

THE INTRODUCTION OF THE DART PROGRAMMING LANGUAGE INTO THE CURRICULUM OF SECONDARY GENERAL EDUCATION

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ANNOTATION

In modern realities, in the context of digitalization, when the ability to program becomes a second literacy, all spheres of human activity, including the education system, are undergoing changes. These processes have influenced the transformation of some aspects related to schooling. They have led to the emergence of various problematic issues in the field of computer science teaching. In particular, the question concerning the choice of a programming language that would allow the formation of knowledge and skills so necessary for modern schoolchildren.

Keywords: *programming, programming language, general education, dart programming.*

INTRODUCTION

Programming is a branch of computer science designed to study the issues of software development of modern computers. In particular, programming can be considered as the process of building commands and algorithms. The written code is implemented by the performer in a specific programming language (programming language), in order to obtain a specific result.

Currently, there are many programming languages that differ from each other, each of which has its own unique syntax. Thanks to them, you can create various programs and develop various applications. Implementing a fairly wide range of functionality.

There are a number of specific requirements for choosing a programming language suitable for the learning process. The language should:

– be high-level (based on natural language and independent of the computer on which the programs will be executed);

- ensure the readability of the code;
- have a simple syntax;
- have strict typing;
- have versatility and flexibility;
- allow you to design complex programs in a simple way;
- be object-oriented;
- contain a set of standard libraries.

Most existing programming languages meet these requirements, which makes it possible to introduce and apply them in a school computer science course.

Turning to history, we note that in the 60s of the twentieth century, an experiment was conducted during which a previously unused format of the educational process, called "elective", was introduced into schools. As a result of testing this experience, students got acquainted with the basics of programming.

However, as a school subject, "Computer Science" appeared only in 1985 and was called "Fundamentals of Computer Science and Computer Engineering". This event marked the beginning of the process of learning various programming languages, which included Fortran, Basic and Pascal.

Currently, computer science is one of the rather "young" school subjects. More recently, the content of the computer science course and the choice of programming language directly depended on the teacher, as well as the teaching aid adopted at school. At the moment, programming languages such as Pascal, Python, Visual Basic and Idol are the most common in educational institutions, due to the list of programming languages recommended for study in the school computer science course in the updated Federal State Educational Standards. All of the above languages have their advantages and disadvantages. For example, one of the advantages is the fact that they were created specifically for training. However, this was the reason for their failure as tools for developing applications, creating web pages and processing large amounts of information.

Modern programmers prefer to use "C-like" languages in their work, which, in turn, being too difficult for schoolchildren to understand, cannot be introduced into the curriculum of a general education institution. Therefore, there is a need to learn a programming language that combines clarity and practical applicability.

To date, an independent choice by a teacher of a language that is not included in the above list can be carried out either as part of extracurricular activities in computer science, or when developing an optional or elective programming course.

Therefore, for students who are passionate about programming, an optional course may be offered designed to learn the Dart programming language. It is similar

in syntax to the C and JavaScript languages, which gives it the opportunity to become a good support for the subsequent development of these languages.

Thanks to Dart, students have many opportunities. For example, in this language, students will be able to try to create their first applications on their own. This type of work can interest them in learning programming not only at the level of an academic discipline, but also as a further professional activity.

Currently, small applications are being developed using Dart, which are part of huge web resources. Vivid examples of using this language are Gmail, Google AdSense, Google AdWords, which you can often meet in life. This fact can attract the attention of many schoolchildren. They will have the opportunity to learn not a standard abstract programming language, but one whose practical benefits can be seen in real life.

In order to interest students, it is necessary to talk about the advantages of Dart. One of the advantages is the ability to compile programs on various operating systems – Windows, Linux, Android, iOS. If students do not have the opportunity to install Dart at home, they can use the online Dartpad compiler. This fact suggests that this language is available to everyone who wants to study.

Another advantage lies in the strictness of the syntax, which allows you to immediately notice the mistake. The code written in Dart is concise and understandable. The language has a diverse set of functions and methods designed to set asynchronous operations, interact between them, and develop graphics and animations.

An equally important factor is the accessibility of the language. Google is actively developing and promoting Dart. Therefore, there is a lot of literature for studying it, which gives the teacher an information base that he can use when preparing material for students and additional sources for research for students.

Dart has an extensive library that provides a large number of opportunities for the teacher, as well as for the students themselves. A special CSS add-in called SASS has been created for this programming language. It contains many different styles and templates, which makes Dart convenient for developing interfaces and web programming. This language is often used to create mobile applications.

Another advantage of Dart is optional typing. That is, the developer can specify the type of the variable when creating it (static typing) or not declare it, then the language will determine the data type itself (dynamic typing). Each typification has its pros and cons, but it is the optional feature that allows you to use the most appropriate type of typing when solving each task.

Having considered the main features of Dart, we can conclude that it meets the

requirements of the school curriculum for programming languages, while having great opportunities for further practical implementation. Therefore, this course is not intended for the level of knowledge of the basic general school, it should be introduced as part of specialized training in grades 10-11.

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