

**THE STATE COMMITTEE OF COMMUNICATION,
INFORMATION AND TELECOMMUNICATION TECHNOLOGIES
OF THE REPUBLIC OF UZBEKISTAN
TASHKENT UNIVERSITY OF INFORMATION
TECHNOLOGIES**

Allow defense
Head of the department _____
_____ 2014 year.

GRADUATE QUALIFYING WORK

**Theme: Development of subsystems, administration and acquisition and
processing of data on research studies for web-portal “IlmiyIshlar”**

Graduate	_____	_____
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Supervisor	_____	_____
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Consultant of Life Safety	_____	_____
	signature	Abdullaeva S.M. Full name

Reviewer	_____	_____
	signature	Full name

Tashkent – 2014

**THE STATE COMMITTEE OF COMMUNICATION,
INFORMATION AND TELECOMMUNICATION TECHNOLOGIES
OF THE REPUBLIC OF UZBEKISTAN
TASHKENT UNIVERSITY OF INFORMATION
TECHNOLOGIES**

Faculty Computer engineering subdepartment Information Technology

Direction (specialty): 5521900 – «Computers and Information Technology»

A P P R O V E D

Head. Of the department _____

« ____ » _____ 2014 year.

ASSIGNMENT

on the graduate qualification work Gaynullin Ildar Ramilevich

1. Theme of work Development for subsystems, administration and acquisition and processing for data on research studies for web-portal «Ilmiy Ishlar».
2. Subject approved by order of the University of « ____ » __ 201 __ г. № _____
3. Completion of the finished work: 31.05.2014
4. Source data to work: Statement of the problem, technical data, CCSTD materials, training manuals, internet resources, guides
5. Contents settlement and explanatory notes (list subject to development issues):
Analysis of the subject area, requirements analysis for the subsystem development, design database structure, design subsystem architecture, subsystem realization in a programming language.
6. List of graphic material: Tables, diagrams, user interfaces, presentation.
7. Date of issue assignment:

Supervisor _____

signature

Assignment received _____

8. Consultants for the individual sections of the graduation work

Section	Full namesupervisor	Signature, date	
		Task issued	Task took
Mainpart	Pak V.S.	03.03.2014	03.03.2014
Lifesafety	Abdullaeva S.M.	03.03.2014	03.03.2014

9. Progresschart

	Name of the section of work	Deadline	Completion mark
	Introduction	01.01-26.01.2014	
	Analysis of the subject area	27.01-30.01.2014	
	The formation of the task	30.01-15.02.2014	
	Implementingthedatabase	16.02-30.02.2014	
	Implementation of a web portal	01.03-30.04.2014	
	Life safety	01.05-20.05.2014	
	Preparationofpresentations	21.05-25.05.2014	
	The writing of the report	26.05-30.05.2014	

Graduate _____ « _____ » _____ 2014 year.

(signature)

Supervisor _____ « _____ » _____ 2014 year.

(signature)

This final qualifying work is devoted to development of subsystems, system administration and acquisition and processing of data on research studies portal

"IlmiyIshlar". This paper discusses the basic theoretical information about the roles needed for the administration and structure of the data and methods for processing system, identifying the issues and requirements for implementation, see setting objectives and practical implementation of subsystems. For development were used ASP.NET, C# programming language and Microsoft SQL Server 2008R2.

Данная выпускная квалификационная работа посвящена разработке подсистем, администрирования и сбора и обработки данных о научных исследованиях для портала «ИлмийИшлар». В данной работе рассмотрены основные теоретические сведения о необходимых ролях для администрирования и структура данных и методы для их обработки системой, определены проблемы и выработаны требования для реализации, приведена постановка задач и практическая реализация подсистем. Для разработки были использованы ASP.NET, язык программирования C# и СУБД Microsoft SQL Server 2008R2.

Ушбубитирувмалакавийиши «ИлмийИшлар»
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яратишгабағишланган.
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Introduction

The modern world, which develops fast rates in the informatics sphere, forces to develop information technologies and to introduce them in various branches. Use various information technologies, allows to use in the effective way time and resources. Introduction of information technologies in the organization can improve the workflow of the workers themselves and the organization as a whole. The development of telecommunications technology has led to the creation of the Internet. Since the inception of the Internet, humankind has realized the prospects of its development and its importance to information technology. Often the Internet gave rise to various areas of computer science, as well as their ability to use both in everyday life and in the work processes. It is impossible not to notice how web-technology has changed since its inception until today. Web-technologies have many phases of change, in what format it is provided to users is now one of the most popular and cheap technology. Possibility of placing information of various organizations through sites allows us to provide a variety of information that is news, competitions, etc. Such organization as CCSTD whose report information occurs through the site.

Possibility of defining the functions CCSTD and transfer them to the site will allow the organization to operate effectively, allowing a site to turn into a portal.

Importance of the development in this direction is also enhanced by the need to implement the tasks under the Decree of the President of the Republic of Uzbekistan dated 21 March 2012 "On measures for further implementation and development of modern information and communication technologies", determine targets the development of informatization processes in the country in the near future. [1]

Implementation of software has the potential to improve the efficiency of the national government.

The purpose of the graduate qualification work is to develop a subsystem administration and acquisition and processing of data on research studies.

Graduate work consists of an introduction, four chapters and a conclusion.

In the introduction the urgency of the work, as well as the goals and tasks necessary for implementation.

Chapter 1 covers the basics of the existing methods of constructing portals. The analysis of modern web technologies of server-side applications.

Chapter 2 gives an algorithm for designing the system, given the stages of design and implementation methods.

Chapter 3 covered the basics of subsystems of the basic functions and their implementation

Chapter 4 provides the requirements for the organization of health mental and physical labor in order to increase efficiency and microclimate.

In conclusion the basic theoretical and practical conclusions to the final qualifying work.

Chapter 1. Analysis of the subject area

*1.1 The structure of the **Committee for Coordination Science and Technology Development of the Republic of Uzbekistan***

Committee for Coordination of Science and Technology Development under the Cabinet of Ministers was formed on the basis of the Coordination Council for Scientific and Technological Development under the Cabinet of Ministers and its executive bodies - the Center for Science and Technology and the Council for examination of major research and investment projects in accordance with Decree of the President of the Republic of Uzbekistan PP-436 of August 7, 2006 "On measures to improve coordination and management of science and technology" which is composed of the heads of sectors of the economy, large enterprises and the leading scientists of the country.

In order to fulfill its tasks, the Committee shall perform the following functions:

- performs based on the submissions of ministries and departments, research institutions preparing proposals on priority directions of science and technology in conjunction with the development strategy of the economy and the social sphere, as well as structural changes in the economy;
- coordinates the activities of the ministries and departments in the development of scientific and technical programs, and other innovative research, development projects, monitor their implementation;
- provides training and implementation of projects for the introduction of promising scientific and technological developments, the results of scientific research in the priority sectors of production, economics, and social, educational and other spheres of activity;
- participates together with the concerned ministries and departments of the republic in the drafting of international agreements of the Republic of Uzbekistan on scientific cooperation with foreign partners;

- coordinates the research activities carried out scientific and educational institutions of the republic together with foreign scientific centers;
- developing international cooperation in science and technology in order to attract foreign investments and grants, organizing the implementation of joint research projects, technological and innovation cooperation with foreign partners;
- organizes national and international scientific and technical conferences, symposia, seminars and meetings;
- participates in the development of legislative acts, legal acts regulating the activities in the field of science and technology, scientific creativity and intellectual property protection, provide for their implementation;
- implements measures to popularize and promote science, scientific knowledge and scientific and technological achievements.

In order to fulfill the tasks and responsibilities, the Committee has the right to:

- getting in the prescribed manner by the Academy of Sciences of the Republic of Uzbekistan, ministries, departments, economic management bodies, enterprises, organizations and institutions necessary information and materials;
- create interdepartmental scientific and technical advice, as well as expert groups on key areas of science and technology from leading scientists and highly qualified specialists of the Academy of Sciences, ministries and departments, business associations, companies, research institutions, institutions of higher education;
- participate in the negotiations and to sign on behalf of the Government of the Republic treaties and agreements on international scientific and technological cooperation, promote the establishment of direct contacts between the research and engineering and design organizations of the republic and leading foreign centers on the basis of mutually beneficial relationships;

- take within its competence regulations and decisions are binding on ministries, state committees, departments, public authorities in the field, research organizations and educational institutions;
- publish on matters within the competence of the Committee, together with other ministries, state committees and departments joint resolutions and other acts.

1.2 Tasks performed CCSTD

The decree of the President of the Republic of Uzbekistan identified the main problem CCSTD:[2]

- Develop jointly with the Academy of Sciences, the Ministry of Higher and Secondary Special Education, other ministries and departments priority areas of science and technology, taking into account the objectives of social - economic, social and political development of the country, the achievements of modern science;
- Coordinate the activities of research institutions and agencies, design organizations, institutions of higher education ministries, the Academy of Sciences for the implementation of priority directions of science and technology;
- Organization of effective monitoring of the scientific and technical programs and projects, as well as the results of scientific research in various fields of economy, production, education;
- The development of mutually beneficial international scientific and technical cooperation, attracting foreign investments into the scientific sphere of the country, to promote scientific organizations, scientists and specialists of the republic in the broad participation in international programs and competitions of scientific projects.
- Decisions of the Committee for Coordination of Science and Technology (CCSTD) put into practice by the Executive Office CCSTD.

Executive Office CCSTD includes 5 sections Figure 1.1:

- Analysis Division and the formation of coordination of scientific and technical programs of basic and applied research;

- Department of analysis and coordination of innovative works and introduction of scientific and technical developments in the industry;
- Financing Division Fund innovative scientific and technical activities;
- Development Division of the international scientific and technical cooperation;
- General Department (personnel service, lawyer, etc.)

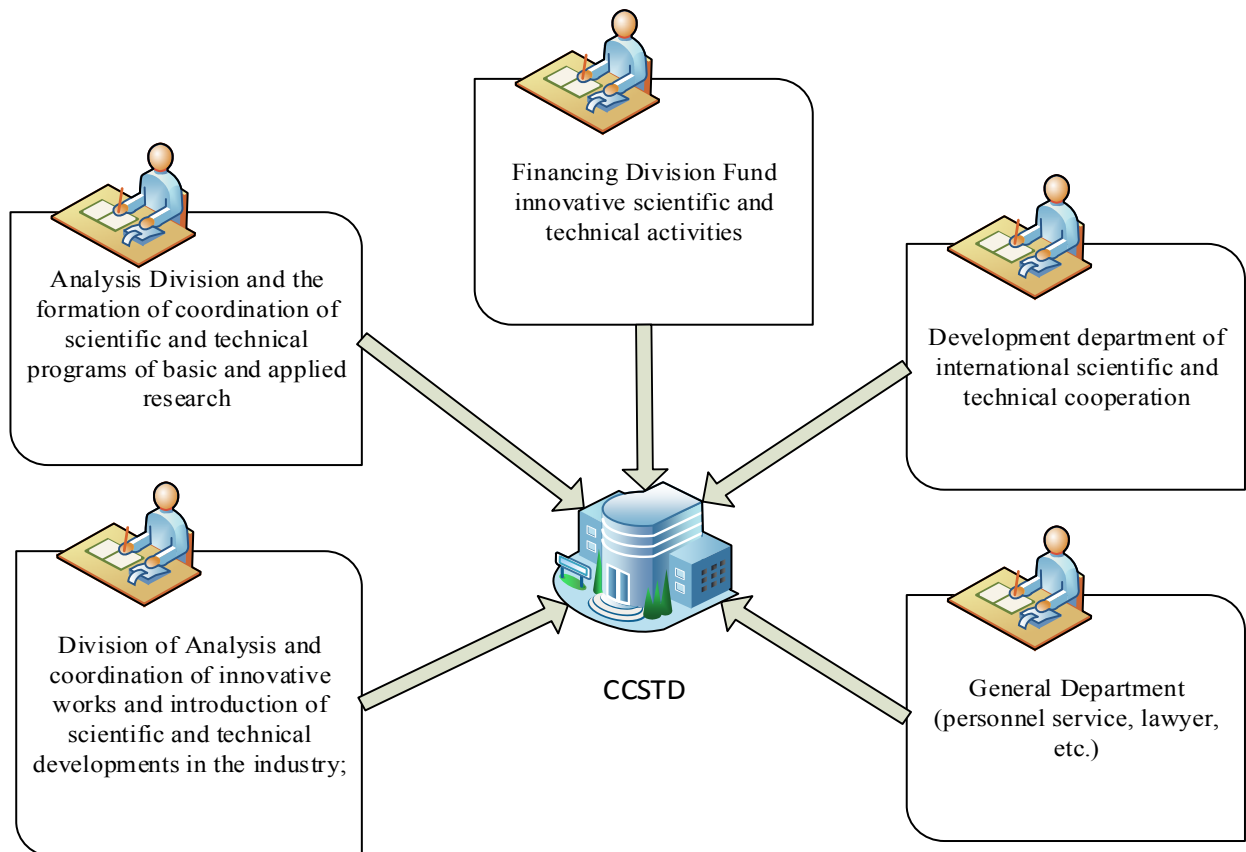


Figure 1.1 Department

1.3 The concept of a web portal

Increasingly, network portals are used in various fields of activity. Without the use of web-based, technologies cannot do and the state authorities. Every year the representation of public authorities on the Internet is becoming more.

In general, public authorities use portal solutions not only for collaboration on documents, but also as a single point of access to information services. Portal is used as a platform for the integration of legacy applications and previously established information systems, primarily electronic document management systems. The need for such integration solutions leads to an increase in the use of portals in the activities of public authorities.

Corporate portals today are a popular component of enterprise information systems, integrating business applications and work group users. This component is often transforms enterprise information system into a complete solution, allowing for more business and organizational benefits with minimal investment.

Comprehensive features of portal solutions allow them to be used for application integration into the information system.

Internet portal - a website that provides the user a variety of interactive online services that work within a single website, such as mail, search, weather, news, forums, discussions, polls, etc.

In various Internet portals, these parts are developed differently. Some portals are positioning themselves primarily as search engines, other - information or service. Set of portal services provided depends on the owner of the site, its capabilities, desires and fantasies. All this serves one purpose - to meet the needs of the largest possible number of consumers.

Web portals are dynamic websites, the data structure which is stored separately from the data information, the information is filled in accordance with the structure for each user request. Because of this, when you change one structure, these changes will affect all web pages of the site.[3]

Web portal provides the following features:

- reducing the role of administrator intervention by automating the creation of site content and provide structured information on request;
- All information is easily cataloged using specialized databases or simple storage;
- possible features such as adoption of data from the user, process and save them on the server;
- implementation of the various user actions: placing orders, the calculation of complex arithmetic operations and work with information from the database;

- User identification information given to them and display interface that is configured in accordance with his preferences;
- display dynamically changing content on the site.

Web page demonstrated portal normally consists of separate autonomous windows (modules, units, etc.) that are loaded or not according to the occurred event (e.g., registered user). Each window is used to access a specific information content, services or applications.

Types of web portals and their destination

Of all the varieties of web portals characteristic distinguished public portals and so-called corporate portals. The main business organizations of public Web portals is the portal itself, and corporate portals - Portal serves as a means implementing business corporation, so they usually do not have the "extra" information, but in the public Web portals such information is sufficient, since their main goal - attract and retain a broad range of users.[4]

Since public web portals cover a very wide range of services and services of general interest and interest, they are sometimes called horizontal portals, and corporate portals, respectively, vertical (Fig. 1.2.).

Horizontal portal - a portal covering all subjects and offer a set of services, serving as possible, all the topics focused on the widest possible audience, the maximum coverage of interests of the audience.

Vertical portal - a portal narrow thematic focus that provides various services to network users on specific interests and focuses on complete coverage of subjects or human activities.

Above certain types of portals and their functions differ only conditionally, and there is no strict standard for the technology of Internet portals.

Specialized portals are designed for specific user groups - for example, medical portals, portals for women, etc.

Corporate portals focus on different specific type of users (employees, partners). Enterprise portals provide the necessary information to people who are either working in the relevant corporation or have any interest (eg, customers),

both from the internal network (corporate) and externally (the global Internet). Typically, service portals personalized and customized to the specific needs of users.

