

OPPORTUNITIES OF ACTIVE ARCHITECTURE IN DESIGNING AN INFORMATION SYSTEM FOR AUTOMATIC CHECKING OF TASKS

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Abstract

Pedagogical software tools focused on traditional and interactive methods, i.e. passive architecture, have been used for independent education and practical training of students. But it is recommended to use an active architecture when checking assignments. Developed and designed models, client-server, ER diagrams, production models, and part algorithms to verify independent learning and practical training assignments.

Keywords: database, self-learning, architecture, CASE tasks, production models, criteria.

Annotasiya

Talabalarning mustaqil ta'lim va amaliy mashg'ulot tekshirishda an'anaviy va interaktiv usullarga yo'naltirilgan Pedagogik dasturiy vositalardan yani passiv arxitektura foydalanib kelingan. Ammo topshiriqlarni tekshirishda faol arxitekturadan foydalanish tavsiya etilgan. Mustaqil ta'lim va amaliy mashg'ulotlar topshiriqlarini tekshirish uchun modellar, mijoz-serveri, ER diagramma, produksion modellari va qism algoritmlari ishlab chiqilgan va loyihalashtirilgan.

Kalit so'zlar: ma'lumotlar bazasi, mustaqil ta'lim, arxitektura, CASE topshiriqlar, produksion modellar, mezonlar.

Introduction

The basic capabilities of the active architecture were implemented in 3 stages for the design of the information system for automatic verification of assignments. They are:

1. Logical functional structure;
2. Database structure and ER diagram;
3. User interface and scripts.

In order to design an information system for the automatic verification of tasks, it is necessary to choose the methodology and architecture of each stage separately, as well as to choose the methods of mutual information exchange, that is, the integration of the stages.

There are many approaches to designing a logical functional structure, and IDEF methodology is used for them. This logical functional structure is constructed by IDEF0 models using Figure 1 Logical Functional Structure (MFT) using 6 elements for the design of Automatic Assignment Verification Information System.



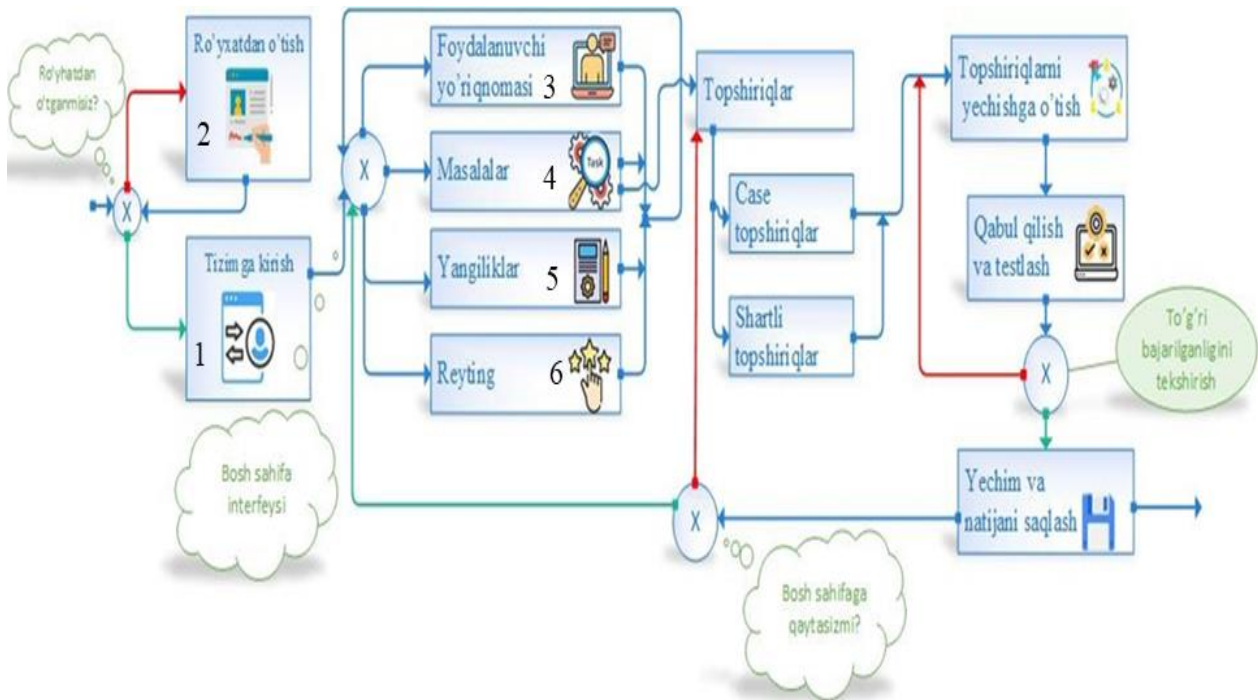
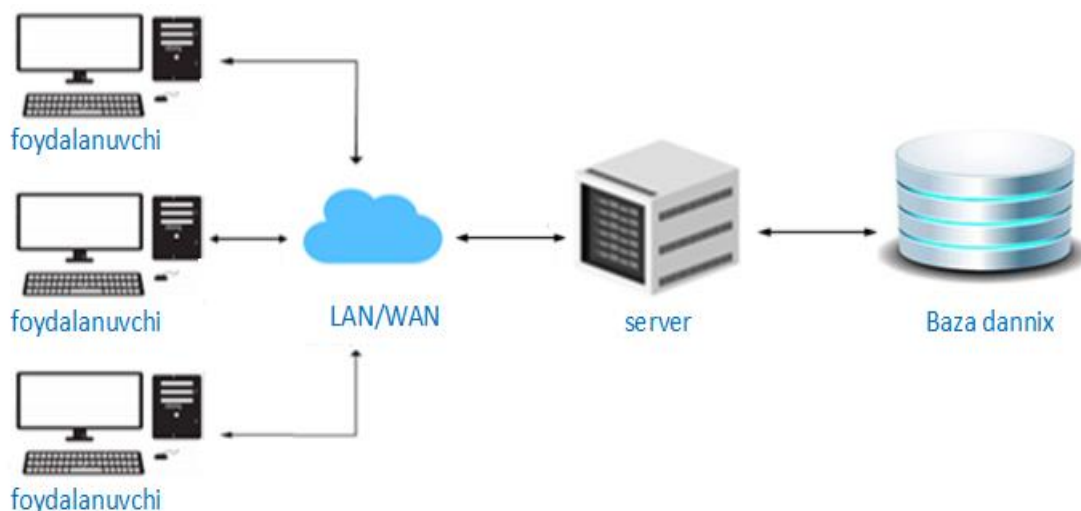


