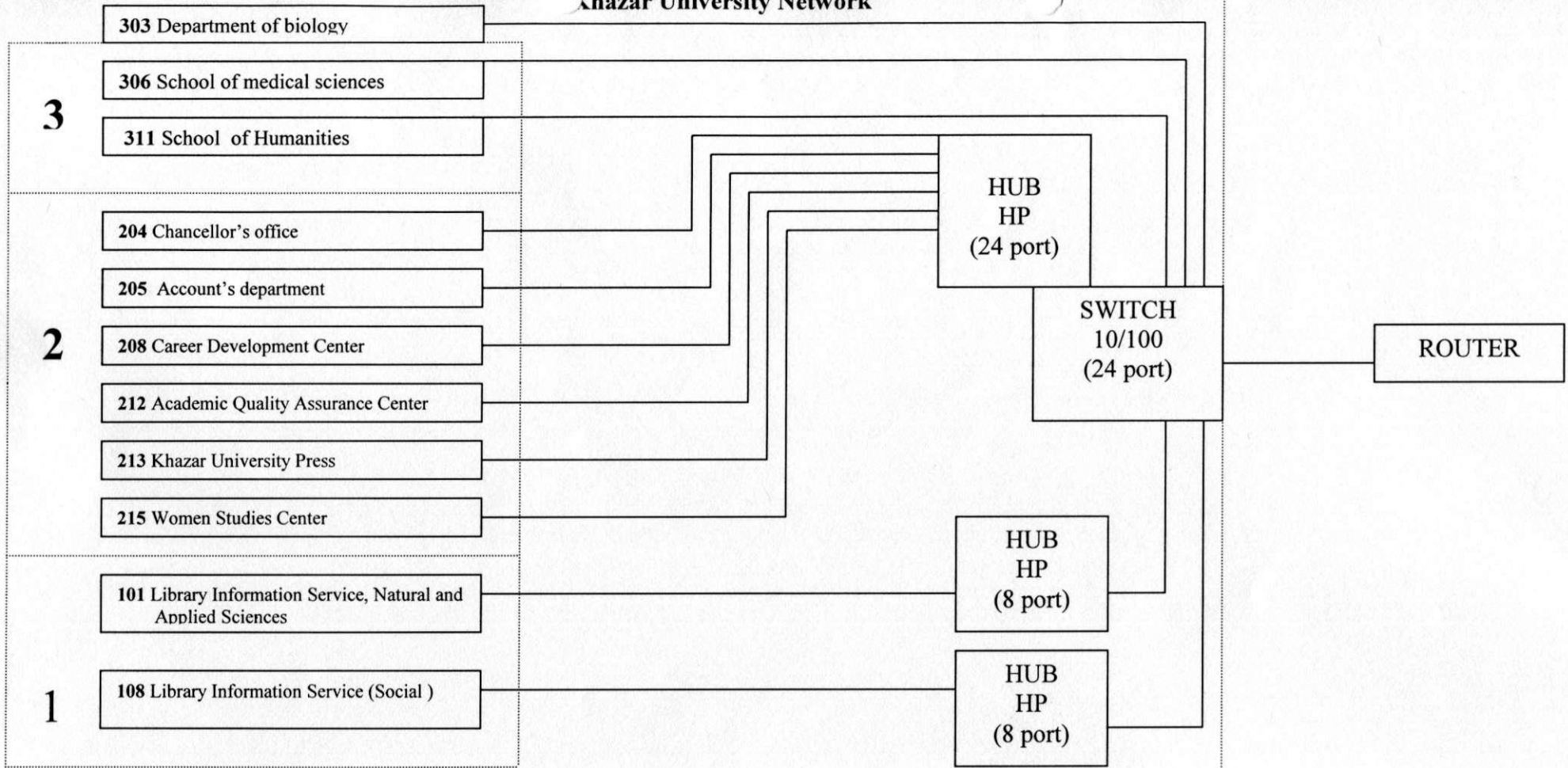
516 The registration and Records Office -1

