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Topic (ii): Dissemination and client relations

ORGANIZATION OF DATA COLLECTION AND DISSEMINATION USING WEB TECHNOLOGIES

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1. Recent changes in information technologies have caused changes in the collection, processing and dissemination of information. As the principal supplier of official information, the State Committee of Statistics of the Republic of Azerbaijan (SSC) uses modern processing and dissemination of information methods.

2. The SSC is in contact with many suppliers and consumers of information inside and outside of the country. Information from various sources enter in corresponding offices of SSC (administrative regions or city branches, regional offices or in main office), where input, control, processing of the data is realized and all information is directed to the Main Office for further processing. All primary information is collected at the main office of SSC for further aggregation and distribution.

3. At present in the SSC, the various software have been developed allowing to enter, process and send the information operatively from various instances. These are software for processing of reports or questionnaires received from various sources. The user (usually the employee of the corresponding statistical establishment) can download from the SSC page and install on his own computer.

4. In the past, the basic method of distribution of information in SSC was via publications. Recently a web page has been created where information about activities of SSC has been placed

and which can be accessed by any user. This page includes information about SSC, all publications as well as information on the various branches of statistics. Updating of the information is done periodically according to the periodicity of the collected data.

5. We have developed a number of software products and services, which allow receiving the actual and authentic statistical information at any time. This is an information system on collecting, processing and distribution of the statistical information.

6. The system has been developed taking into account the specificity of SSC's work, system requirements of the given software product are minimal, it does not depend on the operating system and for its works, it needs only the computer, connected to a network. Operational characteristics of the system are rather high, use of system differs simplicity and convenience. Each user of the system works at his own workplace, the information is accessible to viewing in one of several modes.

7. The flexible control system of access allows supervising the changes and updating of the statistical data: each user possesses certain privileges on the basis of which he(she) has the right to modify the existing data or to add new. Thus, the non-authorized change of the information in system is completely excluded.

8. The user interface consists of two parts: service (the various help information to change is accessible only by the manager) and, actually, information, containing statistical data on branches of statistics. Each of the branches of statistics inputs its periodic information and also tables on any period. The information is accessible to any user who has access to a network of the SSC. In the near future these resources will be accessible on Internet too. Authentication of the users (for those who have rights to update the information) is accessible from any place of system.

9. Taking into account that each branch of statistics has about a hundred parameters of various periodicity (the periodical press varies from monthly up to annual parameters), at present the system contains about 2,000,000 units of information on various parameters on all branches of statistics.

10. During the development of this system the fallowing software are used:

- Database server - DBMS Oracle9i, industrial DBMS, intended for storage and processing of great volumes of the data, distinguished by high reliability and productivity;
- Application server - Apache Tomcat 5.5.9, high-efficiency java the server of appendices, supporting java-technologies Java Servlets 2.3, Java Beans, JSP 1.2, JSP Tag Libraries;
- Client part - standard Internet browser - Mozilla or Internet Explorer.

11. The organization of structures for data storage corresponds to the real organization of the information - the list of statistics has a three-level hierarchical structure: parameters are ordered on branches, inside on sections. Concrete tables of a database correspond to these levels. The information is accompanied by the corresponding metadata.

12. The mechanism of authentification of DBMS Oracle, allows undertaking rather flexible mechanism of authentification, provides high efficiency of work with the data, reliability of data storage and convenience of their organization due to use of complex indexes.

13. The trimetric architecture "client - server" with the thin client is used. The program has been designed taking into account features of multilink architecture a client-server. Its convenience consists in conclusive advantages of the given architecture among which it is possible to allocate:

