Teaching Children to Programming on the Example of the Scratch Program

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ABSTRACT

This article is devoted to teaching children programming using the Scratch program as an example. Like a human, a computer communicates in its own language. It is a computer-only language that has limited vocabulary and strict spelling rules. A "language" that a computer understands and communicates with is called a programming language. Anyone who knows any programming language can easily create their own program.

Programming is the process of creating, testing, and modifying software for computers and other microprocessor-based electronic machines. Typically, programming is done using high-level programming languages (PHP, Java, C ++, Python). Because the semantics of these programming languages are close to human language, the programming process is much easier.

Programming 1) a science that deals with the development of the theory and methods of solving problems on electronic machines and performing various types of intellectual work on them; practical part of the theory of algorithms; a means of human contact with a machine. One of the main tasks is to develop, test and improve software (software) methods

for electronic machines. The algorithm for the problem to be solved is switched to "machine language" in programming.

Programming is divided into direct programming and automatic programming. In Direct Programming, the programmer does everything from developing the overall layout of the program to coding and typing. In automatic programming, the programmer simply creates a program diagram and writes it in abbreviated symbolic form, while the technical work, such as creating a profile and encoding it, is performed by the machine itself using a special programming program.

The programming process is usually divided into the following stages: problem statement; create an algorithmic description of

the problem; Programming the problem in a high-level programming language; problem solving Programming in machine language; Programming the problem in machine language

A programming language is a basic tool for creating programs. These languages are similar to other natural languages in that they are not linked to a specific machine command system and have a common structure in terms of expressions. Phrases are divided into two types - operators and descriptions, which are separated by parentheses and commas. An operator is a unit of language that is subdivided into operators that assign variable values, conditional operators that select the appropriate computing network according to the condition, and loop operators that perform iterative calculations. The description includes variable size and other character traits. A program designed to solve a particular problem can be symbolically and functionally designated. Such a designation and description are collectively referred to as a subroutine. Small programs can be used ready-made when creating new programs.

Many programming languages (algol-60, see Algol), fortran for engineering and scientific problems, kobol for economic calculations, si mula for mathematical models, and advanced algol-68, PL / I were created. For each of them there are translators that automatically repeat the machine program depending on the issues expressed in these languages. Approximate machine language is a program in terms of machine commands, expressed in more convenient symbols than a binary system, often using block diagrams as a high-level language.

Another key step in programming after a program is created is "debugging", in which errors are found and corrected. The programs are encoded and entered into the machine using a special device. There are new and faster methods of programming in practice (2004); 2) mathematical programming - a branch of applied mathematics; in the general sense, the problem of finding the extremum of any function fo (x) (see Extremum).

Scratch began development in 2003 and was released to the public in 2007. The first version of Scratch 1.0 was very similar to Scratch 1.4. At that time, there was only an offline editor; the website was a small blog where designs could be uploaded and played.

The website has expanded with the growth of Scratch. Scratch 1.1, Scratch 1.2, Scratch 1.3 and Scratch 1.4 are out. At that time, Scratch had millions of users, projects, and many new features. Since the release of Scratch 2.0 in 2013, the website and user interface have been redesigned.

Scratch continued to grow, reaching 30 million users and the project. Scratch 3.0 was released in 2019. Due to the expansion of the .Scratch community, the Scratch Foundation has expanded to lead the design, development, and support of Scratch on March 12, 2019. MIT will continue to work closely with the Scratch Foundation.

Body. Scratch is a block-based visual programming language and website aimed at children aged 8 to 16, to help them learn the code. Site users can create projects on the web using the block interface.

The service was developed by MIT Media Lab, translated into more than 70 languages and is used in most countries of the world. Scratch is taught and used in after-school centers, schools and colleges and other public educational institutions.

Scratch is designed to be fun and easy to learn programming. It includes tools for creating interactive stories, games, drawings, simulations and more using block programming. Scratch has its own color editor and sound editor.

Scratch is widely used in schools around the world as a tool to introduce children to basic computer programs.

It is also used outside of school. Some teachers even use teacher accounts to track students while having fun in the Scratch community. Children and even adults understand the basics of Scratch programming and often switch to other programming languages.

When using Scratch, people can create, collaborate on remixes, and more in Scratch projects. Scratch can be used to create real animations and games by uploading pre-filled images and characters or new files.

Can be used without connecting to our internet without getting lost. Kids can volunteer to share their creations in the Scratch online community.

Because Scratch is free and very well supported, it's one of the first programming offerings for kids, and it's easy to see the effect of Scratch in many kids' programming languages like "Blockchain" shown here.

In language design, the main priority of the creators was to create a simple, intuitive and easy-to-learn language and development environment for children, primarily with no programming experience. There is a huge difference between powerful multimedia features and the very limited capabilities of the Scratch programming language with its multi-range programming style.

Scratch is a free programming language for kids developed by MIT's Lifelong Kindergarten Lab. The free language textbooks are backed by a parenting textbook and a solid user group. There are also flashcards you can use to learn Scratch programming concepts from your computer.

Scratch uses a visual building block interface to create a better experience for kids (and parents). You combine programming components such as actions, events and statements.