517 Lecture room

518 School of Law and Social science -1

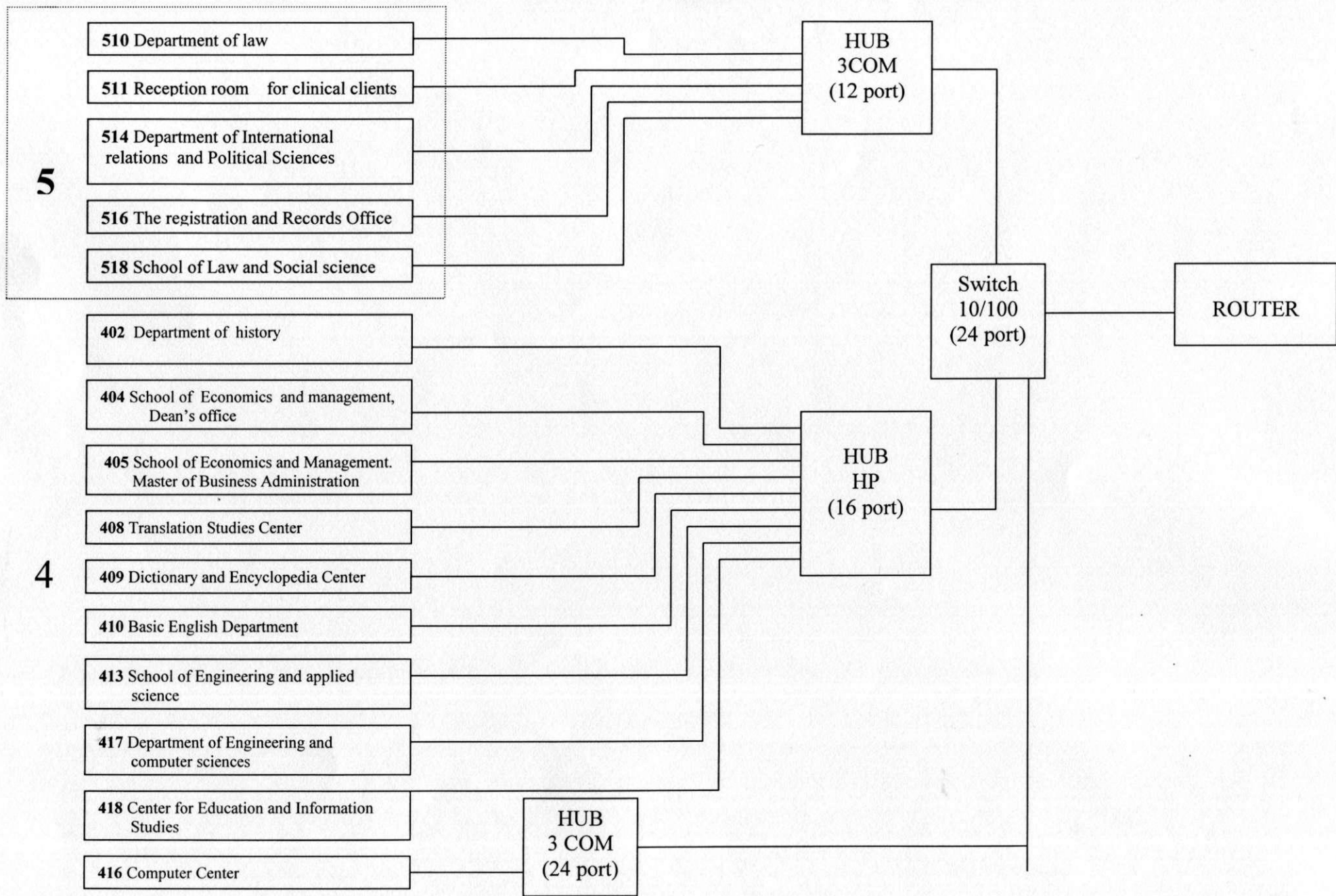
519 Laboratory

Current IT Scheme of Khazar University Network

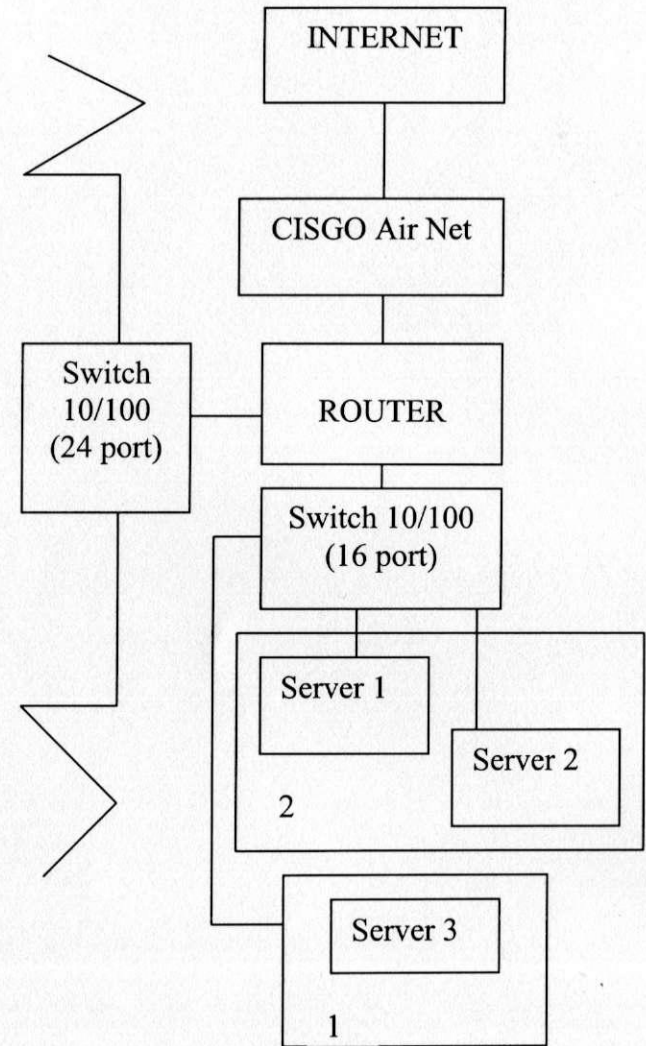


