# A METHOD FOR CREATING A WEB PLATFORM TO DEVELOP PUPILS' ALGORITHMIC THINKING IN PROGRAMMING

Mirsanov Jurabek Mukhammadiyevich,
Teacher of the Samarkand Academic Lyceum

**Annotation**
This article presents the problems of forming students' algorithmic thinking in programming. Also, the stages of creating a web platform designed to form students' algorithmic thinking in the field of programming are given.

**Keywords:** Algorithmic thinking, web-platform, didactic software, code, programming.

Today, due to the emergence of modern computer programming languages, there is a growing need to develop new approaches for programming tasks and cultivating students' algorithmic thinking in programming, as well as improving didactic support [1]. Therefore, the proposed research advances the idea of creating a web platform designed to develop algorithmic thinking skills in programming among general secondary education students.

Therefore, within the framework of the study, we present the stages of creating a web platform designed to form students' algorithmic thinking in the field of programming:

**Stage 1.** Defining the learning objective. To create a web platform aimed at developing students' algorithmic thinking in programming, it is first necessary to clearly formulate the project's goals and objectives, as well as identify the target audience. It is important to understand what problems the web platform will solve and what functions it should provide to users. At this stage, a technical specification is also developed - a document describing the requirements for the platform, functionality, design, and other aspects. This includes specifying the color scheme of the web platform and font sizes. In implementing these tasks, the requirements presented within the framework of the study are followed. Additionally, the following should be taken into account:

- achieving high quality of training in a specific course without financial, material and technical, group, and temporary restrictions;
- taking into account students with disabilities who, for some reason, could not attend classes on algorithmization and programming, as well as the possibility of independent study;
- be aimed at the formation of logical and algorithmic thinking of students in the field of programming;
- taking into account the possibilities of using the created web platform and the educational tools placed on it through computers, mobile phones, smartphones, and tablets.

**Stage 2.** Sign up for. In this case, it is necessary to pay attention to the following: clarification of the target audience. If the web platform is targeted at users of a particular country, it is better to choose a zone corresponding to this territory (for example,.uz); reflecting the specific features of the web platform. It is advisable to indicate the purpose of the project in the domain extension (for example, the web platform was named codinguz.uz due to its focus on programming); use of online services. For example, using the Whois service, which provides access to databases of registered domain names. To check for availability, you need to enter the domain name in the field on the service website and check it. If there is a name assigned by the creator, a different name is required; selection of an accredited registrar. Before registration, it is advisable to study the reviews and terms of service; fill out the form. In case of sale of a web platform, it is important to provide reliable information to prevent problems with the transfer of rights to the domain; payment for the selected domain. Registration is usually rented for a certain period (one year or more). If the rental is not renewed in a timely manner, the domain will be canceled and another user can use it; review of technical requirements. For example, the permissible length of a domain name is usually from 2 to 63 characters, but registrars can set their own rules. A name may use Latin letters, numbers, and hyphens, but special characters (dots, underscores) may cause problems.

**Stage 3.** Development of the structure of the web platform. The structure of a web platform usually includes: frontend - an interface in which the user interacts; backend - a server part that processes requests from the frontend and performs the main logic of the program; database - a database that provides reliable and efficient data management.

**Stage 4.** Selection of software or shell program. Technology selection. The technological stack for creating a web platform is selected taking into account the following factors: type and scope of the project. For example, static HTML, CSS, JavaScript are suitable for small projects (landings, blogs), while high-loaded solutions (Java,.NET, Go) are suitable for large projects; development speed. If the project is intended to be developed in a short time and created by a user who is not highly qualified in the field of information technology (without sufficient practical skills in programming languages), it is advisable to use ready-made shell programs, i.e., CMS. Therefore, within the framework of the study, a dynamic CMS (Content Management System) management platform was selected.

**Stage 5.** Development of the beta. When developing the beta version of the web platform, it is necessary to pay attention to the following: compliance with state educational standards; selection of a place and time convenient for the student, as well as the pace of the educational process, creating conditions for independent work with educational materials; - creation of conditions for deeper individualization and variability of algorithmization and programming; automated control of knowledge, skills, and abilities; automatic search for information; data distribution (loading selected didactic teaching aids from general content to data storage devices); the possibility of expanding training modules on algorithmization and programming (introduction of new resources); ensuring security. It is important to consider how well the technologies are protected from SQL injections and attacks such as XSS;
Based on such students, the following sub-stages are implemented in the development of a web platform: development of a web platform design. They create interface layout, develop styles and templates, optimize design for various devices and screen sizes; functional development. Implementation of the functions and

capabilities identified by students at the analysis stage; code development. Developers write code for all system components: frontend development (creating interfaces and client logic), backend development (implementing server logic and API).

**Stage 6.** Testing and evaluation. Testing the platform allows you to identify errors and shortcomings in its operation. Therefore, after preparing the beta version, before submitting it to the audience, it is necessary to conduct an assessment to ensure that it corresponds to the learning objective. For this, the created web platform is evaluated and tested based on criteria developed by specialists and students. The testing of the web platform depends on the qualifications of specialists and the procedure for conducting the experimental work [2].

**Stage 7.** Placement on the server. After testing, the platform will be placed on the server and configured for real-world operation. Platform support and updates include bug fixes, adding new features, and optimizing performance.

Thus, it is advisable to use the students, algorithms, and stages proposed within the framework of the study when creating a web platform designed to form algorithmic thinking in the field of programming in secondary school students. In this case, it will be possible to create a web-platform designed to form algorithmic thinking in the field of programming in students of general education schools.

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