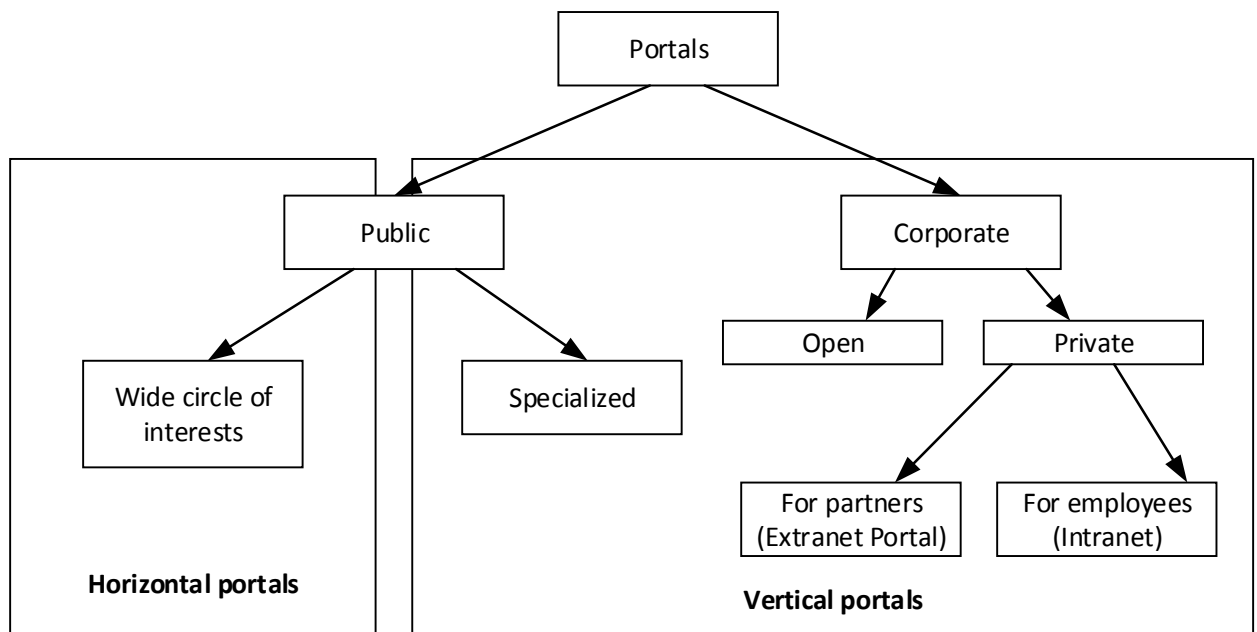


Figure 1.2. - Basic classification portal

There are several types of corporate portals, which appeared as a result of technological evolution and cautious adoption of new technologies:

b2e (business to employees) - that operates in virtually all corporate portals. The main function of such portals: coordination of joint activities between employees.

b2b (business to business) - is electronic trading platforms that are being developed to do business on the web.

b2c (business to customers) - designed for e-commerce, whose objectives are to increase business, attract new customers and provide consumers with more complete satisfaction of quality of service.[5]

There is still such species as government portals, information, miscellaneous. Government portals - are sites of state agencies, which are gradually gaining weight, acquire resources directories, forums. They publish news, economic or political surveys as part of its specificity. Information portals - provide information service users in a certain direction (news, legislation, education). Updating information on them in real time.

legislation, education). Updating information on them in real time. Mixed Portals - Portals, which combine the functions of e-commerce and classic directory services. Examples of such portals is online shopping. Also considered mixed portals such vertical portals, which are beginning to do business in their specialized sections.[6]

Besides portals sometimes called other types of Web-based applications, providing its users with these or other services via the Internet, such as voice portals giving access to certain services on the telephone line with voice commands or commands sent from a telephone keypad, or the so-called personal portals that provide services of personal information managers and email.

1.4 Analysis of the existing portal solutions and web technologies

Many companies and community developers provide some ready solutions for building Web portals of varying complexity. Some of these products are released under an open source license and can be freely used in any projects, while others require licensing and payment.

Table 1.1 presents a comparative analysis of some of the proposals the main suppliers of portal solutions and components used in Web portals. Advantages and disadvantages of the products are determined by comparison with the requirements for developing a web-portal "Ilmy Ishlar."

Table 1.1

Advantages and disadvantages of the existing portal solutions

Title	Advantages	Disadvantages
Oracle Application Server Portal 10g	Component architecture with the software components and possibility of gradual their integration expansion	The complexity of Excessive functionality Cost of Oracle Application Server Portal 10g - \$ 20,000

Sun Java System Portal Server 6.3	Integrated ability to identify users and objects that provide access control, centralized management of users	Sun Java System Portal Server on Sun Java System Application Server for Linux on processor \$ 62.500. Sun Java System Portal Server, Secure Remote Access and Mobile Access 6 on the Sun Java System Web or Application Server for Linux (value calculated for all components on the processor)
WebSphere Portal Server 5.0	For integration into the existing environment of security and to work with existing base accounts security WPS may apply to the central registry of users, built on LDAP. SSO. Security personnel can control access via WAP	Express Edition: \$ 26,000 per processor or \$ 68 for CAL; Enable Edition: \$ 71,000 per processor; Extend Edition: \$ 115,000 per processor

Based on the analysis of existing software products, has made the following conclusions:

- The cost of the commercial product does not allow the purchase and use them as the basis for Web-portal "Ilmy Ishlar"
- Some products are very closely linked with the technical part, which cost several times more than most commercial products.
- And finally, the third is not unimportant reason related to the accompaniment, which requires, as a commercial product itself and its technical part. Overview of the basic technologies

At the moment, there are many technologies developed server side, both commercial and freeware. This article discusses the most common and promising technologies as the main competition is between them and the choice of the core technology implementation in most cases, preference is given to one of them, as a proven and reliable.

Platforms are considered in terms of building on them complex heterogeneous systems Web, so some of the most popular technologies are not given in a detailed review for failure or otherwise of their use as a base platform. For example, technology and other ISAPI extensions Web - servers that are not suitable for use because of binding to a specific Web - server. Below are only the basic technologies potentially suitable for complex heterogeneous Web systems. Technology Common Gateway Interface.

Technology Common Gateway Interface (CGI), differs from other technologies considered in that it is the most low-level, and is a standard interface, which serves to link the external program with web-server.

The protocol itself is designed so that you can use any programming language that can work with standard I / O devices. Since this feature is available in the operating system, if you do not want a complicated script, it can be made into a batch file.

Consider the main advantages and disadvantages of CGI technology listed criteria:

- CGI imposes special conditions on the platform and web - server, so it works on all popular platforms and web - servers. Also, the technology is not tied to a specific programming language and can be used in any language, works with standard input / output streams.
- Performance CGI - program is not high. The main reason for this is that at the next access to the server for CGI – Program is a separate process that requires a large amount of system resources.
- Built-in scalability, technology does not provide this developers have to take care of separately.
- CGI - the program is a file ready for execution that prevents easy system expansion.

These

reasons have led to what is now the development of CGI - applications prefer more advanced platform, providing more convenience for developers that have increased productivity. However, the large mass of already developed applications makes reckon with technology CGI, and its knowledge is necessary for understanding the operation of high-level platforms.

Technology Personal Home Page

Technology Personal Home Page (PHP) are widely spread due to its free of charge and support the most popular platforms. It is based on the principle of building pages from templates, first appeared in Active Server Pages, but develops and complements it. PHP pages have the form of ordinary HTML pages, which can be in the form special tags `<? Php and?>`. Tags are inserted between lines of code in a special scripting language PHP.[7]

Principle templates allow developers to write programs much faster and without errors inherent in traditional CGI - program is the HTML content to the output stream. To date, the range of systems built on templates range from simple pages with samples from the database to the largest e-commerce applications based on XML. Formulaic system are very popular among developers as the most suitable for typical sites. Such solutions include ColdFusion, PHP, JSP and ASP, PHP of which is the most common.

Consider the main advantages and disadvantages of the platform:

- Applicable in PHP language is simple and convenient, but is not in the full sense object-oriented;
- For PHP offers an extensive library, and a lot of built-in functions for solving a variety of problems.
- When using PHP with Apache Web server software it is possible to effective execution of the kernel, as the expansion server. In other cases platform performance is low.
- Own funds scaling PHP does not have all the possibilities to Clustering entirely borne by the Web - server and developers.
- Integration limited switching modules and using external functions that do not meet modern requirements.

PHP template approach, for all the great opportunities, hiding serious flaws. Of common shortcomings of this approach, applicable to both PHP and ASP, JSP must include the following:

- File - page can only support a person fluent in both programming and HTML, which requires training.
- One file at a time can edit only one person. This means that either works programmer or designer. It is impossible to observe the division of labor where it is potentially possible.
- Storage of business logic in the files - pages distributed by the control elements as it leads to difficulty in rendering the objects of the second level.
- As a grand total consideration platform can be concluded that, due to the ease of use, the presence of a large number of functions and libraries, distribution and support most of the existing Web - servers and platforms, PHP is a very convenient tool in the development of small systems. At the same time limits on performance, scalability, programming language and Extensibility and integration prevent the use of the platform in the development of large-scale systems.

Technology Java Servlets

Sun Microsystems, to take advantage of the Java platform to address technology and CGI API server extensions, developed technology Java Servlets (servlets). Technology solves the problem of productivity, fulfilling all requests as threads in the same process. Servlets can also easily share resources, and does not depend on the platform, as performed within Java Virtual Machine (JVM).[8]

The technology has broad functionality. A large number of libraries provides a variety of tools necessary to develop. Java security model makes it possible to accurately control the level of access, such as allowing access to only certain parts of the filesystem. Exception Handling Java servlets makes more reliable measure than the expansion server for C / C ++.

Any servlet class is Java, and, therefore, must be made within the Java VM so-called servlet - container (servlet container, servlet engine). Servlet - container loads the servlet class at the first reference to it, either immediately when the server starts with special instructions. Next, the servlet is loaded for processing requests until it is unloaded explicitly, or to stop the container.

Technology is common, and can be used with all popular Web - servers (Enterprise Server from Netscape, Microsoft Internet Information Server (IIS), Apache, Java Web Server from the Sun).

The software interface allows servlets to handle requests at any level, if necessary using any low-level data such as request headers, their type, etc. This gives greater flexibility in designing custom handlers, for example when working with binary or multimedia content.⁹

Because servlets are processed in a single process by creating flows within it, the servlet code must be thread - safe. This imposes certain responsibilities on the programmer, but by standard techniques, such as avoiding the use of the fields in the Servlet class, and storage of data needed in the context or external storage such code properties are easily achieved. While servlets acquire such an invaluable advantage of scalability.

So, Servlets provide a component, platform - independent method for building web-applications without the performance limitations of CGI programs. They have a wide range of applications available API, allow you to use all the advantages of Java, easy to expand and scale, supported by all popular Web - servers. All this makes them an excellent means of developing large Web - Systems.

Technology Java Server Pages

Technology Java Server Pages (JSP) from Sun Microsystems, was an add-on technology Java Servlets, providing a quick and easy development of web - applications through the use of a generic approach.[8]

To understand the advantages of JSP architecture and technology you need to know Java Servlets, as they are closely related. Pages Java Server Pages represent a page template HTML, similar to templates PHP and ASP. The main difference from other similar technologies is that the code inside the special tags is not interpreted by reference to the page, and pre-compiled into a Java Servlet. Static parts of the template are translated into calls to functions for placing them in the output stream. The code is compiled as if it were within the servlet. Compilation of JSP pages into servlets is time consuming, but is held once - either by first accessing the page, or when you start the servlet - container.

JSP technology successfully combines formulaic approach to the construction sites and all the benefits of the Java platform. Thanks to this

technology is widespread among professional commercial developers and to create free public projects. An important step to expand the template approach are the so called tag libraries (tag libraries). This is a flexible opportunity to integrate standard, third-party or proprietary software components in the page. Easy to create and use led to the great popularity of tag library.

Thanks to the work based on Java, JSP technology is not tied to a particular hardware or software platform. Thus JSP are a great solution for heterogeneous environments.

Objective features of the architecture limit technology performance. First, the page should be compiled into a servlet, which takes considerable time. Secondly, servlets run in the runtime Java, ie interpretation mode. However, additional features compensate these limitations. Modern containers support server clustering that puts the burden on the hardware. It is economically feasible and simple solution. The task of compiling a single and servlets is performed either at the first call, or when you start the servlet - container. So it does not affect the overall system performance when considering for a sufficient period of time.

The main advantages of JSP is the ease of development, characteristic fits-all approach, the presence of a large number of third-party libraries, ease of use, and a variety of powerful development environment. Due to all these factors JSP is the most promising basic technology development to create Web - sites. However, when creating complex Web - systems limitations imposed formulaic approach become a serious obstacle to development.

Technology Microsoft. NET and Wednesday ASP. NET

Technology. NET is the latest development from Microsoft and claims as a new stage in the development of interoperability between applications. She is currently available as a supplement. NET Framework family of operating systems Microsoft Windows, as well as new product Windows Server 2003. Also works on creation. NET Framework on other operating systems. Platform. NET simplifies application development and more reliable code. In particular, it provides

automatic object lifetime management, language-neutral class libraries and crossing borders languages inheritance, exception handling, and debugging.¹⁰

Basis. NET - Common Language Runtime (common language runtime languages) system services based on the operating system and manages the execution of code written in any modern programming language. Set of base classes gives access to the services platform, which developers can use from any programming language. Common Language Runtime and base classes together form the backbone. NET platform. NET also offers high-level services:

- ADO. NET - the new generation of ADO, which uses XML and SOAP for data exchange;
- ASP. NET - A new version of ASP, allowing the use of any (. NET compatible) programming language for Web pages;
- Windows Forms and Web Forms - a set of classes for building the user interface of local and Web-oriented applications.¹¹

Deployment of the platform. NET performed in a special way. Source code is not compiled command processor x86 or other computer codes. Instead, the compiler generates code in an intermediate language Microsoft (Microsoft intermediate language - MSIL).

File containing MSIL, can run on any processor platform, if the operating system provides. NET CLR.

Important part of the platform. NET is a new medium ASP.NET (previously used name of ASP +). ASP.NET features are so great that it is difficult to call the next version of ASP. It is based on a different platform, and major programming languages for her chosen C # and Visual Basic, instead of the former scripting languages. At the same time, write the new technology allows ASP page in any suitable language.

In ASP.NET mortgaged everything to make the entire development cycle of web-applications faster and easier support. Below are the main features and principles of ASP.NET.

- Compiling the code at the first call.
- Wide range of component libraries supplied with. NET.
- Supports powerful development tools - Visual Studio. NET.

- Language independence within platforms that implement the common language runtime CLR.

- Expansion using multiprocessor and clustered solutions.
- New opportunities for error handling.
- Object-oriented development languages (C #, a new language).
- Enhanced ability to reuse components.

It is obvious that platform. NET and ASP.NET provide new opportunities for the development of Web - systems. They meet all modern requirements and can greatly speed up and simplify the development of complex applications.

From consideration the following main approaches to the architecture of server applications:

- Individual queries. Each time you request dynamic content to run a separate program for processing requests. The program generates the content sent to the client. This approach is used in conventional CGI-scripts.

- Accumulation of executable processes. Approach is similar to the previous one, but if the query is re-executed, a new startup program does not occur, and processing is passed to an existing process. This approach is used in technologies JavaServlets, Fast CGI.

- Layouts. When prompted templates are filled with dynamic content, usually, but not necessarily generated interpreted scripting language. Approach is used in technologies ASP, JSP, PHP.

- Extensions Web - server. Web - server refers to specific extensions to handle dynamic content. Extensions specific to the Web - server. This approach is used in the IS API, NSAPI, mod_perl.

Each of these approaches has its limitations and possibilities, and, accordingly, its range of applications.

Model specific query substantially limits performance. Option accumulation process is the development of this technology increases performance while maintaining maximum design flexibility. Extensions Web - server is not the most convenient means of development, firmly tied to a specific system Web - server, but show the best performance and give you the most flexibility in the design.

Consider the platform on the requirements defined earlier. CGI is not included in the survey, as it is uncomfortable to use and has low efficiency, but too much expansion of the servers are tied to specific software products. Scheme query processing platforms are as follows:

- PHP - templates. When running on Web - Apache, the interpreter can be an extension of the server (experimental mode IIS).
- JavaServlets - accumulation processes for each servlet.
- JSP - templates. When processing is performed in their precompilation JavaServlets, allowing you to use the scheme accumulation processes.
- ASP.NET - templates. Scheme is used to precompile and not interpreting the code. As a result, the extension Web - server IIS. May be used and the low-level handlers.

The main characteristics of evaluation platforms compare in the summary table, where "-" is the total lack of support, "- / +" - the lack of support, "+ / -" - support is not in full, and "+" - full support. For comparative characteristics, such as the implementation language or performance estimates correspond to the degree of excellence of technology.

Table 1.2.

	Table comparisons technologies			
	PHP	JavaServlets	JSP	ASP.NET
Multiplatform	+/-	+	+	+
Performance	-/+	+/-	+/-	+
Scalability	-	+	+	+
Implementation language	+/-	+	+	+
Expandability and integration	-	+	+/-	+
Ease of use, availability of development tools	+/-	+/-	+	+
Availability of the necessary software	+	+	+	+

libraries

Separation of design and logic	+/-	-/+	+/-	+
-----------------------------------	-----	-----	-----	---

Based on the foregoing of portal solutions and web-based technologies, important as a tool for the development of technology use ASP.NET, because of the high performance of most criteria, and based on this technology to develop a web-portal is not using ready-made portal solutions, and develop its portal solution.

1.5 Statement of the problem

Required to develop a subsystem organizing and storing information in the "Ilmy Ishlar" in accordance with the requirements of the system.

System "Ilmy Ishlar" is designed to collect, process, organize and store information on the results of ongoing research and.

Details of the "Ilmy Ishlar" include the following information:

1. Exam Type:

The fundamental (FI);

Application (PI);

Innovative work (IR).

2. Program:

If FR - from the directory "Program FI";

If the AR - from the directory "Program AR";

If the IR - from the directory "Program IR".

3. Type of project:

Normal;

Interagency;

International.

4. Designation ministries (agencies):

From the directory.

5. Name of the institution:

From the directory.

Identifier study (registration code):

Project Code:

From DB "Electronic recording projects".

Topic Title.

Keywords:

Up to 50 words.

The Project Manager:

From the directory.

The number of performers.

Co-executors:

From the directory of "Organization".

The period (early works).

Period (completion).

The results (abstract).

As a PDF document.

The results (full content).

As a PDF document.

The amount of funds in the year (sum).

Participation in trade fairs.

Implementation of the results of work.

Number of monographs, textbooks, manuals on a subject.

The number of articles on the topic.

The number of patents.

Information system of scientific researches CCSTD has to conform to the following functional requirements:

- Store and provide access to information about the completed studies and their results;
- Store and provide access to information about ongoing research;

- -store and provide access to the list of development, ready to implement;
- to store and provide access to the list of interdepartmental research;
- Store and provide access to the list of institutions which perform research;
- Generate reports according to established forms;
- Ensure comfortable typing, retrieval and processing of information.

Administration system should provide flexible configuration options, given the characteristics of the customer's organizational structure and processes paperwork, including:

- The creation of an unlimited number of jobs for processing and storage of documents structural and territorial divisions of the Customer;
- Ability to assign unique user permissions for individual documents placed in the "Ilmy Ishlar" pages and sites;
- Ability to customize the exchange of electronic documents;
- The possibility of limiting storage "Ilmy Ishlar" forbidden data types;
- The appointment of members' Ilmy Ishlar "(document repositories, workspaces) e-mail addresses for sending messages to further" Ilmy Ishlar "from e-mail clients;
- The ability to limit the amount of disk space and issuing quotas for a particular area "Ilmy Ishlar";
- The ability to customize the routing of documents depending on the types of documents and procedures for handling information administration tools "Ilmy Ishlar".