Each block is shaped so that it can only be combined with the corresponding object. For example, "repeating roots" look like "U" to know if you need to put blocks between the start and end of "cycles". "Can be used to create

games. Can be used without connecting to our internet without getting lost.

Children can volunteer to share their creations in the Scratch online community. Since Scratch is free and very well supported, it is one of the first coding offerings for kids and the "Block" shown here is easy to see the effect of Scratch in programming languages intended for many children, for example.

Requirements: Mac, Windows or Linux computer.

Blocking. Screen Capture Lock (by Marzia Karch) are the same interconnected building blocks that Google uses to enhance its Scratch with metaphors, but can output code in different programming languages. You include Javascript, Python, PHP, Lua and Dart. This blocking is more descriptive than a programming language intended for children. Transforms into an editor.

In fact, when you link blocks together, you can see the code on the side of the screen and you can quickly change programming languages to see the difference in language syntax for the same basic program. It is designed to teach Blockly very small codes, including older children and adults.

He dislikes young mustaches and Scratch cartoons. If this sounds like a great transition from Sklatch, Google is actually working with MIT on a generation of Skatech based on the Blockiti platform. Lock is also designed for android app development that builds android apps. used as a creator of useful android applications.

Meat took over the management of the Google project. Unfortunately, it's not fully developed as Block Scratch and there aren't many apps available for it yet. Therefore, we increase the recommended age or increase parental care. However, Blockly has a great future as a trusted programming environment for programmers of all ages.

Bottom line: on behalf of most computer science teachers, I can say that programming is a very boring activity for students in grades 9-10. This is due to the fact that the first stage of programming is very difficult for students and the programs they create seem very simple and

unnecessary, i.e. when they use the Pascal programming language.

Recently, I conducted an experiment: I tried to teach the programming languages Pascal or Java 3 to eighth graders who were interested in computer technology. They hardly understood programming and learned almost nothing. Then I showed them Scratch and gave them some directions. They have created many games.

References

1. Abulov, M. O. (2021). Some inverse problems for the hyperbolic equation. ASIAN JOURNAL OF MULTIDIMENSIONAL RESEARCH, 10(4), 341-353.
2. Абулов, М. О. (2020). О некоторые приложения теории булевых функций. In Modern stochastic models and problems of actuarial mathematics (pp. 73-74).
3. Абулов, М. О. (2019). КРАЕВАЯ ЗАДАЧА ДЛЯ УРАВНЕНИЯ СМЕШАННО-СОСТАВНОГО ТИПА. Актуальные проблемы математики и информатики: теория, методика, практика, 15.
4. Абулов, М. О. (2019). Нелокальная задачи для одного уравнения третьего порядка. In Информационные технологии и математическое моделирование (ИТММ-2019) (pp. 186-190).
5. Ahmedov, H., & Yoqubov, J. (2020, October). OZBEK TASAVVUF ADABIYOTIDAGI SOCH RAMZI HAQIDA MULOHAZALAR. In Archive of Conferences (Vol. 8, No. 1, pp. 28-30).
6. Nematillaevna, J. M. (2021). METHODS FOR THE FORMATION OF COMPETENCIES IN THE TECHNOLOGY OF TEACHING STUDENTS BASIC DIDACTIC UNITS AMONG MATHEMATICS TEACHERS.
7. Nematillayevna, J. M. (2021). Formation of methodological competencies of future mathematics teachers in the field of quality assessment of education.

Asian Journal Of Multidimensional Research, 10(6), 67-71.
8. Jurayeva, M. (2019). КОНТЕКСТНЫЕ ЗАДАЧИ В МЕТОДИЧЕСКОЙ ПОДГОТОВКЕ УЧИТЕЛЕЙ МАТЕМАТИКИ В КЛАССИЧЕСКИХ УНИВЕРСИТЕТАХ. Scienceweb academic papers collection.
9. Jurayeva, M. (2022). BOLGUSI MATEMATIKA OQITUVCHILARIDA OQUVCHILARGA ASOSIY DIDAKTIK BIRLIKLARNI ORGATISH TEXNOLOGIYASI BOYICHA KOMPETENSIYALARINI SHAKLLANTIRISH METODIKASI. EURASIAN JOURNAL OF ACADEMIC RESEARCH.
10. Jurayeva, M. (2021). Matematikani o'qitishda tezaurusli tahlil haqida. Xalqaro ilmiy-amaliy onlayn konferensiya.
11. Jurayeva, M. (2020). Matematik analiz kursida teoremalar va ularning isbotlarini o'rgatish metodikasi. Ilmiy metodika jurnali.
12. Jurayeva, M. (2020). БЎЛҒУСИ МАТЕМАТИКА ЎҚИТУВЧИЛАРИНИ МАВЗУНИНГ ЎҚУВ МАТЕРИАЛИНИ МАНТИҚИЙ-МАТЕМАТИК ТАҲЛИЛИНИ БАЖАРИШГА ЎРГАТИШ УСУЛЛАРИ. QarDU Xabarlari.
13. Абулов, М. А. (1991). О разрешимости и численной реализации краевых и смешанных задач для одного класса уравнений третьего порядка гиперболического типа (Doctoral dissertation, Новосиб. гос. ун-т).
14. Ладыженская, О. А. (1953). Смешнная задача для гиперболического уравнения. Государственное издательство технико-математической литературы.