1. Student's Domain
2. Employee's Domain

Current IT Scheme of Khazar University Network



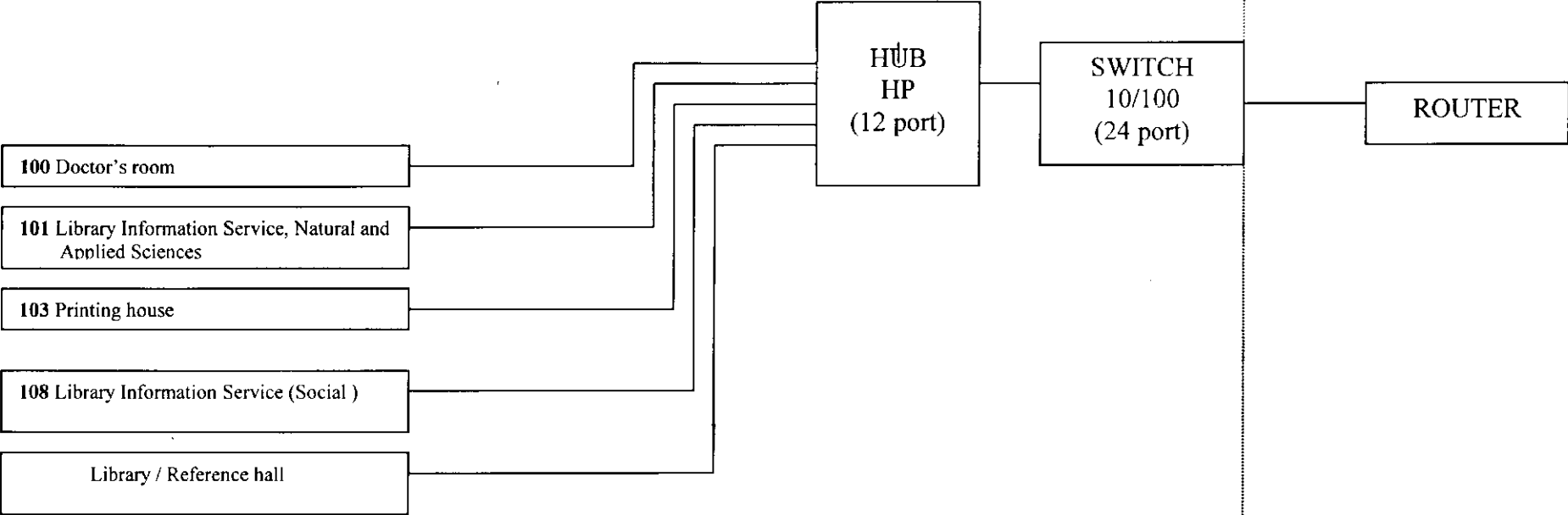
Current IT Scheme of
Khazar University
Network