In this final qualifying work required to implement a subsystem for collecting and processing data on research and administration system that comply with the system requirements "Ilmy Ishlar", provide convenient methods of storing, accessing, searching, and reporting established forms, as well as the unique ability to assign permissions to users, exchange of electronic documents.

In developing these subsystems, need to solve the following problem:

- Design a system architecture

- To develop the essence of communication and database structure
- To construct a class diagram
- To develop a navigation system
- Reporting forms

Chapter one summary.

The first chapter was conducted domain analysis - CCSTD were considered its objectives, functions and powers of the committee. Were the theoretical basics of web portal and existing web-based technologies. Resolved the problem and identified modules of the system, requiring design and development.

Chapter 2.Designing web-portal

2.1 Database structure

The process of designing and creating a database consists of three stages:

- domain analysis, which was presented in the first chapter
- construction of entity-relationship model (ER-model), based on the domain analysis
- designing relational data model, based on the entity-relationship model

Each of the stages will design a database in detail, without losing the data you need.

Entity–relationship model (ER model) is a data model for describing the data or information aspects of a business domain or its process requirements, in an abstract way that lends itself to ultimately being implemented in a database such as a relational database. The main components of ER models are entities (things) and the relationships that can exist among them.

ER-model is useful in the design of information systems, databases, architectures, computer applications and other systems (models). With the help of this model allocates substantial elements (nodes, blocks) model and establish relationships between them.

Figure 2.1 shows the entity relationship model for "Ilmiy Ishlar".

The relational database model of a domain is a set of relations that change over time. When you create a set of relations information system allows you to store data on objects in the domain and model the relationships between them.

Model DB "Ilmy ishlari" consists of 43 tables in Figure 2.2, 2.3 and 2.4 in Appendix 1 shows the relational database model system "Ilmy ishlari."

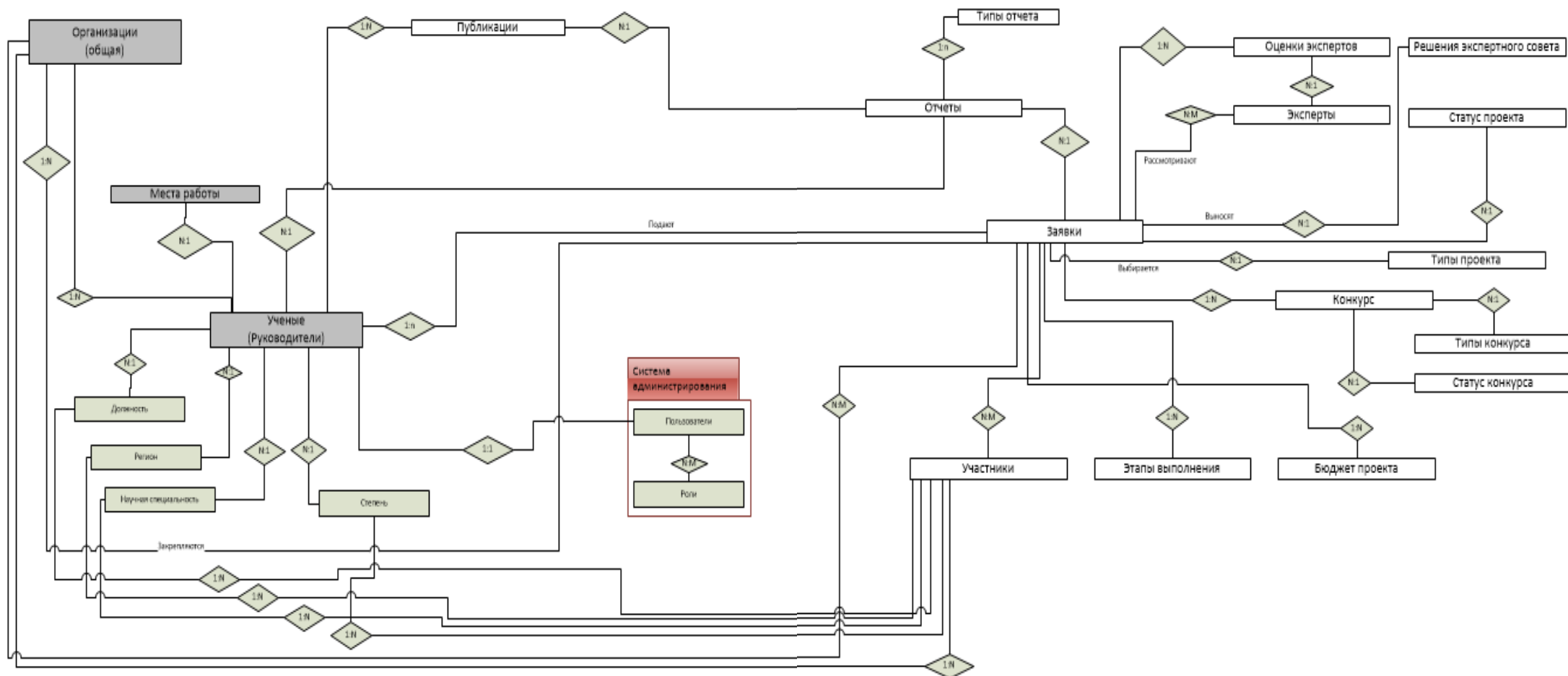


Figure 2.1. Entity Relationship model of the database of "Ilmiy Ishlar" system.

2.2 The object model of Web-portal

The object model of the Web portal "Ilmiy Ishlar" is a collection of classes that are shared by the business logic classes and object-relational view. It is the link between the client application and the database (Figure 2.5).

Following the separation of the group classes is divided by their functionality and application. All of these groups are interdependent.

Classes of business logic are called as well as table names stored in the database and they reflect the main types of data that will assist manipulated using classes that have the prefix "Provider".

Classes of object-relational view, starting with the prefix Provider are strictly structured classes where public methods can be only four types of methods (CRUD) - are methods for retrieving, adding, deleting, updating the database data. The remaining helper methods that are private should not directly interact with the database, and can only include the logic that has been repeatedly used in the basic methods of the class object-relational view.

Architecture of classes of object-relational presentation and business logic is the same for all groups of classes.

In Appendix2, "Classes of business logic" given business logic classes (Figures 2.6, 2.7, 2.8) and in Appendix3 "Classes object-relational view" shows the classes of object-relational view (Figures 2.9, 2.10, 2.11).

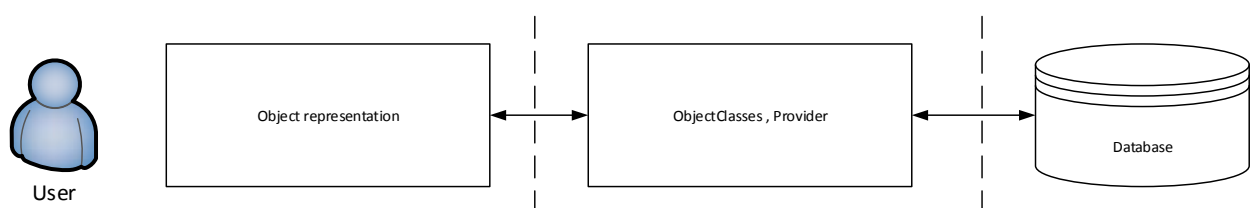


Figure 2.5 Interaction Scheme in the system

2.3. Functional diagram of the Web portal

The research phase have been identified all possible workflows. These workflows are shown in the workflow diagrams. Workflow diagram is a chart that reflects the relationship between actors and precedents. The main objective of

workflow diagrams is to represent a single tool, enabling the customer, end users and developers together to discuss the functionality and behavior of the system.

Registration

Client-side come the personal data required for registration. Web application checks them for accuracy, checks on the uniqueness of the values of the username and email address. If successful, conducts the registration and shall notify the client of its success by offering to continue the further identification in the system.

Figure 2.12

Scientist’s registration workflow diagram

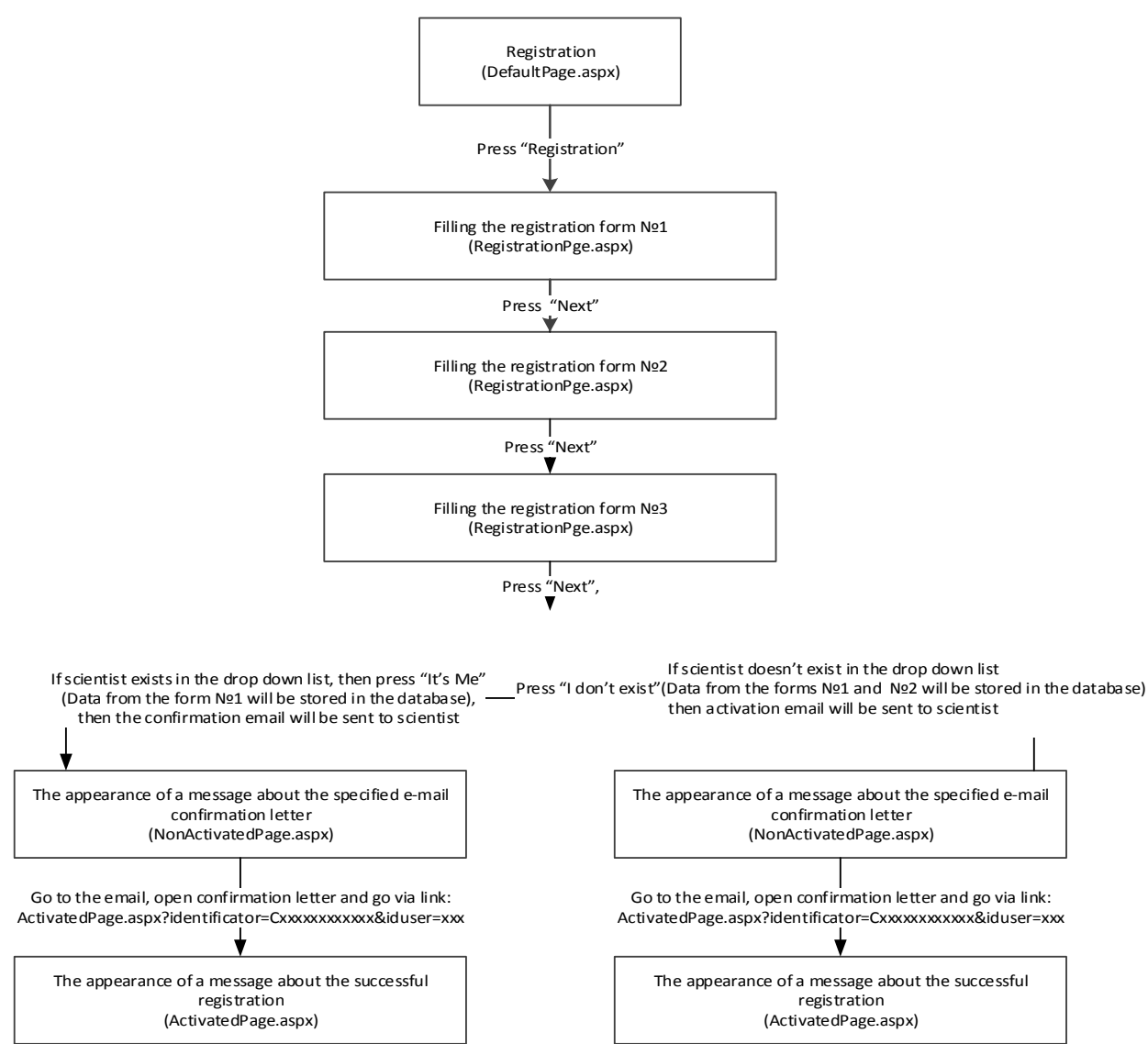


Figure 2.12«Scientist’s registration» workflow diagram

Creating contest

Committee announces about the new competitions of scientific works. On the basis of contests happens acceptance of applications for participation in the contest. Operator fills out a form for adding contests. System checks the data to be correct, then it is added to the database and it will appear on the competitions page. Figure 2.13

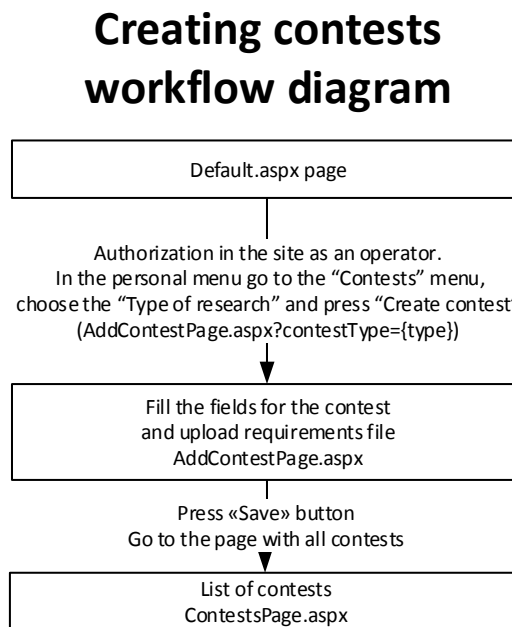


Figure 2.13 «Creating contests» workflow diagram

Creating application

After the operator created the contest, the scientist has an opportunity to add an application to participate in contest. Creation of the application happens in four stages, in each of stages the system checks correctness of entered data. At a stage of addition of participants of the project, the system checks rates of each participant. In the last step all information about the created application will be displayed, where the scientist can edit it. There are two forms of creating applications: for innovative competitions and for fundamental and applied contests and competitions for young scientists. Depending on the type of chosen competition system will redirect to the appropriate form of creating application (Figure 2.14 and 2.15).

«Creating application for the innovative contest» workflow diagram

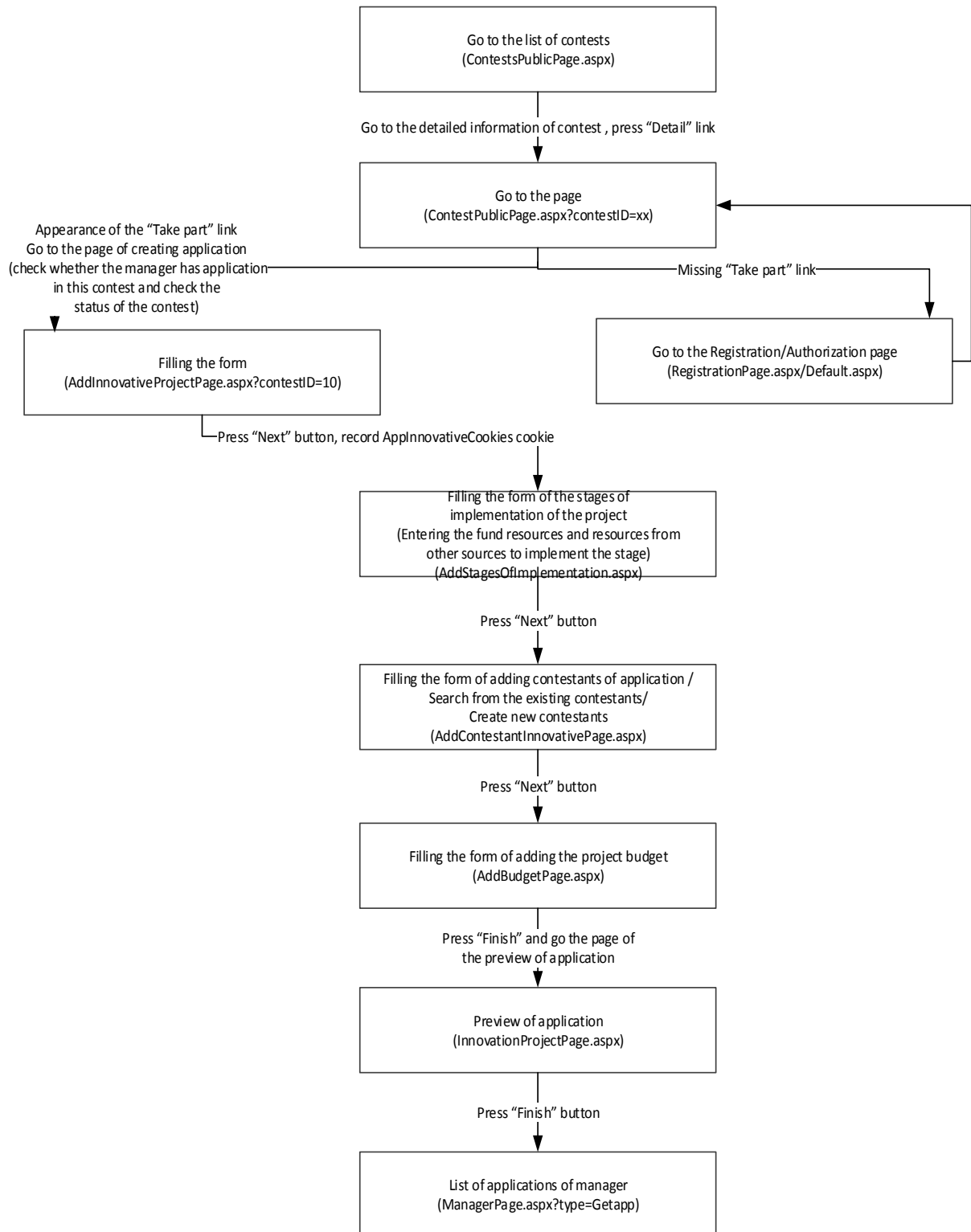


Figure 2.14 «Creating application for the innovative contest» workflow diagram

“Creating application for fundamental, applied and young scientists contests” workflow diagram