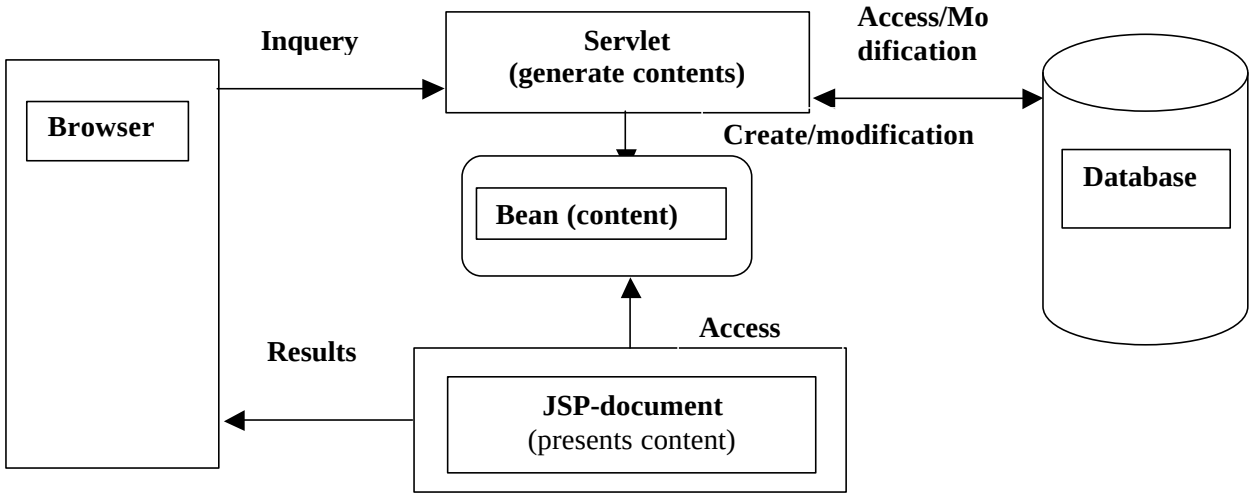
- The thin client (on the client part it is not required installations of any specialized toolkit), it is only necessary to have an Internet – browser;
- All users can work with Internet browsers, therefore the expense of time for training of users to bases of work with the chosen client toolkit are reduced to a minimum;
- All data processing is produced in the application server and only the final result of client inquiries is forwarded to the client;
- On the client side only the coding of the transmitted information is released in JavaScript;
- The appendix is completely cross-platform, and does not depend on versions JVM.

14. The architecture MVC Model2 is used in which three basic concepts are encapsulated, the graphic appendices present in the majority: model, viewing and the controller. Applying of java-technologies - Java Servlet 2.3, Java Beans, Java Server Pages 1.2 and JSP Tag Libraries inside architecture MVC (Model - View - Conroller) Model2 gives the following advantages:

- Model2 allows to divide business - objects and JSP-documents;
- Model2 separates generation of contents from its representation;
- Use JSP Tags allows to create code of client pages rather convenient for understanding, completely free from impregnation the specialized sites of a java-code that promotes the further scalability and the appendix;
- Also the JSP Tags Library (user tags) mechanism allows solving many problems of data presentation and gives free rein for the creation of new tags both within the framework of the given appendix, and for subsequent use;
- According to architecture Model2, in the appendix the servlet-controller distributing acted client inquiries on separate components of the appendix, carrying out especially specialized tasks is used;
- All data between a server and the client are transferred by means of objects Java Beans, that essentially simplifies representation of the required data; Use of the mechanism of client sessions is accessible due to application of technology Java Servlets and allows to provide convenient authentication and the subsequent authorization at work with the appendix.

Program realization. Organization of the application.

15. The server part of the program is submitted via servlets and JSP, organized in view of architecture Model2. Model2 allows dividing business - objects and JSP-documents besides the given architecture separates generation of contents from its representation. The circuit of work of the appendix organized in view of architecture Model2 is shown below:



16. According to architecture Model2, inquiries are transferred to servlet, which addresses to business - objects (realized on the basis of technology JavaBeans) and creates contents. These contents are kept in a component bean to which has access the JSP-document. The document represents contents, applying for this means HTML.

17. The given technology works only within the limits of a corporate network of SSC and is introduced for conducting base of macroeconomic parameters on all branches of statistics and can be used without changes for distribution of the information that will allow users of the statistical information to receive the information necessary for them in any cut and operatively.