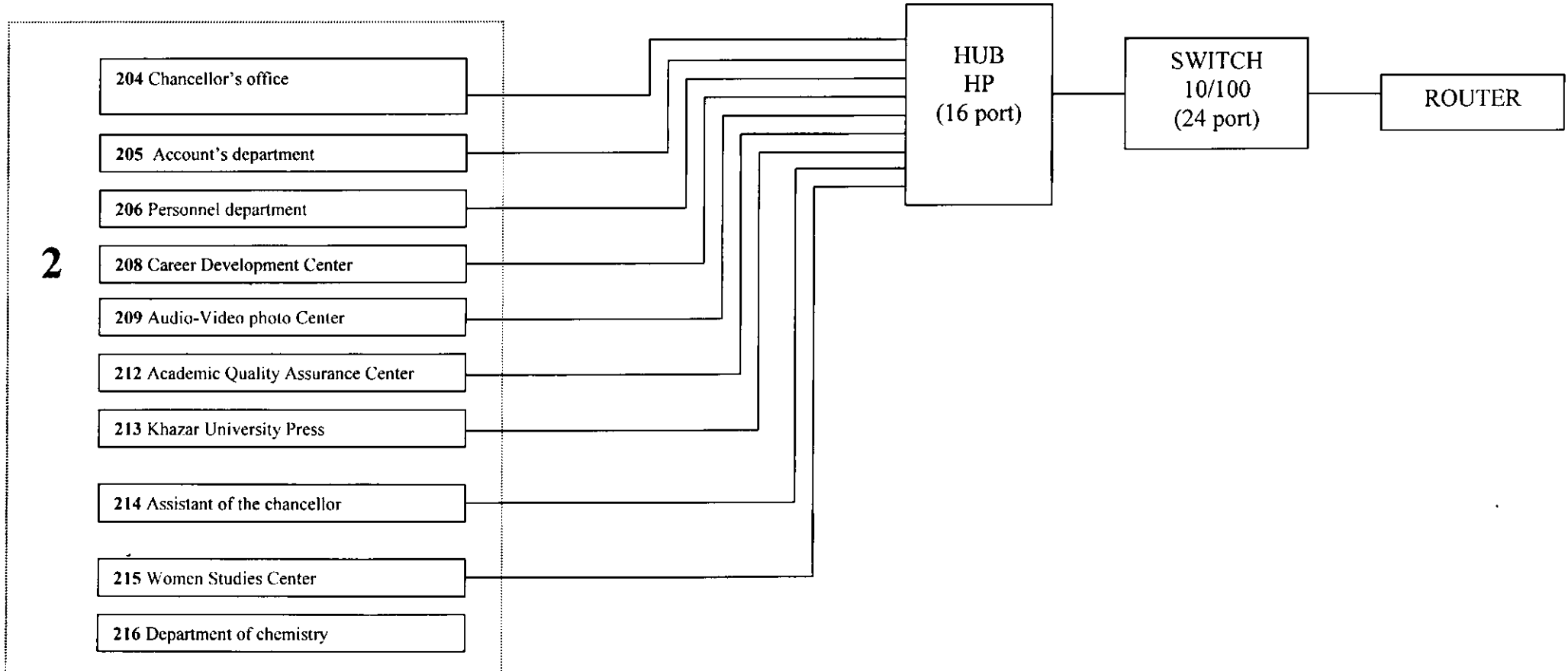
1. Student's Domain
2. Employee's Domain