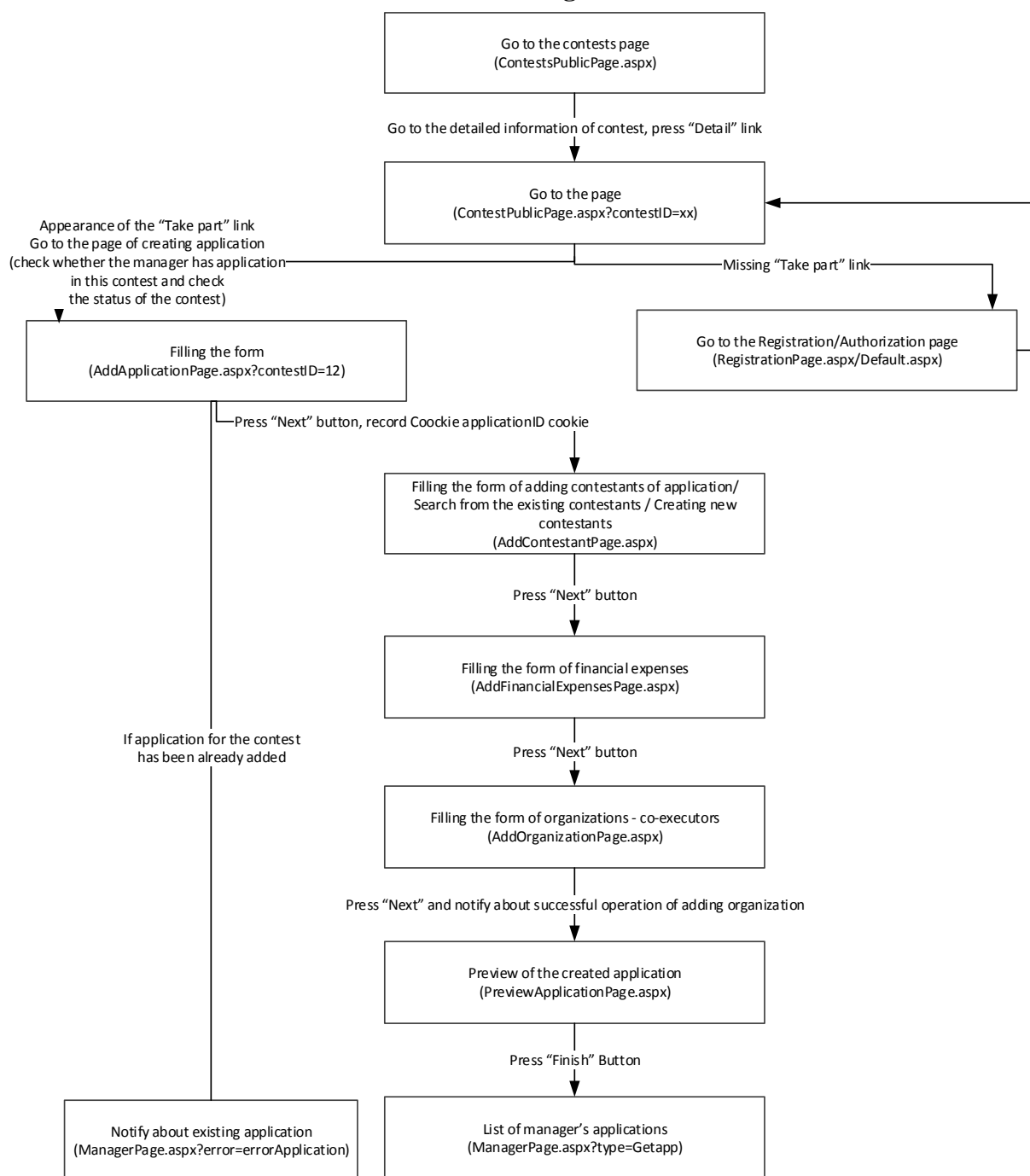


Figure 2.15«Creating application for fundamental, applied and young scientists
contests» workflows diagram

Creating project reports

At the end of each year, the project manager must send a report on the project. Ability to add the report is only available in the reporting period. Manager, who sent the report, has no right to add the report again. If the report is rejected by

the operator, the manager will be notified about this and he can send it again. At the end of last year, the project manager has the right to submit a final report after he had already sent the annual report. Input data are checked on the report system (Figure 2.16).

“Creating project reports” workflow diagram

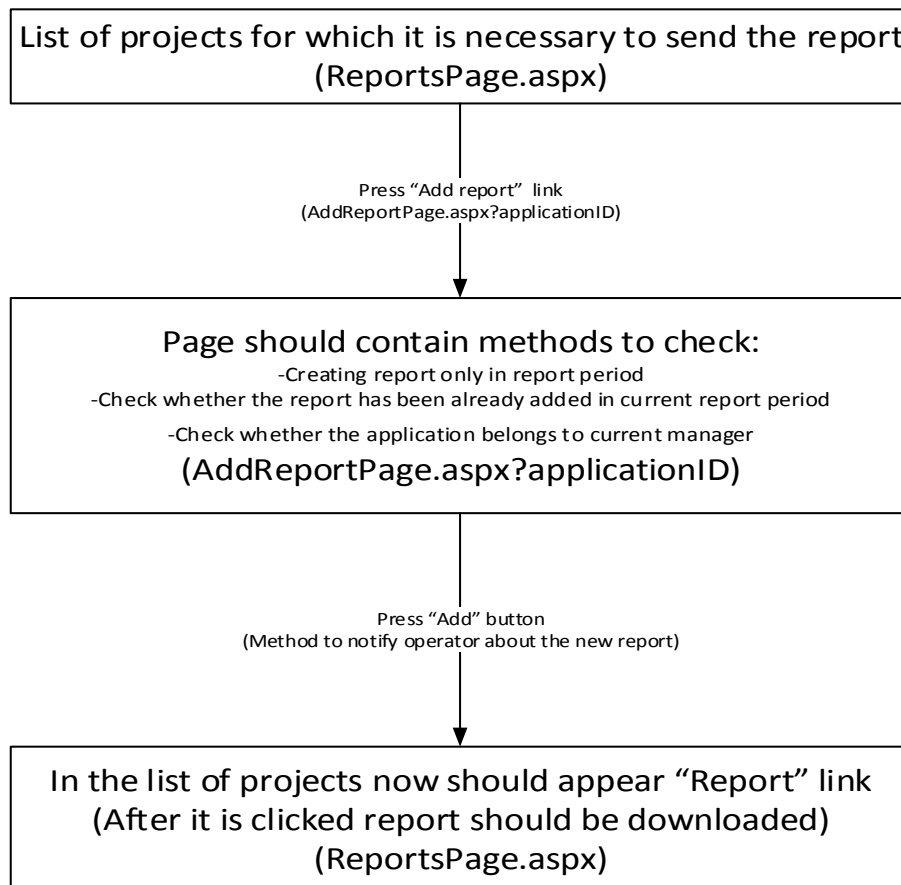


Figure 2.17«Creating project reports» workflow diagram

Forming the program

On the basis of the reports sent by project managers, Committee on the Council decides which projects will be financed in the following year. The system generates program for the year on the basis of entered decision of the Council to the system generates a year. Then the program can be saved in formats xls, doc and pdf. (Figure 2.18)

“Forming the program” workflow diagram

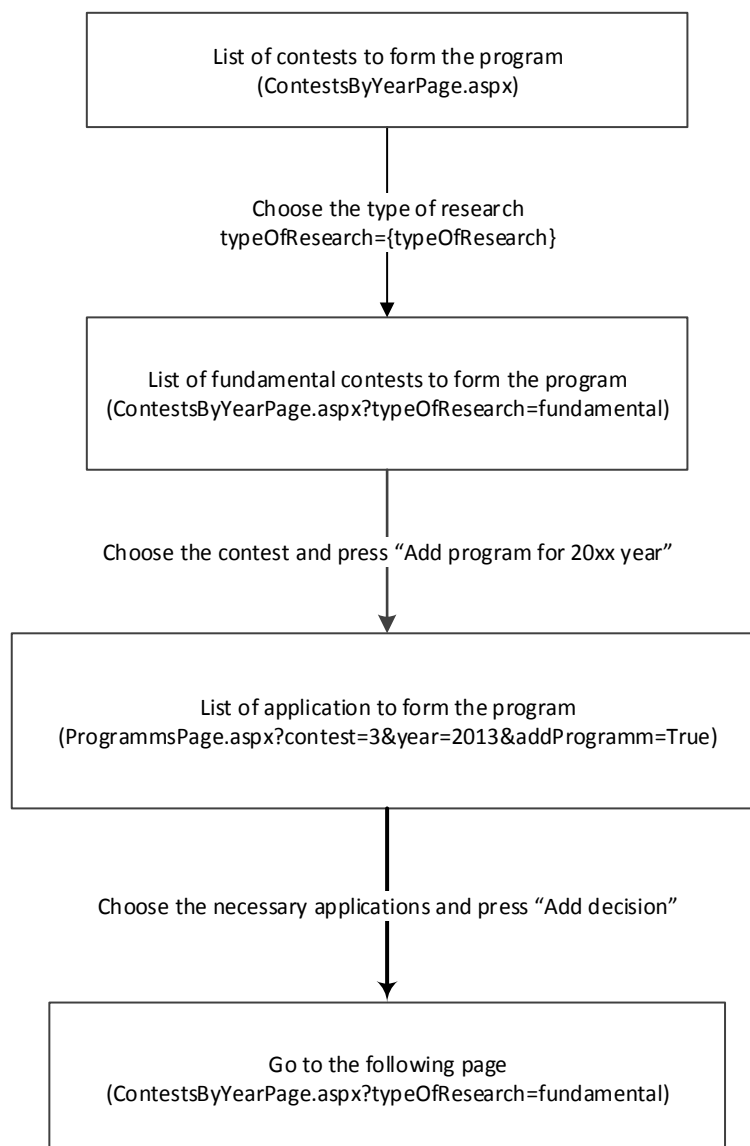


Figure 2.18«Forming the program» workflow diagram

Creating reports

On the basis of the input data during the registration of scientist, the system provides generation of the following types of report:

- Report by ministries
- Report by scientists
- Report by organizations
- Final report for republic

- Final report by organizations
- Final report by ministries and scientific specialties
- Final report by organizations and scientific specialties
- Final report by scientific specialties

In the first three reports a list of scientists by ministries, organizations and all the scientists that are stored in the system database is shown. Final reports provide numerical values for scientists, i.e. scientists are counted according to predefined parameters. All reports can be eventually exported into formats xls, doc and pdf. (Figure 2.19)

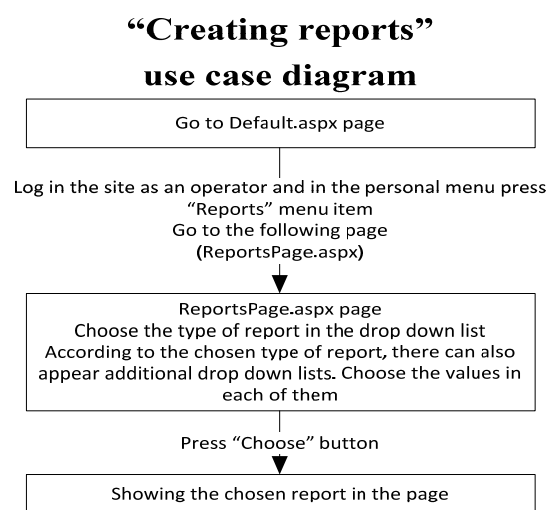


Figure 2.19«Creating reports» workflow diagram

2.4. System architecture

The architecture of the system "Ilmiy Ishlar" is logically divided into 3 large subsystems: subsystem of scientific works, references and administration subsystem.

Scientific works subsystem includes the following modules:

- Information about projects
- Information about contests
- Reporting system
- Information about scientific research
- Information about scientific events
- Search by criteria

References subsystem is used to display the explanatory information and systematizing the information stored in the subsystem of scientific works. For example, the “Type of research” organizes contests and projects, and “Contest status” is used to control ability to send the applications to contests.

This subsystem consists of the following modules:

- Experts
- Branches of science
- Decisions of experts
- Contest statuses
- Priority directions
- Posts
- Types of research
- Types of report
- Types of publication
- Types of project
- Types of contest
- Expert grades

The subsystem of administration serves for distribution of users on roles and depending on their role to provide the rights for certain actions and pages. For example, for the users who are in a role "Operator" it is authorized to create contests, to check the reports sent by managers, to respond to messages of managers, etc. And it is authorized to the users who are in a role "Manager" to send applications to scientific contests, to send reports to the approved projects, to address to operators with questions in the form of messages, etc.

This subsystem includes the following modules:

- Users
- Roles

Further in Figure 2.20, architecture of the system is given.

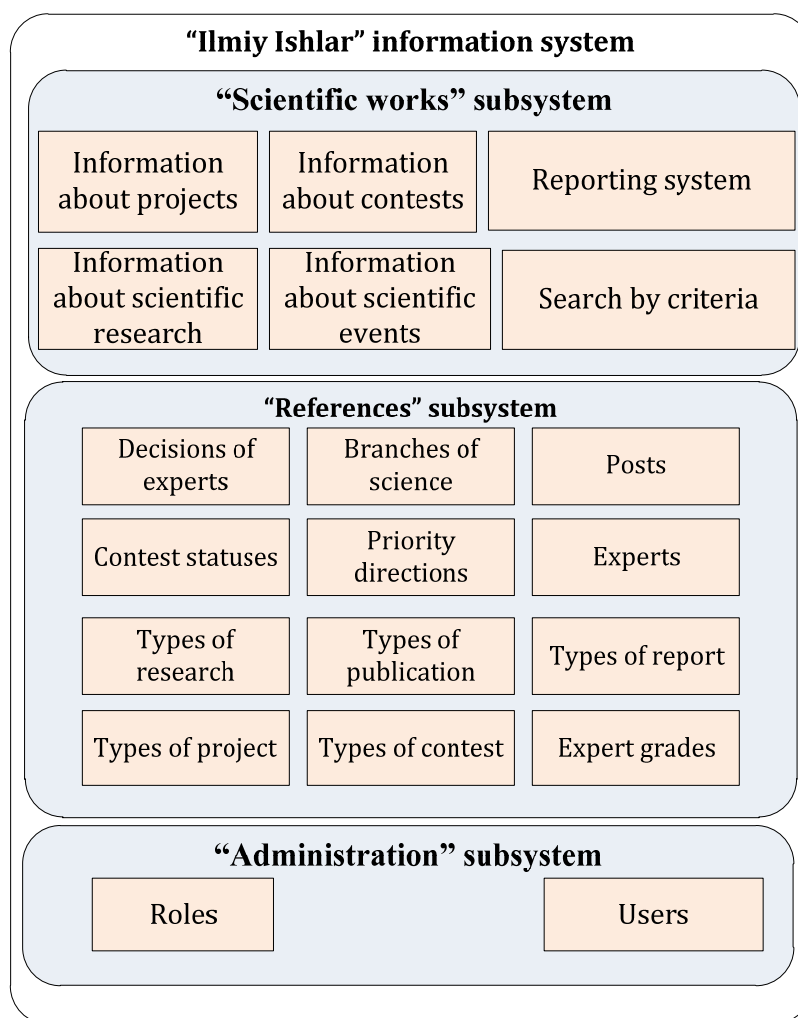


Figure 2.20 System architecture «IlmiyIshlar»

Chapter two summary

1. Based on the domain analysis entity relationship model and relational database model were built. These operations allowed building normalized database. MS SQL Server 2008 R2 was selected to build this database.
2. An object model of web-portal and class to retrieve information from the database and show in the web-pages were designed.
3. Functional diagram of the web-portal was designed
4. System architecture was designed. It consists of following subsystems:
 - “Scientific works” subsystem, which consists of 6 modules
 - “References” subsystem, which consists of 12 modules
 - “Administration” subsystem, which consists of 2 modules

Chapter 3. Development of web-portal

3.1 Development of administration Subsystem

Administration subsystem - a system user management and the possibility of differentiation of access to different pages.

When developing subsystem administration decided to use solution for asp.net Membership API. It was necessary to reboot the main classes, thereby getting the opportunity to reconfigure the necessary functions for the system "Ilmy Ishlar".

Membership API provides a full set of management functions users.

- The ability to create and delete users using the Web configuration utility ASP.NET.
- The ability to reset passwords automatically sending users a new password by email, if you know the email address of the user.
- The ability to auto-generate passwords for users if the users are created automatically in the background. Of course, these passwords can also be sent by email, if you know the address.
- Ability to find users in the underlying data store and retrieve customer lists and detailed information about each of them. This is necessary for common management tasks such as assigning users to roles using the user management interface, or for simple tasks such as collecting statistics about the number of users using the website.
- A set of previously developed controls for creating login pages and registration, as well as to display login status in different views for authenticated and unauthenticated users.
- The level of abstraction, which ensures the independence of specific applications from the underlying data store through a membership provider classes. Any functionality mentioned above works quite independently from a specific data store to be used, and some data store can be replaced on the other — perfectly without the need for any modification of the applications. By default, the Membership API relies on a SQL Server Express database to store information about users and roles.

Also identified the role subsystem:

- Manager
- Operator
- Administrator
- Head

Below shows the main admin panel (Figure 3.1).