Fig. 1 shows the mechanisms of automatic verification of tasks in the information system. Problems and assignments developed for independent education and practical training are divided into 2 groups (Conditional assignments and CASE assignments):

On the basis of the MFT of checking conditional tasks, the request of the task is correctly structured, based on predefined criteria, it is appropriate to issue SQL language queries used in the management of the database only on the basis of conditions;

Unlike the conditional task structure, the MFT of CASE task verification is divided into stages (2) and requires the execution of a finite number of tasks ($N > 1$).

A 3-tier client-server architecture was selected and designed as shown in Fig.



The proposed client - server performs the tasks of independent education, performs them while standing in the classroom, performs without interrupting the work, multi-client of the server, LAN/WAN networks are used to check the correctness of the tasks. Many programs and remote

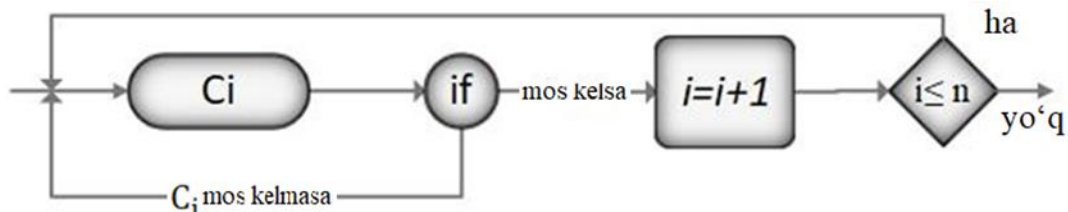
systems of the world use this structure, and it serves to use the web application of programs on personal computers, notebooks, smartphones. For most students, the availability of such devices allows them to complete or continue independent learning tasks in optional locations.

Database structure and ER diagram. Each information system to be created will have a database structure and an ER diagram. It has a great role to perform data storage, processing and presentation operations of the information system. In the information system of automatic verification of tasks, the structure of the database and the ER diagram were developed for the data of students, tasks, criteria for checking task solutions, knowledge and results. 12 data structures and 2 ER diagrams were developed for each element included in the logical functional processes of the information system of the proposed Automatic Check of Tasks.

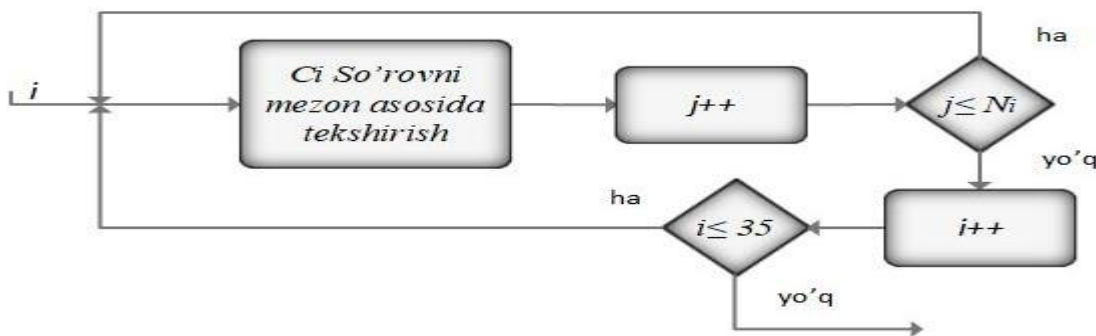
Several rules and criteria are used to check students' assignments based on the information system of automatic assignment verification. To activate these in computer systems, the model of knowledge presented in expression (1) was selected using production models of building knowledge bases.

$$\left\{ \begin{array}{l} IF (A_1) THEN (B_1) \\ IF (A_2) THEN (B_2) \\ \dots \\ IF (A_n) THEN (B_n) \end{array} \right. \quad (1)$$

(1) each rule and criteria in the expression is developed based on the properties of the request (given in the next paragraph) and written into the system, each rule and criteria ($i=1..n, n>2$) is defined and the following part of the algorithm is used until the current task meets this criterion.



(2) In the part of the algorithm that lists conditional tasks based on criteria, it is specified that each task is checked in turn from all criteria and continues until the criterion is fulfilled.



User interface and scripts. Gadgets with smart mobility capabilities, which is the most modern approach to user interface design, were selected and UIs were designed accordingly. It took into account the psychophysical requirements of our Republic and foreign scientists. Today, taking into account the possibility of using a smartphone for many requirements, user interfaces have been created in the form of mobile applications and web pages.

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