**Proposed IT Scheme of
Khazar University Network**

1

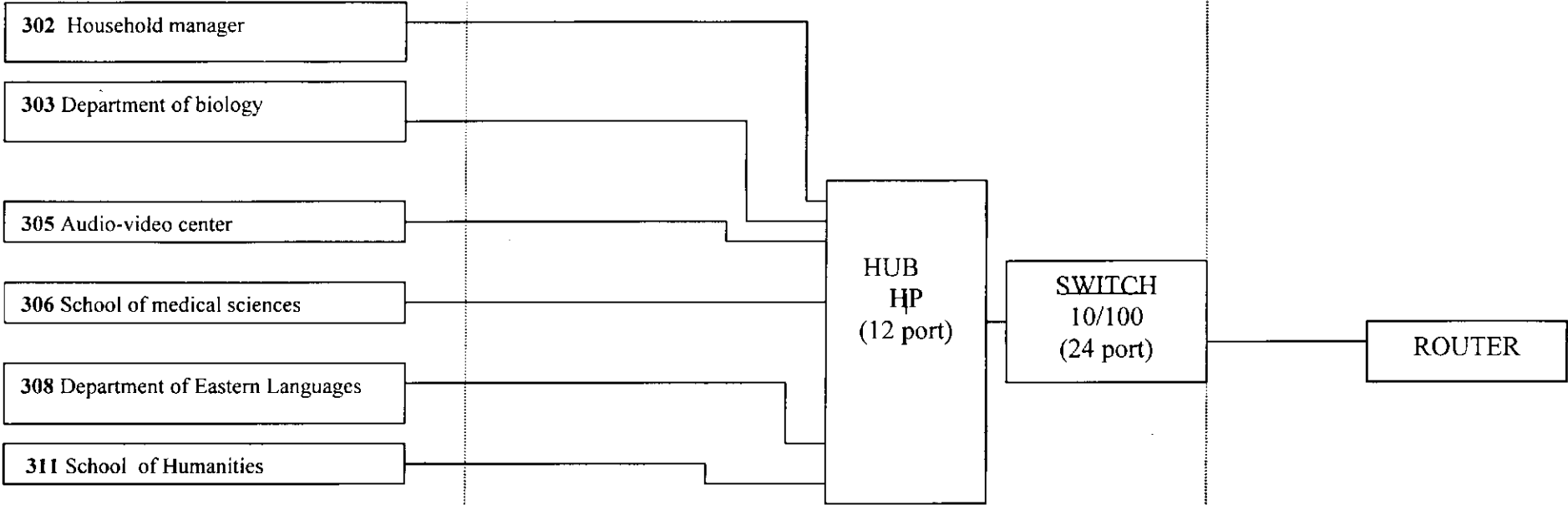


Proposed IT Scheme of Khazar University Network

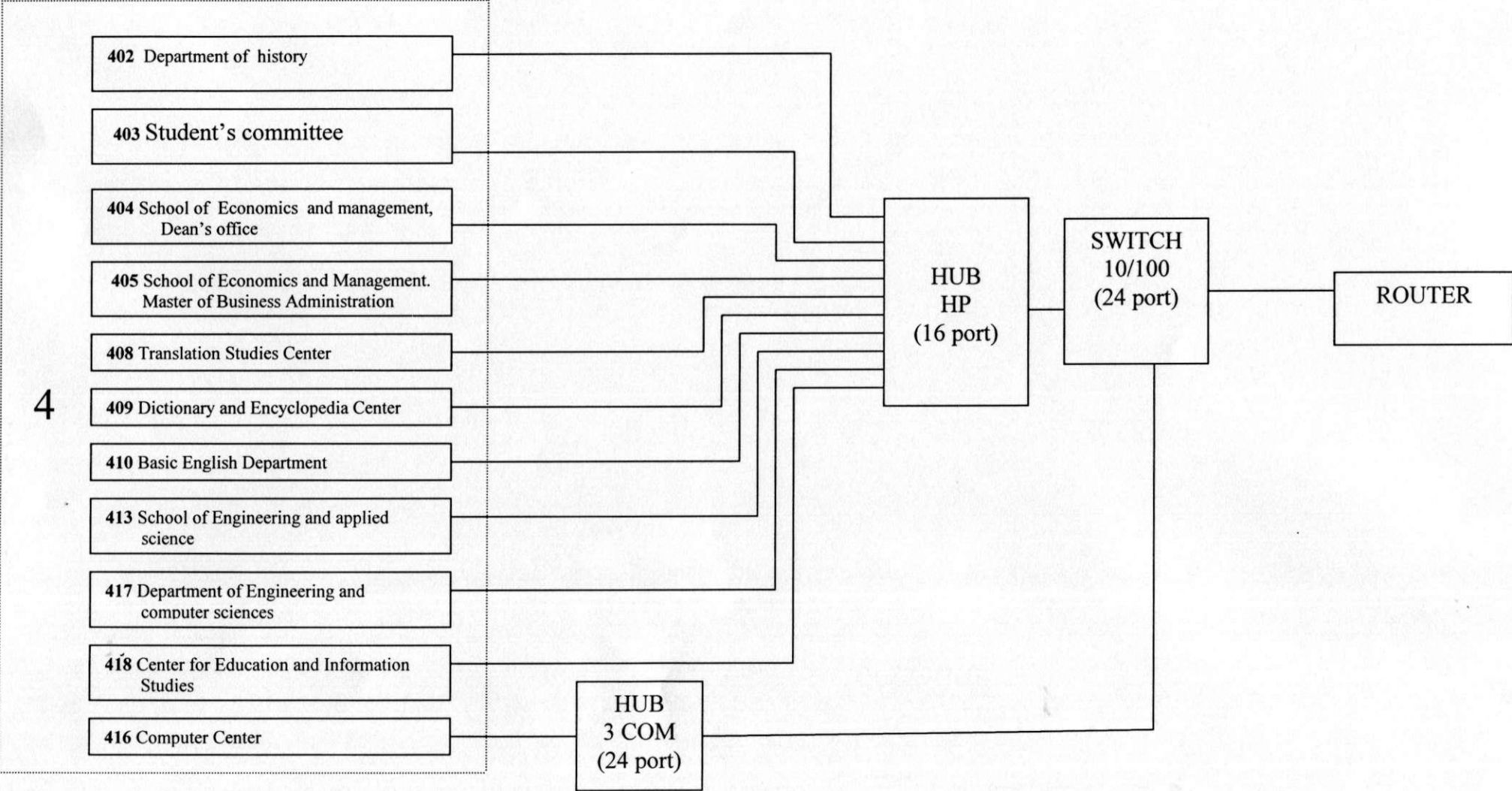


Proposed IT Scheme of Khazar University Network

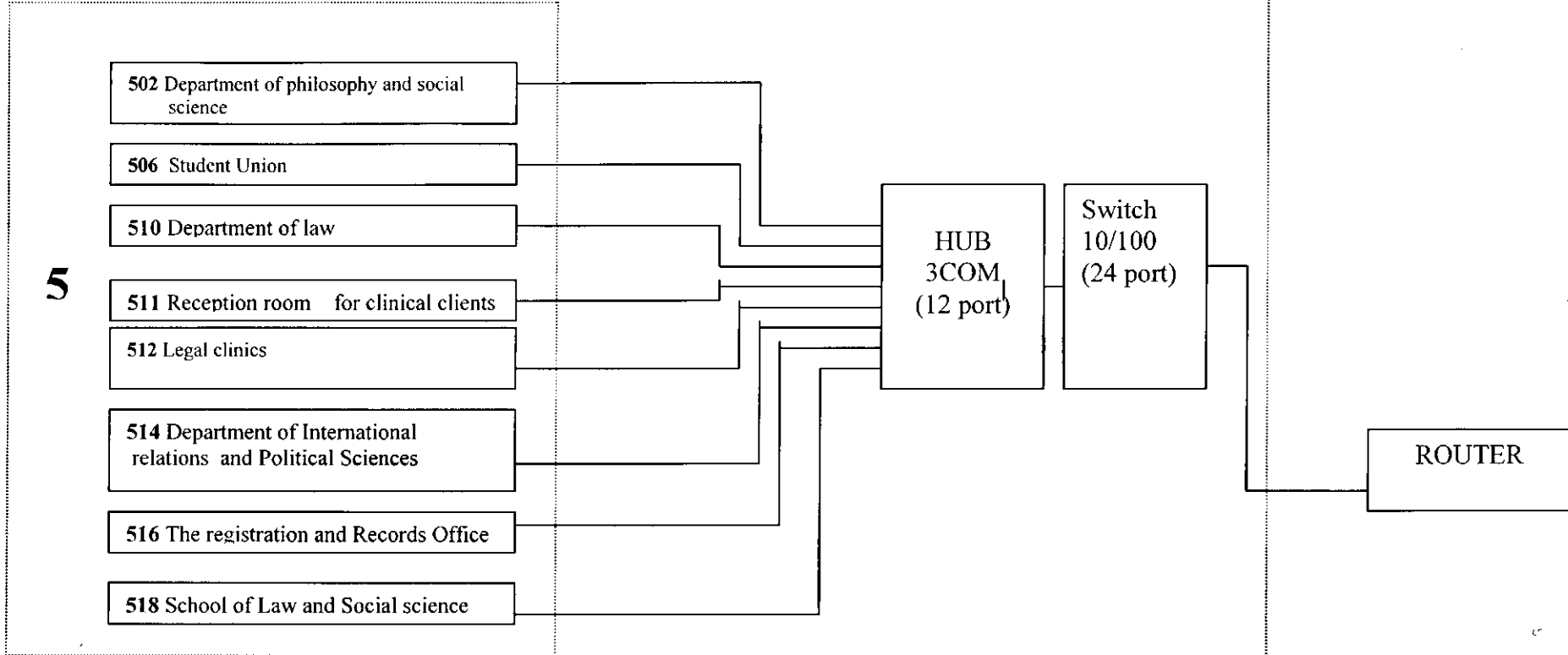
3



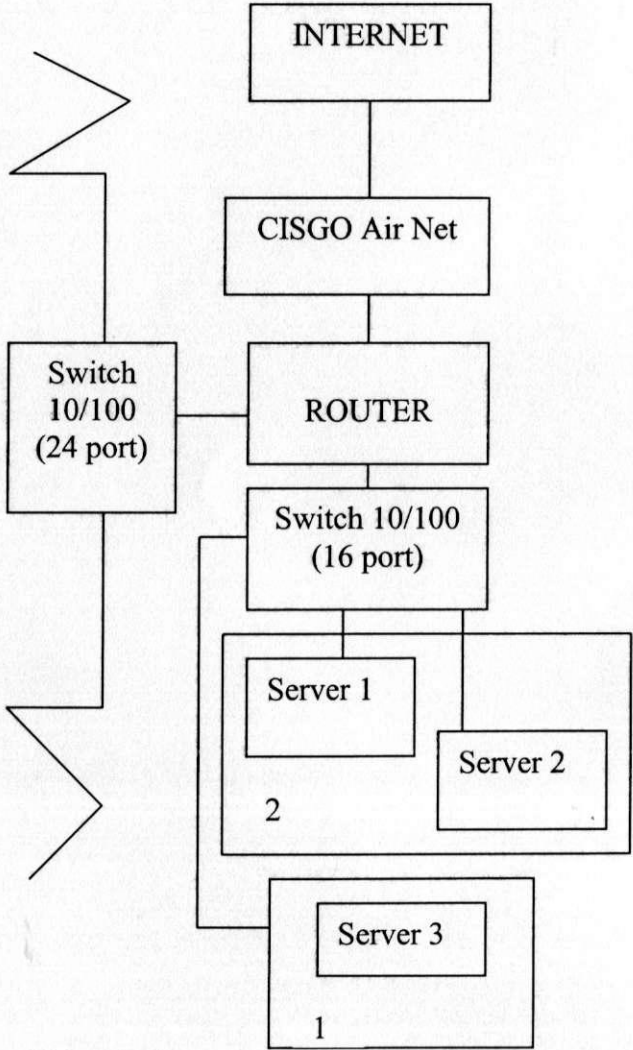
**Proposed IT Scheme of
Khazar University Network**



Proposed IT Scheme of Khazar University Network



**Proposed IT Scheme of
Khazar University Network**



CONCLUSION

First time Information Management Systems at Universities was described in this thesis.

The role of the computer and Information System in the management is described in the preface of the thesis.

Database structure of Information System was created at Khazar University as an example.

To establish more efficient and informative computer network at Khazar University scheme of future is offered.

In order to show practical application of Information System at the university we made database for SEAS students as an example and organized surveys to demonstrate its practical application.

LITERATURE

1. Kenneth C. Laudon and Jane P. Laudon: Management Information Systems Organization and technology in the networked enterprise. Printice Hall, 2000
2. Henry C. Lucas, Jr The analysis, design, and implementation IS.: Singapore, 1985
3. S. Q. Kərimov Informasiya sistemləri və verilənlər bazaları: Bakı "Elm" 1999
4. S. Q. Kərimov Avtomatlaşdırılmış informasiya sistemləri. Bakı, Elm, 1989
5. Khazar University Catalog 2001-2003
6. Philip J. Pratt, Paul M. Leidig, Mary Z. Last Using Microsoft Access 97
7. Рик Винтер. Microsoft Access 97. Справочник. С-П.: Питер, 1998
8. Tsichritzis D.C. and Klug A. The ANSI/X3/SPARC Framework: Report of the Study Group on Date Base Management Systems// Information Systems – 1978.-3