=

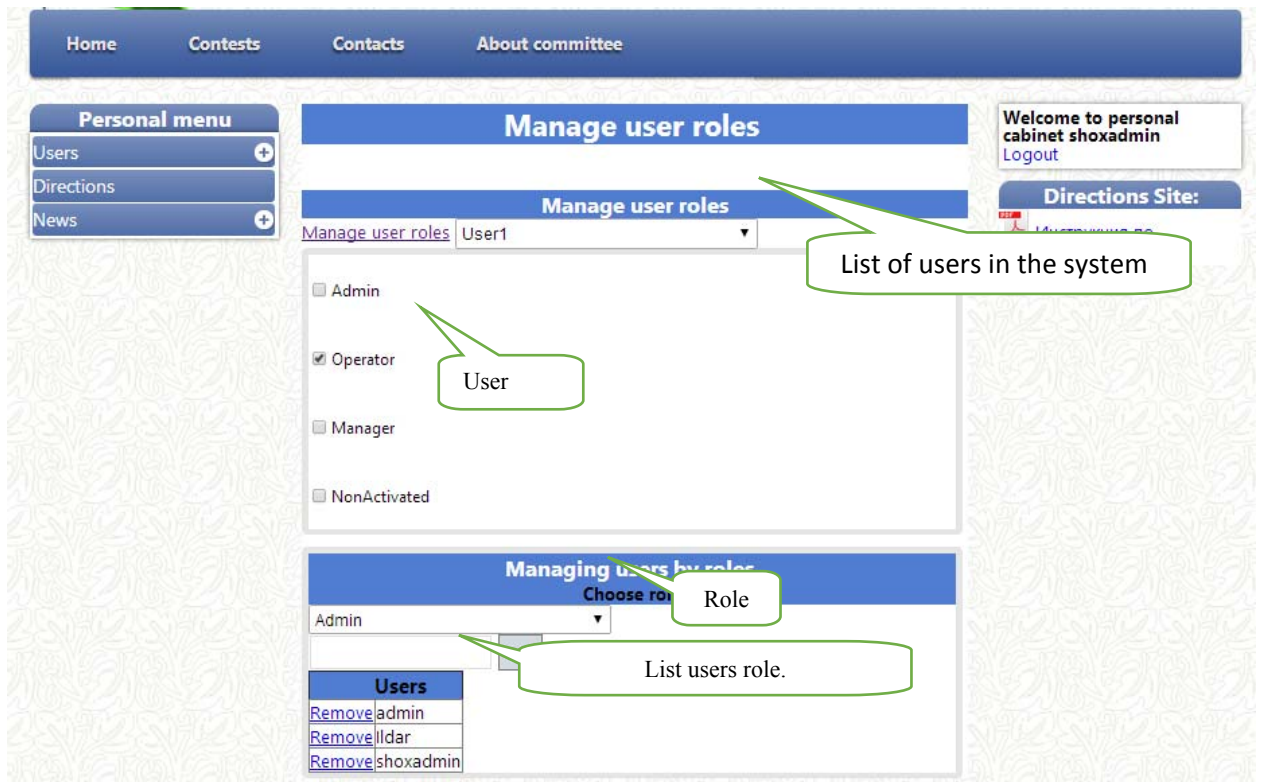


Figure 3.1 The main Admin Panel.

Pseudo code:

```
protected void btnAdd_Click(object sender, EventArgs e)//Button event
```

```
{
    string usernameToAdd = UsernameToAdd.Text;//Getting data
    string selectedRole = RoleList.SelectedValue; //Getting data
    if (usernameToAdd.Trim().Length == 0)//Checking
    {
        info.InnerText = "You should enter username!";
        return;
    }
}
```

```
MembershipUser user = Membership.GetUser(username:
usernameToAdd, userIsOnline: false); // Getting user
```

```
Roles.AddUserToRole(usernameToAdd, selectedRole);//Inserting  
role for user
```

```
UsernameToAdd.Text = string.Empty;  
DisplayUsersBelongingToRole();  
info.InnerText = string.Format("{0} added to role {1}",  
usernameToAdd, selectedRole);  
CheckRolesForSelectedUser();  
}
```

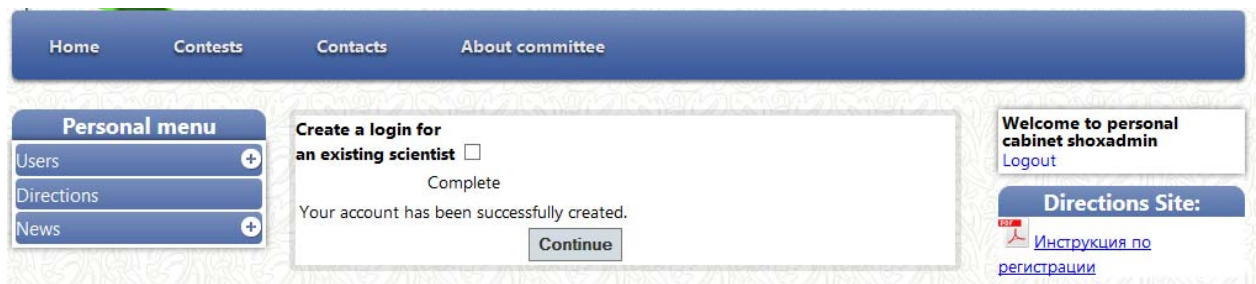
Below shows the form to add a user to the system (Figure 3.2)

The screenshot shows a web application interface. At the top is a blue navigation bar with links: Home, Contests, Contacts, and About committee. On the left is a 'Personal menu' with links: Users, Directions, and News. The main content area is titled 'Create a login for an existing scientist' and includes a checkbox 'Sign Up for Your New Account'. Below this are input fields for 'User Name' (containing 'ildarGaynullin'), 'Password' (masked with dots), 'Confirm Password' (masked with dots), and 'E-mail' (containing 'ildar_ildar@mail.ru'). A 'Create User' button is at the bottom. A green callout box points to the form with the text 'Data to create a user'. On the right, there is a 'Welcome to personal cabinet shoxadmin' section with a 'Logout' link, and a 'Directions Site:' section with a link to 'Инструкция по регистрации'.

Add a user to the system (Figure 3.2)

The screenshot shows the same web application interface as Figure 3.2, but the 'Create a login for an existing scientist' form is now in a different state. The 'Sign Up for Your New Account' checkbox is checked. Below it are four checkboxes for roles: 'Admin' (unchecked), 'Operator' (checked), 'Manager' (unchecked), and 'NonActivated' (unchecked). A 'Next' button is at the bottom of the form. The rest of the interface, including the navigation bar, personal menu, and right sidebar, remains the same.

Assigning user roles (Figure 3.3)



Closing adding a user (Figure 3.4)

Pseudo code:

```
protected void RegisterUserWithRoles_ActiveStepChanged(object sender,
EventArgs e)
```

```
{
    /*If creating login for scientist*/
    int managerID = 0;
    if (ddlManagers.Visible == true)
    {
        managerID = Convert.ToInt32(ddlManagers.SelectedValue);
    }
    /**/

    if (RegisterUserWithRoles.ActiveStep.Title == "Complete")
    {
        WizardStep specifyRolesStep =
RegisterUserWithRoles.FindControl("SpecifyRolesStep") as WizardStep;
        CheckBoxList roleList =
specifyRolesStep.FindControl("RoleList") as CheckBoxList;
        foreach (ListItem li in roleList.Items)
        {
            if (li.Selected)
            {
                Roles.AddUserToRole(RegisterUserWithRoles.UserName,
li.Text);

                if (managerID != 0 )
```

```

    {
        UsersProvider userProvider = new UsersProvider();
        int UserID =
userProvider.GetIDByLogin(RegisterUserWithRoles.UserName);
        ScientistsProvider scientistProvider = new
ScientistsProvider();
        Scientist scientist =
scientistProvider.GetScientistByID(Convert.ToInt32(ddlManagers.SelectedValue))
;

```

Figure 3.5 Adding news administrator.

Pseudo code:

```

protected void btnAdd_Click(object sender, EventArgs e)
{
    if (IsValid)
    {
        NewsProvider provider = new NewsProvider();
        News news = new News();

```



```

news.CreationDate = Convert.ToDateTime(tbxDate.Text);
news.NameRU = tbxNameRU.Text;
news.NameUZB = tbxNameUZB.Text;
news.TextRU = tbxTextRU.Text;
news.TextUZB = tbxTextUZB.Text;
if (uplFiles.HasFile)
{
    List<string> files = new List<string>();
    files.Add(SaveFile(uplFiles, news.NameRU));
    news.Files = files;
}
news.ID = provider.Insert(news);

InitPreview(news);
}
}

```

3.2 Development of a subsystem acquisition and processing of data on research studies.

The research is based on processes such as add reports, report generation and Formation programs. Based on these processes will enable the subsystem:

- store and provide access to information about completed studies and their results;
- store and provide access to information about research;
- store and provide access to the list of developments, finished implementation;
- store and provide access list interdepartmental research;
- store and provide access to the list of institutions which perform research;
- generate reports according to established forms;

- provide convenient input, retrieval and processing of information.

Adding reports occurs in the reporting period to another, the system does not allow you to send. When added to all annual reports system allows you to add the final report of the project (Figure 3.7)

Figure 3.7 Adding a project report

Pseudo code:

```
protected void btnAddReport_Click(object sender, EventArgs e)
{
    IIReportProvider iiReportProvider = new
IIReportProvider();//Creating object of reportprovider
    IIReport iiReport = new IIReport();//Creating object of report
```

```

        IIApplicationsProvider provider = new
IIApplicationsProvider();//Creating object of application
        iiReport.IIApplication =
Convert.ToInt32(Request.QueryString["applicationID"]); //Set data to application
        IIApplication iiApplication =
provider.GetApplicationByID(Convert.ToInt32(Request.QueryString["applicationI
D"])); //Getting application by ID
        iiReport.Manager = iiApplication.Manager; //Set data to object report
        iiReport.TypeOfReport =
Convert.ToInt32(ddlTypeOfReport.SelectedValue); //Set data to object report
        iiReport.Publications = tbxpublications.Text; //Set data to object
report
        iiReport.Annotation = tbxAnnotation.Text; //Set data to object report
        iiReport.StatusOfReport = "Непроверен"; //Set data to object report
        iiReport.DateReport = Convert.ToDateTime(tbxDateReport.Text);
//Set data to object report
        iiReport.FileReport = GetFilePath(iiApplication.Code, FileUpload1);
//Set data to object report
        DateTime nowDate = DateTime.Now; //Set data to object report
        iiReport.Date = nowDate; //Set data to object report
        iiReportProvider.Create(iiReport); //Creating data base record

Response.Redirect("../CabinetManager/ReportsPage.aspx");//Redirect to page
Report    }

```

After the application for participation in the contest Figure 3.8, the application passes the review process, where experts give grades, these scores are recorded in Figure 3.8. Based on these points, the decision and formed the program Figure 3.9.

Home

Contests

Contacts

About committee

Personal menu

Applications

Projects

Fundamental ▶ Applied ▶ Innovational ▶ Young scientists ▶

Nº	Name	Priority direction	Scientist	Performer organization	Average score	First expert's decision	Second expert's decision	Details
305	Заявка 1	Теория и методы использования возобновляемых источников энергии	Bkmlfth1 Bjdfgjl dfjgd1	Министерство обороны Республики Узбекистан	0	Добавить	Добавить	View

Welcome to personal cabinet
shoxhead
[Logout](#)

Directions Site:


 [Инструкция по регистрации](#)

Figure 3.8 List of applications to be evaluated by experts

Pseudo code:

```
protected void gvApplication_RowDataBound(object sender,
GridViewRowEventArgs e)
{
    if (e.Row.RowType == DataControlRowType.DataRow)//Checking
on the existing
    {
        if (Request.QueryString["aboveOrganization"] ==
"Другие")//Checking parameters
            for (int i = 6; i <= 7; i++)//Creating cycle
                if (Convert.ToInt32(e.Row.Cells[i].Text) == 0)
                {
                    e.Row.Cells[i].Controls.Clear();
                    HyperLink hl1 = new HyperLink();
                    hl1.Text = "Добавить";
                    hl1.NavigateUrl =
string.Format("~/Ilmiy_Ishlar/HeadPages/Add_Edit/Add" + this.GetPageName() +
"ExpertDecisionPage.aspx?" + "applicationID={0}&expert={1}",
e.Row.Cells[0].Text, (i == 6) ? "FirstExpertDecision" : "SecondExpertDecision");
                    //Writing parameters to link
                    e.Row.Cells[i].Controls.Add(hl1);//Set link to gridview
                }
    }
```

```

        else
        {
            e.Row.Cells[i].Controls.Clear();
            HyperLink hl1 = new HyperLink();
            hl1.Text = "Ипросмотр";
            hl1.NavigateUrl =
string.Format("~/Ilmiy_Ishlar/HeadPages/Preview/" + this.GetPageName() +
"ExpertDecisionPage.aspx?" + "decisionID={0}&applicationID={1}",
e.Row.Cells[i].Text, e.Row.Cells[0].Text);
            e.Row.Cells[i].Controls.Add(hl1); Set link to gridview
        }
        for (int i = 0; i < e.Row.Cells.Count; i++)//Creating cycle
            e.Row.Cells[i].Attributes.Add("style", "text-align:left; font-
size:smaller;");

        string style = "text-align:center; vertical-align: middle; font-
size:smaller;";
        e.Row.Cells[0].Attributes.Add("style", style);
        e.Row.Cells[5].Attributes.Add("style", style);
        e.Row.Cells[6].Attributes.Add("style", style);
        e.Row.Cells[7].Attributes.Add("style", style);
        e.Row.Cells[8].Attributes.Add("style", style);
    }

    if (e.Row.RowType == DataControlRowType.Header)
        for (int i = 0; i < e.Row.Cells.Count; i++)
            e.Row.Cells[i].Attributes.Add("style", "text-align:center; font-
size:small;");
    }

```

[Home](#)
[Contests](#)
[Contacts](#)
[About committee](#)

Personal menu

[Applications](#)
[Projects](#)

Название проекта: Заявка 1
Эксперт: Гайнуллин Ильдар Рамилевич / [Перевыбрать эксперта](#)
Дата проведения экспертизы:

Welcome to personal cabinet shoxhead
[Logout](#)

Directions Site:
[Инструкция по регистрации](#)

№	Критерии экспертизы	Критерии оценок, в баллах	Оценка эксперта в баллах
1	Соответствие научного проекта приоритетным направлениям развития науки и технологий, его фундаментальность		
	<ul style="list-style-type: none"> Научный проект полностью соответствует приоритетным направлениям и целям программы, по смыслу имеет фундаментальный характер и направлен для определения новых законов, зависимостей, явлений природы и общества 	11-15	<input type="text"/>
	<ul style="list-style-type: none"> Научный проект полностью соответствует приоритетным направлениям и целям программы, по смыслу имеет фундаментальный характер, ожидаемые результаты будут переходить в прикладные исследования 	8-10	<input type="text"/>
	Научный проект по смыслу не имеет фундаментальный характер	0	<input type="text"/>
2	Необходимый потенциал для выполнения научного проекта (научного-технический потенциал в организации исполнителя, наличие приборов, оборудования, метриалов, обоснованность запланированных исследований и запрашиваемого объема средств для выполнения проекта)		

Figure 3.9Entry points for application experts

Pseudo code:

```

protected void btnInsertDecision_Click(object sender, EventArgs e)
{
    if (IsValid)//Validate data
    {
        IIExpertFundaGrades iiExpertFundaGrades = new
IIExpertFundaGrades();//Creating object
        if (tbx1PriorityDirectionCorrespondence.Enabled)//Checking
control on enable
            iiExpertFundaGrades.PriorityDirectionCorrespondence =
Convert.ToInt32(tbx1PriorityDirectionCorrespondence.Text);//Set data to object
        if (tbx2PriorityDirectionCorrespondence.Enabled)
            iiExpertFundaGrades.PriorityDirectionCorrespondence =
Convert.ToInt32(tbx2PriorityDirectionCorrespondence.Text); //Set data to object
    }
}

```

```

        if (tbx3PriorityDirectionCorrespondence.Enabled)
            iiExpertFundaGrades.PriorityDirectionCorrespondence =
Convert.ToInt32(tbx3PriorityDirectionCorrespondence.Text); //Set data to object
        if (txb1RequiredPotential.Enabled)
            iiExpertFundaGrades.RequiredPotential =
Convert.ToInt32(txb1RequiredPotential.Text); //Set data to object
        if (txb2RequiredPotential.Enabled)
            iiExpertFundaGrades.RequiredPotential =
Convert.ToInt32(txb2RequiredPotential.Text); //Set data to object
        if (txb1Actuality.Enabled)
        {
            iiExpertFundaGrades.Actuality =
Convert.ToInt32(txb1Actuality.Text); //Set data to object
            iiExpertFundaGrades.Actuality1 = 1;
        }

        if (txb2Actuality.Enabled)
        {
            iiExpertFundaGrades.Actuality =
Convert.ToInt32(txb2Actuality.Text); //Set data to object
            iiExpertFundaGrades.Actuality1 = 0;
        }

        if (txb3Actuality.Enabled)
            iiExpertFundaGrades.Actuality =
Convert.ToInt32(txb3Actuality.Text); //Set data to object
        if (txb1ScientificNovelty.Enabled)
            iiExpertFundaGrades.ScientificNovelty =
Convert.ToInt32(txb1ScientificNovelty.Text); //Set data to object
        if (txb2ScientificNovelty.Enabled)

```

```

        iiExpertFundaGrades.ScientificNovelty =
Convert.ToInt32(txb2ScientificNovelty.Text); //Set data to object
        if (txb3ScientificNovelty.Enabled)
            iiExpertFundaGrades.ScientificNovelty =
Convert.ToInt32(txb3ScientificNovelty.Text); //Set data to object
        if (txb1PracticalUseOfResults.Enabled)
            iiExpertFundaGrades.PracticalUseOfResults =
Convert.ToInt32(txb1PracticalUseOfResults.Text); //Set data to object
        if (txb2PracticalUseOfResults.Enabled)
            iiExpertFundaGrades.PracticalUseOfResults =
Convert.ToInt32(txb2PracticalUseOfResults.Text); //Set data to object
        if (txb1ScientificLevel.Enabled)
            iiExpertFundaGrades.ScientificLevel
= Convert.ToInt32(txb1ScientificLevel.Text); //Set data to object
        if (txb2ScientificLevel.Enabled)
            iiExpertFundaGrades.ScientificLevel
= Convert.ToInt32(txb2ScientificLevel.Text); //Set data to object
        if (txb3ScientificLevel.Enabled)
            iiExpertFundaGrades.ScientificLevel =
Convert.ToInt32(txb3ScientificLevel.Text); //Set data to object
        iiExpertFundaGrades.Expert
= Convert.ToInt32(Request.QueryString["expertID"]); //Set data to object

        iiExpertFundaGrades.DecisionDate =
Convert.ToDateTime(txbDecisionDate.Text); //Set data to object
        int expertDecisionID = (new
IIExpertFundaGradeProvider()).Insert(iiExpertFundaGrades); //Creating record in
data base

```

```

        IIApplication iiApplication = (new
IIApplicationsProvider()).GetApplicationByID(Convert.ToInt32(Request.QueryString["applicationID"])); //Getting application by id
        if (Request.QueryString["expert"] != null &&
Request.QueryString["expert"] == "FirstExpertDecision")
            iiApplication.FirstExpertDecision = expertDecisionID; // Set
data to object

        if
            (Request.QueryString["expert"] != null && Request.QueryString["expert"]
== "SecondExpertDecision")
                iiApplication.SecondExpertDecision = expertDecisionID; // Set
data to object

        (new IIApplicationsProvider()).Update(iiApplication); //Updating
record in data base
        string
        applicationPage = Session["previousApplicationPage"].ToString();

        Session["previousApplicationPage"] = null;

        Response.Redirect(applicationPage);
    }

}

```


проекта руководителя исполнитель проекта					
Вышестоящая организация: Министерство здравоохранения					
Приоритетное направление: Теория и методы использования возобновляемых источников энергии					
Выбор	Код проекта	Название проекта	ФИО руководителя	Организация исполнитель	Стоимость проекта
Вышестоящая организация: Другие					
Приоритетное направление: Теория и методы использования возобновляемых источников энергии					
Выбор	Код проекта	Название проекта	ФИО руководителя	Организация исполнитель	Стоимость проекта
<input type="checkbox"/>	#3-1974650374	Заявка 1	Bikmlfhl Bjdfgjl dskjgd1	Министерство обороны Республики Узбекистан	3000000

Занести решение

Figure 3.10 Entry points for application experts

Pseudo code:

```

protected void btnDecisionToTheNextYear_Click(object sender,
EventArgs e)
{
    string applicationsToTheNextYear =
Session["ApplicationsToTheNextYear"].ToString();//Getting all id of application
that will be project

    string[] applicationIDs = applicationsToTheNextYear.Split('_');
    int chosenYear =
Convert.ToInt32(Request.QueryString["year"]);//Getting parameter year
    int contestID
= Convert.ToInt32(Request.QueryString["contest"]);//Getting parameter
contest

```

```

        List<IIApplication> iiApplications = (new
IIApplicationsProvider()).GetApplicationsByContestID(contestID);//Getting all
application in contest

```

```

        foreach (IIApplication iiApplication in iiApplications)//Start to run
for each application

```

```

        {

            bool project = false;
            for (int i = 0; i < applicationIDs.Length - 1; i++)
                if (iiApplication.ID ==
Convert.ToInt32(applicationIDs[i]))//Search application by id
                {

                    project = true;
                    break;

                }

            if (project)//Set Financial status and status project
            {
                iiApplication.ActiveStatus = 1;
                iiApplication.ApplicationStat = 2;
            }
            Else//Set year
            {
                iiApplication.EndOfFinancingYear = chosenYear - 1;
                iiApplication.ActiveStatus = 0;
            }
        }

```

```

    }
    if (iiApplication.ApplicationStat == 0)
    {
        iiApplication.ApplicationStat = 2;
    }
    (new IIApplicationsProvider()).Update(iiApplication);//Updating
record in data base

}

    IIContest          iiContest          =          (new
IIContestsProvider()).GetContestByID(contestID);//Setthe year to contest

    iiContest.CurrentYear = choosenYear;
    (new IIContestsProvider()).Update(iiContest);//update record in data
base

    string typeOfResearch = Session["typeOfResearch"].ToString();

    Session["typeOfResearch"] = null;

    Session["ApplicationsToTheNextYear"] = null;

    Response.Redirect(string.Format("../List/ContestsByYearPage.aspx?typeOfResear
ch={0}", typeOfResearch));//Redirect to list of contest
}

```

Below is the generated program:

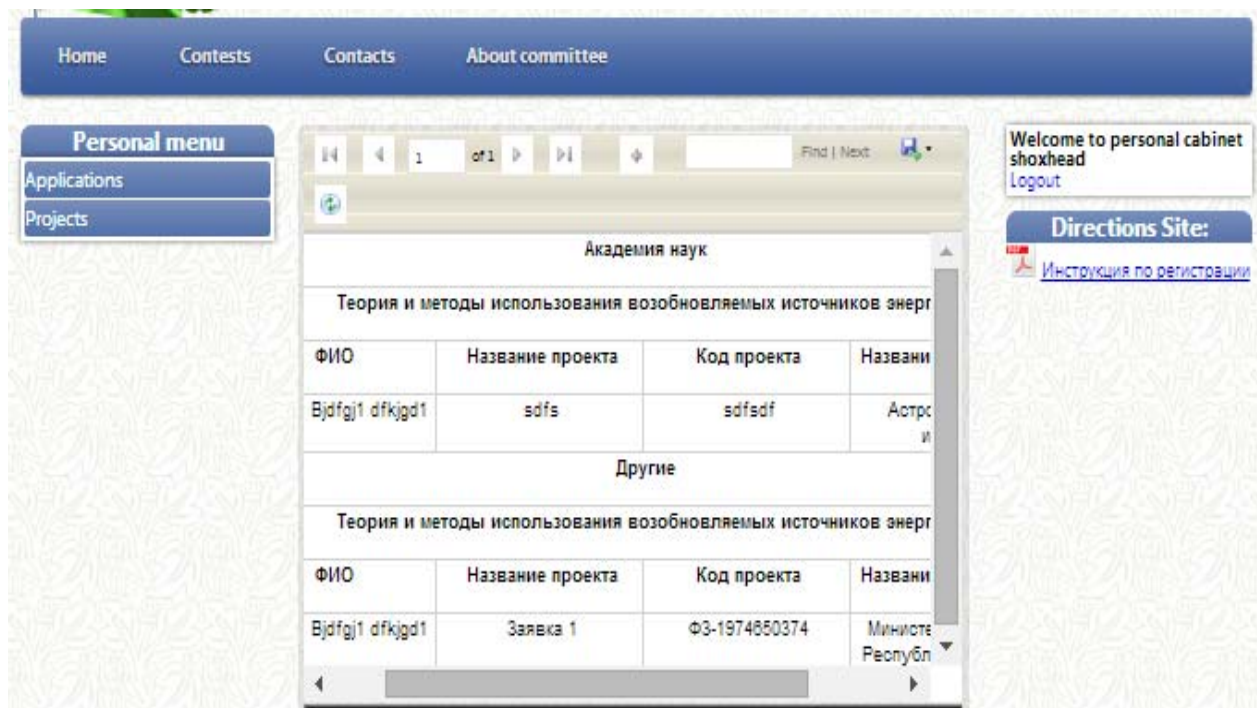


Figure 3.11Generated program

When creating reports, it was decided to use as a base ReportViewer. In Microsoft Visual Studio 2012 are a function of Report Designer and Controls ReportViewer, which allow you to add full-featured reports to custom applications. Reports can contain tabular, aggregated, and multidimensional data.

ReportViewer controls are provided so that you can process and display reports in your applications.

There are two versions of the control. The ReportViewer Web server control is a control ASP.NET AJAX, which is used to host reports in ASP.NET AJAX projects. The ReportViewer Windows Forms control is used to host reports in Windows application projects.

You can use this constructor to create reports in any format, you must only know the information that you need to take and pass them to the constructor.[10]

Home Contests Contacts About committee									
Отчет по министерствам									
<div> <div>1 of 2</div> <div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> <div></div> </div> </div>									
Академия наук									
ФИО	Организация	Ведомственная принадлежность	Ученая степень	Специальность	Занимаемая должность	ИНН	Электронная почта	Год рождения	Пол
Ашрапов Улугбек Товфиқович	Ядро физикаси институти	Академия наук	Доктор наук	Естественные	Учитель1	1111111111	нет	10/4/1962 12:00:00 AM	
Хайдаров Ренат Рашидович	Ядро физикаси институти	Академия наук	Доктор наук	Естественные	Учитель1	1022010101	нет@yahoo.com	10/17/1962 12:00:00 AM	
Хўжаев Сайдахмад хх	Ядро физикаси институти	Академия наук	Доктор наук	Не выбрано	Учитель1	1022010101	н@yahoo.com	10/17/1962 12:00:00 AM	
Исмаилова Жанат Хамидовна	Тарих институти	Академия наук	Доктор наук	Не выбрано	Учитель1	0	нет@ya.com	12/31/9999 12:00:00 AM	
Карлыбаев Максат Абдибаевич	Тарих, археология ва этнография институти Коракалпок булими	Академия наук	Доктор наук	Социально-гуманитарное1	Учитель1	0	нет@ya.ru	10/21/1954 12:00:00 AM	
А?медов Ашраф	Тенурийлар	Академия наук	Доктор наук	Социально-	Учитель1	1022010101	temurid@temurid.uz	10/7/1982	Мужской

Figure 3.11 Report by ministries

Pseudo code:

```

public List<Scientist> GetScientistsByMinistry(int ministry)/
    {OrganizationsProvider          orgsProvider          =          new
OrganizationsProvider();//Creating object of organizationprovider
    List<Organizations>          orgsByMinistry          =
orgsProvider.GetAllOrgByAbove(ministry);//Getting all ministries
    List<Scientist>          scientists          =          (new
ScientistsProvider()).GetAllScientists();//Getting all scientists
    List<Scientist> scientistsByMinistry = new List<Scientist>();//All
scientist by ministries
    List<int> orgsIDs = new List<int>();
    foreach (Organizations org in orgsByMinistry)//
    {
        orgsIDs.Add(org.ID);//Inserting id of organization    }
    foreach (Scientist scientist in scientists)
    {
        if (orgsIDs.Contains((int)scientist.GetWork()))
        {
            scientistsByMinistry.Add(scientist);//Selecting scientist by id
organization of ministries

```

```

    }
    }
    return scientistsByMinistry;//return list of scientist by ministries
}

```

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<div>Отчет по ученым</div>									
<div>1 of 2 ?</div>									
ФИО	Организация	Ведомственная принадлежность	Ученая степень	Специальность	Занимаемая должность	ИНН	Электронная почта	Год рождения	Пол
Бегматов Абдуллажон Сирожидинович	Согликини саклаш вазирлиги		Кандидат наук1	Физика конденсированных сред	Декан	1212121217	ildar_ildar@mail.ru	6/18/2017 12:00:00 AM	Мужской
Хуროнов Мухаммад Ghekfdbsd	Республика Миллий ?оя ва мафкура илимий-аналий маркази		Доктор наук	Естественные	Председатель	7777777	muxammadjon2008@mail.ru	5/22/1957 12:00:00 AM	Женский
Мунинов Рамизулла Абдуллаевич	Ўзбекистон Республикаси Президенти ? узуридаги Давлат бош?аруви академияси		Доктор наук	Не выбрано	Учитель1	1022010101	detector@uzsci.net	9/15/2005 12:00:00 AM	Мужской
Чепель Сергей Васильевич	Прогнозлаштириш ва макрои?тисодий тадди?отлар институти	Другие	Доктор наук	Социально-гуманитарное1	Старший научный сотрудник	0	swchep@tps.uz	8/18/1951 12:00:00 AM	Мужской
Салихов Тимур Паттахович	ЎзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Доктор наук	Физико-математические и технические науки	Директор института	21312311	kinglerrwer_@bk.ru	12/31/9999 12:00:00 AM	Мужской

Figure 3.12 A report by scientists

Pseudo code:

```

public List<Scientist> GetAllScientists()
{
    List<Scientist> scientists = new List<Scientist>();
    base.SqlRequestHandler(SqlRequestType.Read);
    SqlDataReader reader = base.DataReader;
    while (reader.Read())
    {
        scientists.Add(InitScientistFromDataReader()); //getting
all scientist in data base
    }
    base.CloseConnection();
    return scientists;
}

```


Home Contests Contacts About committee			
Отчет по организациям ▼			
1 of 2 ?			
Организация	Ведомственная организация	Номер телефона	Адрес
Физико-технический институт Научно-производственного объединения «Физика-Солнце»1	Министерство Юстиции Республики Узбекистан	(99871) 233-12-70	700084, г.Ташкент, ул. Г.Мавлянова 1
Академия государственного управления при Президенте Республики Узбекистан		(99871) 239-89-00	г.ташкент, ул Узбекистанская 45
Министерство высшего и средне-специального образования		(99871) 246-37-12	Г. Ташкент
Андижанский государственный университет	Министерство высшего и средне-специального образования	(99874) 225-05-09	АНДИЖАН ул. УНИВЕРСИТЕТСКАЯ, 129
Научно-практический центр национальной идеи и идеологии Республики Узбекистан		(99871) 239-15-87	100000, г.Ташкент, Мирзо Улугбекский район, улица Мустакиллик 59.
Министерство Юстиции Республики Узбекистан		(99871) 233-13-05	100047, г.Ташкент, ул. Сайилгох, 5.
Ташкентский Государственный юридический университет	Министерство Юстиции Республики Узбекистан	(99871) 233-41-09	100047, Тошкент, Сайилго? кўчаси, 35.
Национальный Университет Узбекистана им. Мирзо Улугбека	Министерство высшего и средне-специального образования	(99871) 246-67-72	г.Ташкент ,Вузгородок
Институт прогнозирования и	Другие	(99871) 237-26-32	100000, Мовороуннахр кўчаси

Figure 3.13 List of all organizations

By pressing organization, there is a conclusion of all scientists who there work

Figure(3.2.9.)

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Contests

Contacts

About committee

Отчет по организациям

1

of 1

Физико-технический институт Научно-производственного объединения «Физика-Солнце»1									
ФИО	Организация	Ведомственная принадлежность	Ученая степень	Специальность	Занимаемая должность	ИНН	Электронная почта	Год рождения	Пол
Салихов Тимур Паттахович	УзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Доктор наук	Физико-математические и технические науки	Директор института	21312311	kinglernwer_@bk.ru	12/31/9999 12:00:00 AM	Мужской
Орунов Балтабай -	УзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Кандидат наук1	Физико-математические и технические науки	Руководитель проекта	466862401	orunov@uzsci.net	9/27/1944 12:00:00 AM	Мужчина
Авезова Нилуфар Раббанакүловна	УзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Кандидат наук1	Физико-математические и технические науки	Руководитель проекта	472903007	nilufar72@mail.ru	8/31/1972 12:00:00 AM	
Салиев Муратжан Мухаммадович	УзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Кандидат наук1	Физико-математические и технические науки	Старший научный сотрудник	454760836	Saliev@uzsci.net	5/15/1960 12:00:00 AM	
Ибрагимов Мансур Акбарович	УзРФА Куёш физикаси институти1	Министерство Юстиции Республики Узбекистан	Доктор наук	Физико-математические и технические науки	Младший научный сотрудник	483387065	mansur@astrin.uz	10/24/1962 12:00:00 AM	

Figure 3.14 List of scientists in organizations

Pseudo code:

```
public List<Scientist> GetScientistsByOrganization(int orgID)
{
```

```

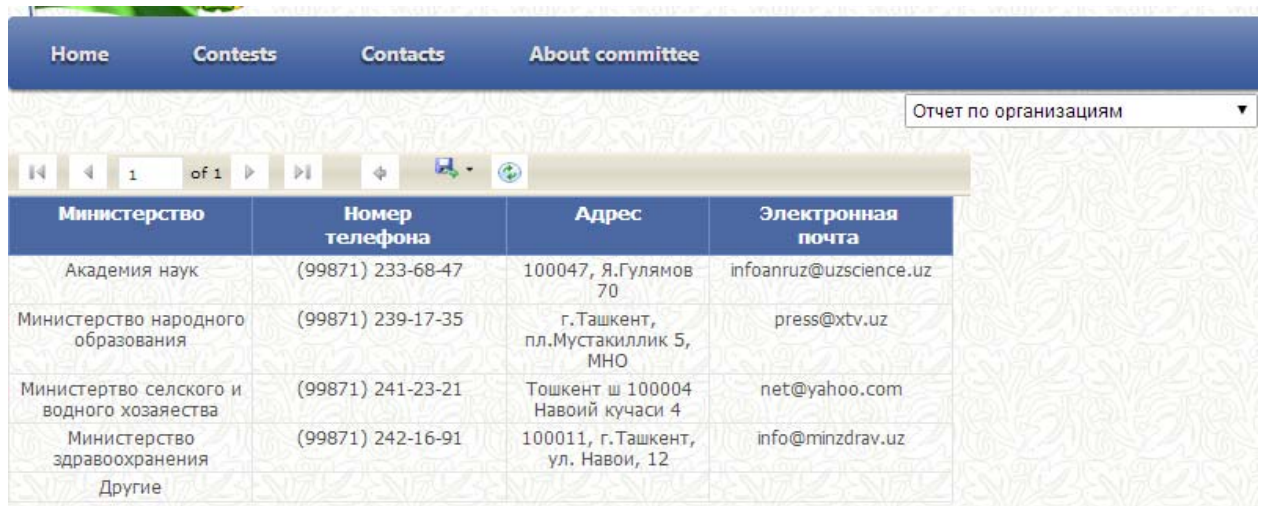
        List<Scientist> scientists = new List<Scientist>();
        ScientistsProvider().GetAllScientists();

        List<Scientist> scientistsByOrg = new List<Scientist>();
        foreach (Scientist scientist in scientists)
        {
            if (scientist.GetWork() == orgID)//Checking organization where is
            working scientist

                scientistsByOrg.Add(scientist);//Insert into list of scientist
        }

        return scientistsByOrg;//Return list on scintists
    }

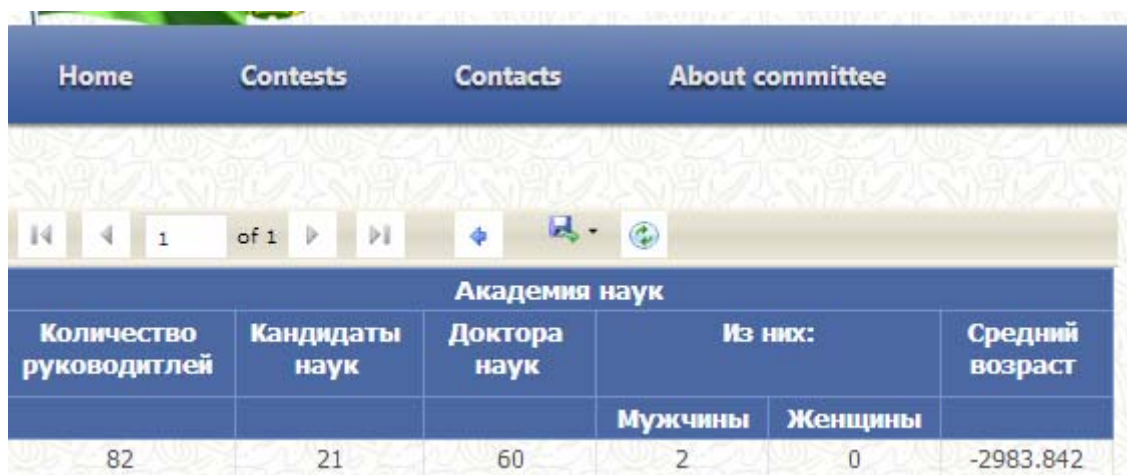
```



Министерство	Номер телефона	Адрес	Электронная почта
Академия наук	(99871) 233-68-47	100047, Я.Гулямов 70	infoanruz@uzscience.uz
Министерство народного образования	(99871) 239-17-35	г.Ташкент, пл.Мустакиллик 5, МНО	press@xtv.uz
Министерство сельского и водного хозяйства	(99871) 241-23-21	Тошкент ш 100004 Навоий кучаси 4	net@yahoo.com
Министерство здравоохранения	(99871) 242-16-91	100011, г.Ташкент, ул. Навои, 12	info@minzdrav.uz
Другие			

Figure 3.15 List of Ministries

By pressing ministry, there is a conclusion number of scientists who there work Figure 3.16



Академия наук					
Количество руководителей	Кандидаты наук	Доктора наук	Из них:		Средний возраст
			Мужчины	Женщины	
82	21	60	2	0	-2983.842

Figure 3.16 Number of scientists in the ministry

Pseudo code:

```

public List<ScientistByOrganizationReport>
GetFinalReportForMinistry(int ministry)
{
    List<Scientist> sciByMin =
    GetScientistsByMinistry(ministry); //Using method in getting Scinetists
    List<ScientistByOrganizationReport> reports = new
    List<ScientistByOrganizationReport>();
    reports.Add(GetFinalReport(sciByMin)); //Return scientists by
    ministries count
    return reports;
}

```

Физико-технический институт Научно-производственного объединения «Физика-Солнце»1					
Количество руководителей	Кандидаты наук	Доктора наук	Из них:		Средний возраст
			Мужчины	Женщины	
5	3	2	2	0	-1554.4

Figure 3.17 The number of scientists in the organization.

Pseudo code:

```

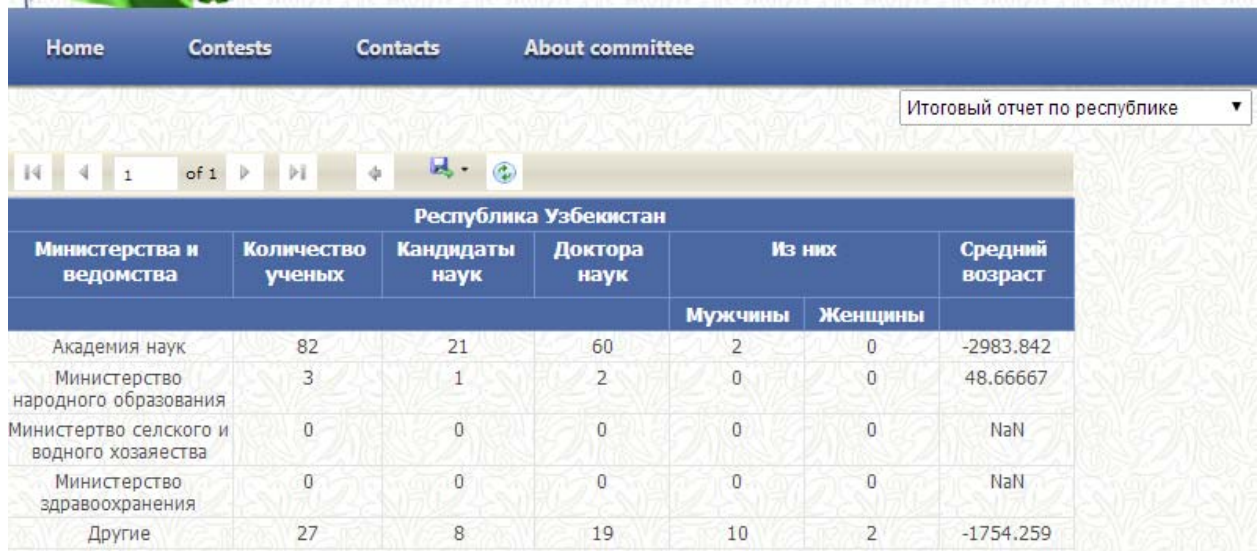
Public List<ScientistByOrganizationReport>
GetFinalReportForOrganization(int orgID)
{
    List<Scientist> sciByOrg = GetScientistsByOrganization(orgID);
    List<ScientistByOrganizationReport> reports = new
    List<ScientistByOrganizationReport>();
}

```

```

reports.Add(GetFinalReport(sciByOrg)); //using method to get all
scientists in organizations count
return reports;
}

```



Республика Узбекистан						
Министерства и ведомства	Количество ученых	Кандидаты наук	Доктора наук	Из них		Средний возраст
				Мужчины	Женщины	
Академия наук	82	21	60	2	0	-2983.842
Министерство народного образования	3	1	2	0	0	48.66667
Министерство сельского и водного хозяйства	0	0	0	0	0	NaN
Министерство здравоохранения	0	0	0	0	0	NaN
Другие	27	8	19	10	2	-1754.259

Figure 3.18 Final report by the Republic.

Pseudo code:

```

public List<ScientistByOrganizationReport>
GetFinalReportForAllMinistries()
{
    List<Organizations> ministries = (new
OrganizationsProvider()).GetAllAboveOrg();//Getting all ministries
    List<ScientistByOrganizationReport> reportForAllMinistries = new
List<ScientistByOrganizationReport>();
    foreach (Organizations org in ministries)
    {
        ScientistByOrganizationReport report =
GetFinalReportForMinistry(org.ID)[0];
        report.Organization = org.NameRU;
        reportForAllMinistries.Add(report);//Selecting all organization
and count scientists
    }
}

```

```

    }
    return reportForAllMinistries;    }

```

Figure 3.19 Final report by ministries

Pseudo code:

```

public List<ScientistByOrganizationReport>
GetFinalReportBySpeciality(List<Scientist> scientists, int speciality)
{
    List<Degree_Direction> degDirs = (new
Degree_DirectionProvider()).GetAllDegreeDirections();//Finding all degrees
directions

    List<int> degDirsByDirID = new List<int>();
    foreach (Degree_Direction degDir in degDirs)
    {

        if (degDir.GetDirection() == speciality)
            degDirsByDirID.Add(degDir.ID);//

    }
    List<Scientist> sciByDirection = new List<Scientist>();
    foreach (Scientist scientist in scientists)
    {

```

```

        if (degDirsByDirID.Contains((int)scientist.GetDegree()))
            sciByDirection.Add(scientist); //Adding funded scientist
    }

    List<ScientistByOrganizationReport>    returnReport    =    new
List<ScientistByOrganizationReport>();

returnReport.Add(GetFinalReport(sciByDirection.ToList<Scientist>()));

return returnReport; //Return list of scientist that is with degree direction
}

```

Физико-математические и технические науки					
Общее количество	Кандидаты наук	Доктора наук	Мужчины	Женщины	Средний возраст
67	25	42	7	0	-1386.776

Figure 3.20 Final report by specialties

Pseudo code:

```

public                                List<ScientistByOrganizationReport>
GetFinalReportBySpecialityID(int id)
{

```

```

        List<Scientist> scientists = (new
ScientistsProvider()).GetAllScientists();
        return GetFinalReportBySpeciality(scientists, id);
    }

```

Chapter three summary

- 1) Was implemented subsystem based administration Membership API.
- 2) Subsystem was implemented research-based process of adding reports Formation program and Reports. Reports have been implemented based on design ReportViewer.

Chapter 4. Lifesafety

4.1 Basic ways and forms of organization health mental and physical labor in order to increase efficiency.

Alignment of human and technology as elements of a single system connected with the need to address issues of distribution of functions between man and machine in the process of conducting research. In addressing these issues is set, which features more appropriate to leave the man, and what should be done on the computer. Consequently, labor and human activities on its form and content, and policy automation for various types of technical systems will greatly depend on the distribution functions. The distribution of functions between man and computer is usually carried out on the principle of pre-emption capabilities.

The main advantages of technology can be considered as follows:

- Stability perform repetitive actions;
- The speed of computing, ease the many options in order to best by specified criteria;
- Fast computing activities, ease of numerous options to best on the specified criteria;
- transmitting information to use forms of energy, which have receptor-specific human sensitivity (e.g., electromagnetic waves in the wave band);
- Operations are strictly according to preset programs and algorithms;
- The relative ease of creating a protective (from the environment) devices;

The main advantages of a person can be considered:

- The ability to detect and recognize in a context of high levels of noise, with special measures weight, etc.;
- The ability to make decisions based on data and knowledge;

- The ability to develop an individual style of activity as an effective adaptation measures;
- The ability to find new solutions, new ways of performing manufacturing operations;
- Ability to accumulate information and use the experience to improve how people work;
- Possibility to use technical devices to interact with various indicators and controls;
- To enhance interest in the work by the presence in the working process of the creative, the search component;
- Ability to maintain readiness for action in unexpected situations.

Of course, a person can maintain a relatively high and stable level of efficiency only within a limited time. During the work of the person may be distracted, he get tired and, consequently, the speed and accuracy of his actions can significantly decrease. In respect of long monotonous work computer stability is unquestionably superior to man, it is able to perform a greater number of computational operations. However, the man has a distinct advantage when working in difficult conditions, he has an enormous potential compensation, can for a short time to recover, but also to perform the work at a higher level.

Obviously, in any control system functions between man and computer must be distributed in such a way as to allow manifestation of all those qualities which are accumulated in modern man as a result of work of previous generations. In this regard, computer, from simple to complex, intended primarily to provide a high-performance and reliable operation of systems, while free man to the functions to which it is the least adapted and maximally present in the workflow functions, the corresponding qualities as a person, as stakeholder.

When conducting research operator experiencing physiological stress. On this basis it is necessary to assess the physiological stress in the research process.

The use of physiological assessments in engineering psychology due to the following circumstances:

- Physiological characteristics are essential for the control of the operator.
- Any psychological manifestation of a physiological basis.
- In clinical practice, and the physiology of labor accumulated some experience in processing and analysis of physiological characteristics. There is also a vast arsenal of equipment for physiological measurements.

Consider the most important of the physiological characteristics:

- The electroencephalogram (EEG) characterizes the brain bioelectrical activity. The spectrum contains various components of EEG delta rhythm (oscillation frequency of 0.5-4.0 Hz), theta rhythm (5.0-7.0 Hz), alpha-rhythm (8.0-12.0), beta rhythm (15-35Hz), gamma rhythm (35-100 Hz).
- electromyogram (EMG) is a registered biocapacity human muscle and is very sensitive to the inclusion of an objective indicator of the dynamic and static performance of individual muscle groups. Such analysis is needed in the study of working postures and movements of the operator control. With EMG can detect fatigue man which reduces the total electrical activity of the muscles and the average amplitude of the oscillations.
- galvanic skin response (CRH) characterizes the change in the electrical resistance of the skin (or voltage) and is one of the most effective ways of registering emotional tension operator.
- Electrocardiogram (ECG) - this check electrical phenomenon that occur in the heart muscle. Its normal electrical characteristics: amplitude - 300-500 mV, frequency - 0.15-300 Hz. ECG consists of a number of teeth and the intervals between us. Teeth characterize the flow of various processes in the heart muscle.
- Electrooculogram (EOG) characterizes the electrical activity of the eye muscles. Separate registration is commonly used vertical and horizontal eye movements. The sign of the potential EOG indicates the direction of moving your

eyes, and its magnitude - angle displacement. EOG used for the analysis of the human visual system with the means of displaying information as well as to analyze distribution and switching of attention of the operator during operation.

- Voice Response (DR) is studied by spectral and temporal characteristics of the speech of the operator. Change tone of voice, which is accompanied by a change in the spectral composition of the sound vibrations can be judged on the occurrence of emotional states operator fatigue and tension in his work. For example, during the development of fatigue increases the duration of the words and the pauses between them, and their depression.

- The study only one physiological indicator, usually can not give a definite answer about the state of the operator. Therefore, in practice, a so-called polyeffector method, which consists in simultaneous recording and analysis of a set of indicators.

A particular aspect of the quantitative analysis of human activity as a link management system constitute reliability study. Reliability characterizes the integral quality of any system that expresses the ability to perform its functions in accordance with the request within a specified time interval. Change in the system, entailing the total or partial loss of system performance, defined as failures.

It is quite clear that high reliability of the equipment is a necessary condition of its successful operation and as a whole technical process. However, as we already noted earlier, work of automated control systems depends not only on technical devices, but also on the person. Therefore, final reliability of the person car complex will be defined by reliability of both components.

Complication of manufacturing processes and equipment have changed human functions in modern production: increased responsibility of tasks; increased amount of information perceived working and performance of the equipment. Man's work has become more complex, increased load on the nervous system and decreased physical load. In some cases, people become less reliable link in the "man-machine". The problem arose to ensure the reliability

and safety of the person in the workplace. This problem is solved ergonomics and engineering psychology.

4.2. Microclimate

Microclimate - a complex of physical factors indoor environment that affects the heat exchange of the body and health. To microclimatic parameters include temperature, humidity and air velocity, temperature surfaces enclosing structures, objects, equipment, and some of their derivatives (gradient temperature vertical and horizontal space, the intensity of thermal radiation from the interior surfaces).

Impact of complex microclimatic factors reflected on rights and causes features of the physiological reactions of the body.

Microclimate of industrial premises - weather conditions indoor environments, which are defined by acting on the human body combinations of temperature, humidity, air velocity and thermal radiation.

On a number of industries, the list of which is set industry documents agreed with the state sanitary supervision, provides optimum working environment. In the cabins, on consoles and control stations Process, in the halls of computer technology, as well as in other areas in which work is performed, carrier type, should be provided with the optimum values of microclimate: air temperature 22-24 °, humidity - 40-60% speed Motion air - no more than 0.1 m / s regardless of the period of the year. Optimal rates are achieved mainly through the use of air conditioning systems. However, technological requirements of certain industries (spinning and weaving workshops textile mills, some food industry), as well as technical and economic reasons capacity of some industries (foundries, forge shops steel industry, heavy engineering industry, the glass industry) does not allow for the optimal rate of production microclimate. In these cases, permanent and non-permanent jobs, according to GOST set permissible limits microclimate.

Microclimate in the workplace can change throughout the working day, to be different in some parts of the same plant.

Parameters characterizing the climate are:

- The air temperature;

- The surface temperature (surface temperature is taken into account enclosures (walls, ceiling, floor), devices (screens, etc.), as well as process equipment or protecting its devices);
- Relative humidity;
- Air speed;
- The intensity of the thermal radiation.

The optimal microclimate norms which should provide in health care and child care centers, residential, office buildings, and industrial facilities, where optimal conditions needed for the technological requirements.

Sanitary standards for optimum microclimate differentiated cold and warm periods of the year (Table 4.1).

Table 4.1.

Optimal rates of temperature, relative humidity and air velocity in residential, public and administrative buildings.

Indicator	Period years	
	Warm	Cold and transition
Temperature	23—25°	20—22°
Relative humidity, %	60—30	45—30
Air velocity, m / s	Not more than 0,25	Not more than 0,1—0,15

In cases where a number of technical and other reasons, the optimum microclimate norms can not be provided, guided by the permissible limits (Table 4.2).

Table 4.2.

Acceptable norms of temperature, relative humidity and air velocity in residential, public, administrative buildings

Indicators	Period of the year	
	Warm	Cold and transitional
Temperature	No more than 28°	18—22°
for areas with estimated air temperature 25°	Not more than 33°	—
Relative humidity, %	65	65
In areas with calculated relative air moisture of more than 75%	up to 75	—
Air velocity, m/s	Not more than 0,5	Not more than 0,2

Failure to comply with preventive measures for persons working for a long time in the heating microclimate can be observed degenerative changes infarction, hypertension, hypotension, and asthenia syndrome, reduced immunological reactivity of the body, thereby increasing the incidence of acute respiratory infections workers, sore throat, bronchitis, myositis, and neuralgia. When overheated body amplified the adverse effects of chemicals, dust, noise, fatigue sets in faster.

Table 4.3.

The optimal temperature and velocity of movement of the air in the working area of production premises, depending on the category of work and periods of the year

Category work	Energy Costs	Periods of the year			
	W	cold	warm	cold	warm
		Temperature (°C)	Speed, (m/s)		
easy, Ia	up to 139	22-24	2 3-25	0, 1	0, 1
easy, Ib	140-174	21-23	2 2-24	0, 1	0, 2
moderate, IIa	175-232	18-20	2 1-23	0, 2	0, 3
moderate, IIb	233-290	17-19	2 0-22	0, 2	0, 3
heavy, III	more 290	16-18	1 8-20	0, 3	0, 4

Cooling microclimate in the premises can be advantageously convection (low temperature, for example, in certain preparatory workshops food industry), mainly radiation (low temperature cold storage fencing) and mixed. Cooling contributes to respiratory diseases, exacerbate diseases of the cardiovascular system. Upon cooling deteriorates motor coordination and ability to perform precise operations that leads to both a decrease in efficiency and an increase in the probability of work-related injuries.

Allowable microclimatic conditions - these are a combination of microclimate that with prolonged and systematic human exposure can cause stress reactions thermoregulation and which do not extend beyond the physiological adaptive capacity. When this does not occur in health disorders are not observed teplooschuscheniya discomfort, worsening health and reduction of efficiency. Optimal parameters of the microclimate in the premises provided by air conditioning systems, and valid options - conventional ventilation and heating systems.

Prevention of overheating working in the heating microclimate at the expense of reducing the external heat load by process automation, remote control, use of collective and personal protective equipment (heat-absorbing and heat-reflective screens, air showers, water curtains, radiative cooling system), the regulation time of continuous residence in the work and place in a recreation area with optimal microclimatic conditions, drinking regimen.

When working in cooling climate preventive measures include the use of primarily clothing, shoes, hats and mittens, thermal insulation properties, which shall conform to the meteorological conditions, the severity of the work, performed. Governed by the continuous exposure to cold and rest breaks in sanitary facilities, are included in the working time. These rooms are additionally equipped with heating devices for hands and feet, as well as devices for drying clothing, shoes, and gloves.

Chapter four summary

In the fourth chapter were the main ways and forms of organization of health mental and physical labor in order to increase efficiency. Were considered acceptable microclimate conditions and the microclimate of industrial premises affecting the heat exchange of the body and human health.

Conclusion

Graduate work is devoted to the design and development of subsystems, system administration and collection and processing of data for research portal "Ilmy Ishlar."

Within this work the following results were obtained:

1. The analysis of the requirements to the developed portal;
2. An analysis of the various components used in web-portals;
3. The architecture of the portal and database schema;
4. Held design basic portal modules using diagrams use;
5. Were chosen tools and technologies development system;
6. The software web-portal;

During the analysis domain analysis requirements web-portal "Ilmy Ishlar". Based on these requirements, defines the main functions of subsystems developed portal.

Were considered existing portal systems development. A comparative analysis of the existing web-based technologies, it was decided to use Asp.net technology and develop its portal solution.

At the design stage of the portal architecture was developed. Architecture designed web portal consists of three subsystems:

1. Subsystem scientific works, which includes 6 modules
2. Subsystem directories, which includes 12 modules
3. Administration subsystem, which includes 2 modules

Using charts uses designed the structure and behaviour of the modules of the system. The work describes the class and their interaction. Developed subsystem, System Administration and data collection and management on scientific research. Are there interfaces and logic pages. Covered the basic ways and forms of organization of labour and mental and physical health in order to improve efficiency. Were considered valid microclimatic conditions and microclimate of premises affecting the thermal Exchange and human health.

The result of all the work is the Web portal "Ilmiy Ishlar".

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APPENDIX1 "Relational database model"

Figure 2.2. Relational model of the database of “Ilmiy Ishlar” system

Figure 2.3 Relational model of the database of “Ilmiy Ishlar” system

Figure 2.4 Relation model of the database of “Ilmiy Ishalar” system

APPENDIX 2 «Classes of business logic»

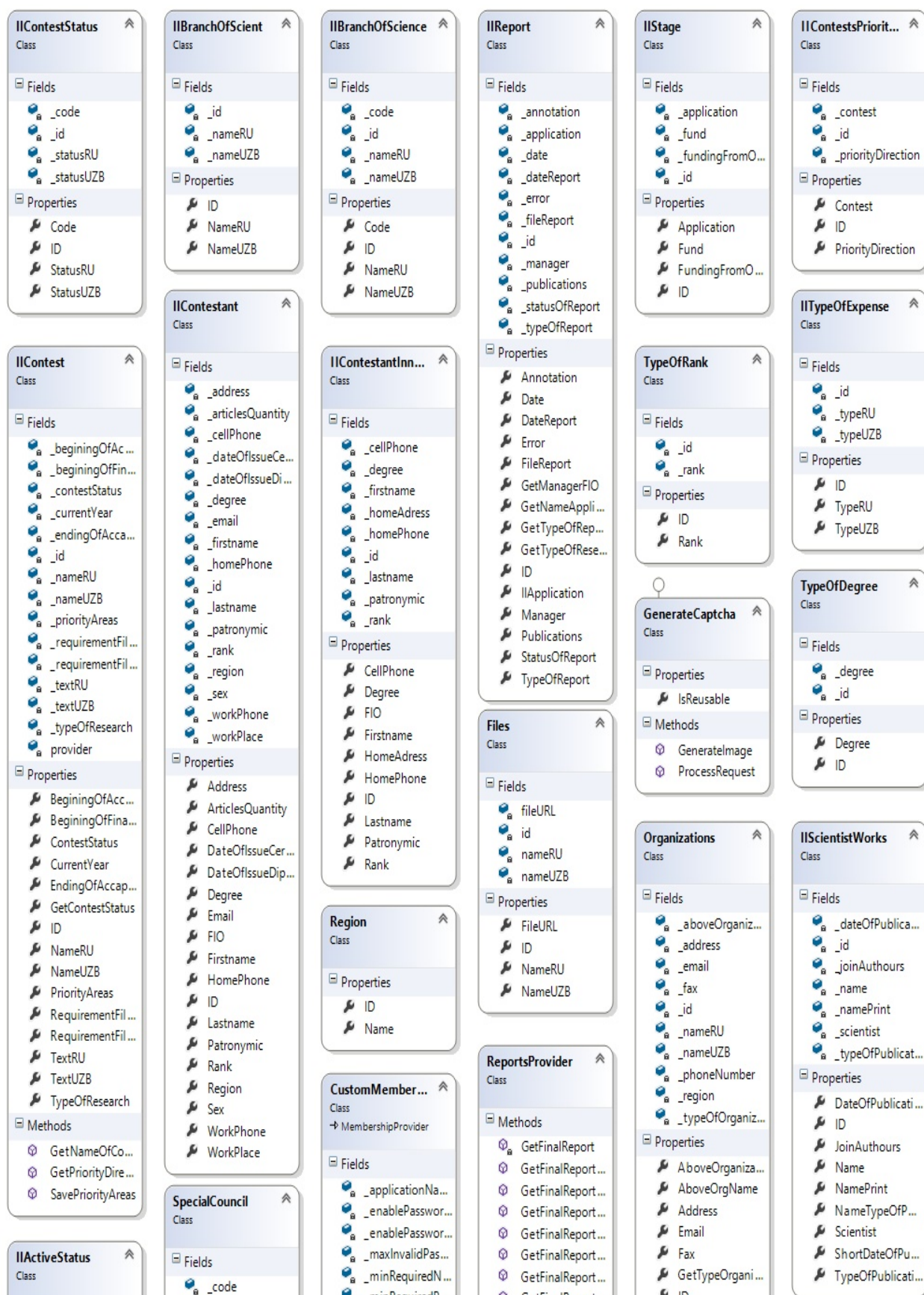


Figure 2.6Classes of business logic



Figure 2.7Classes business logic

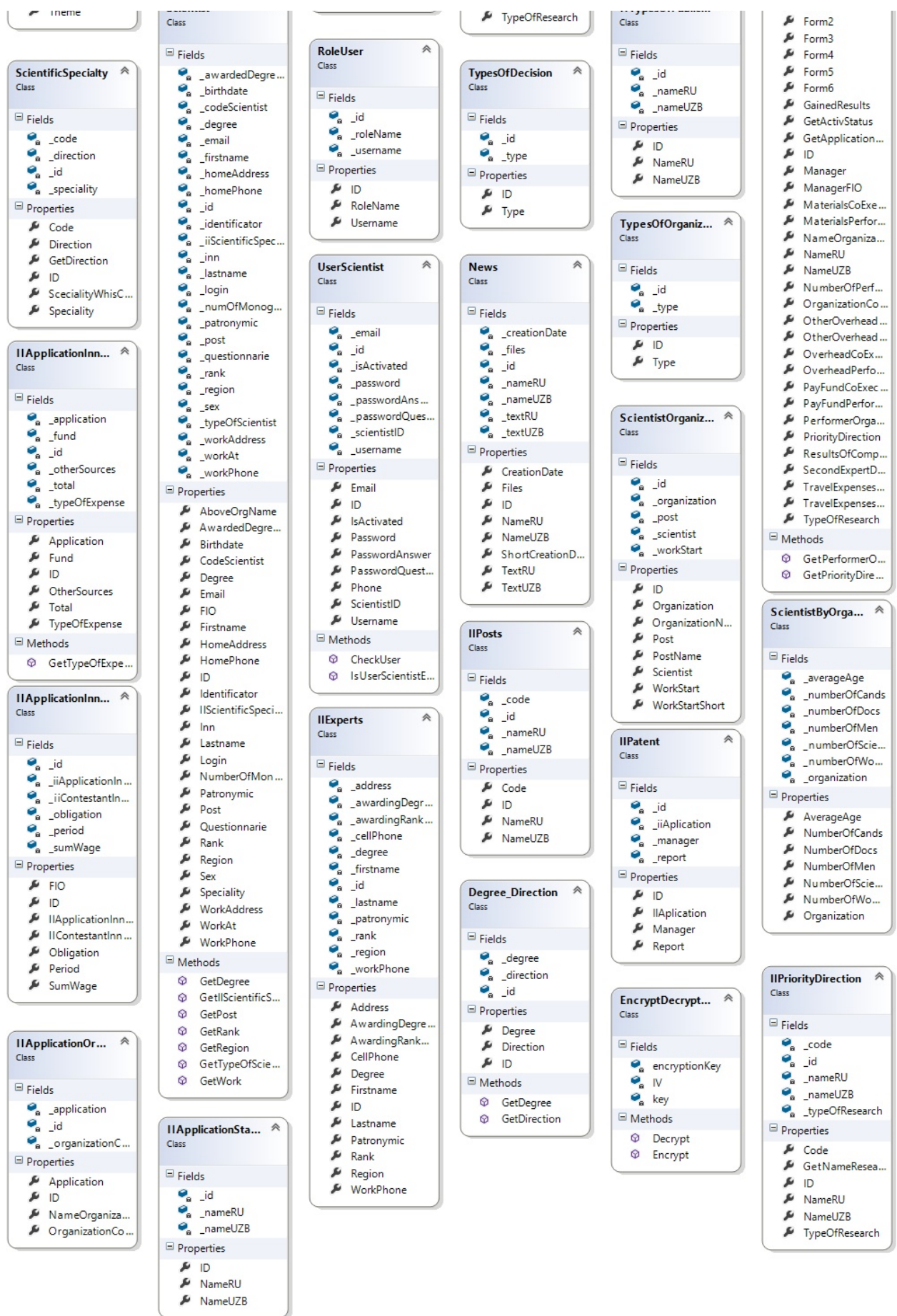


Figure 2.8Classes business logic

APPENDIX3 «Classes of object-relational representation»

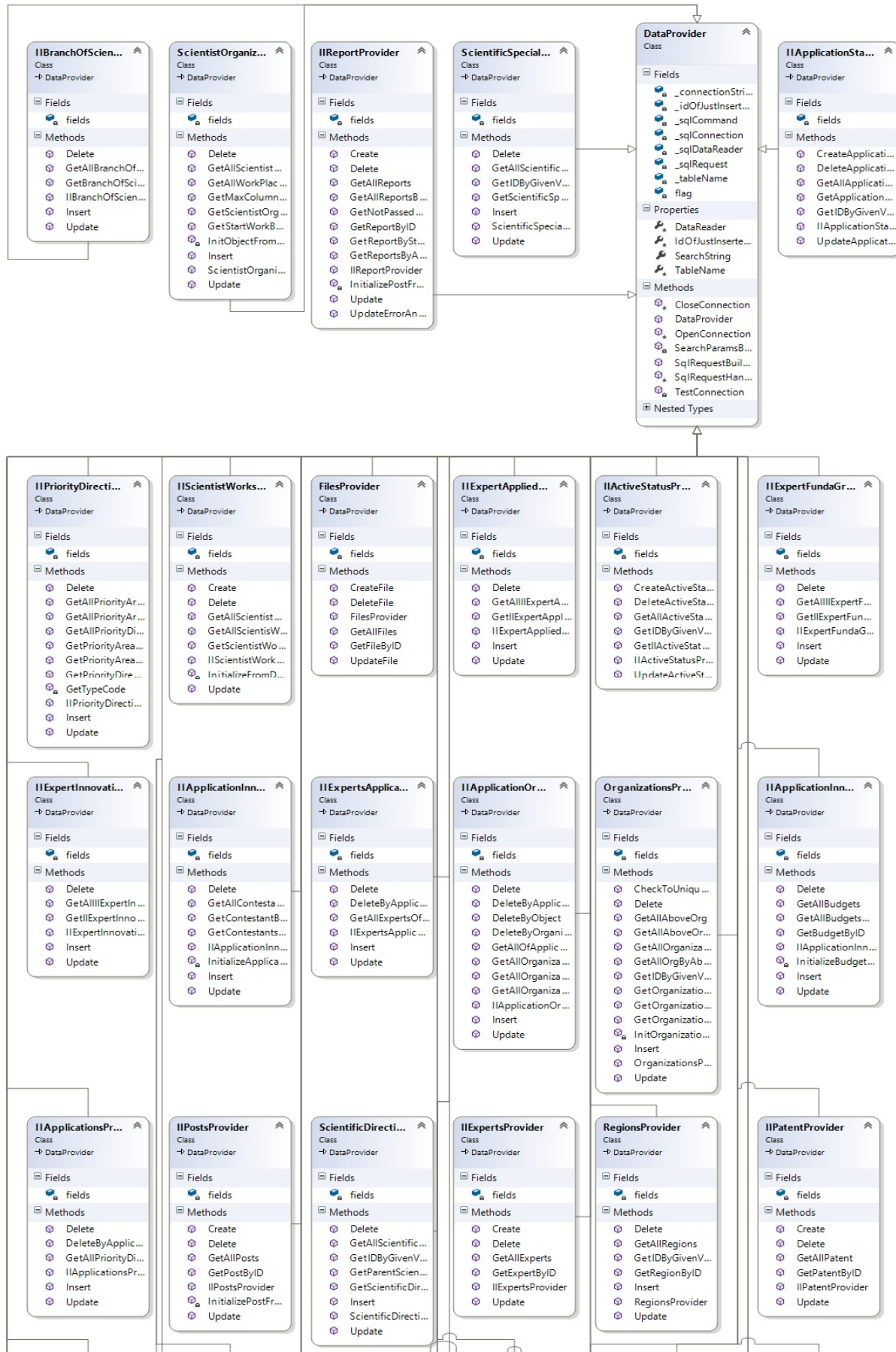


Figure 2.9Classes of object-relational representation



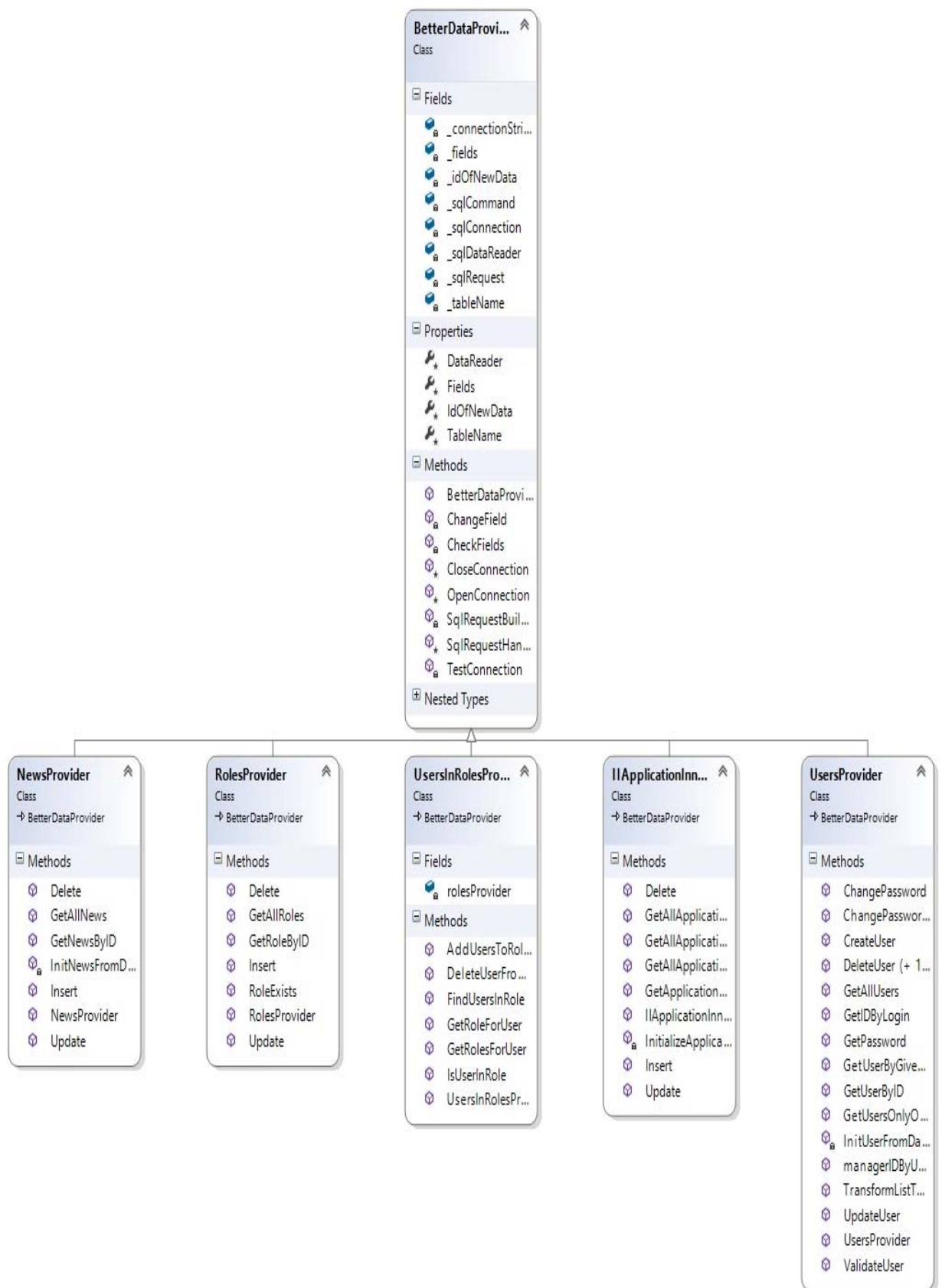


Figure 2.11 Classes of object-relational representation

