

Role and Importance of Modern Programming Languages in Digitalization of the Area

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Abstract:

Abstract. This article analyzes the role and importance of modern programming languages in the digitization of industries and digital transformation processes. Programming languages are important in creating digital solutions, efficient data management, and developing automation processes. The article examines the advantages of modern programming languages, their influence in various fields and their role in digital transformation processes. Two tables are presented for analysis: the first one shows the most popular programming languages and their areas of application, and the second one shows the contribution of programming languages to digital transformation processes.

Keywords: Digitization, programming languages, digital transformation, automation, data management.

Introduction

Ensuring stable socio-economic development in the country requires implementation of the process of formation of information society and effective introduction and use of information technologies. Implementation of information technologies in all spheres of our economy, as well as in the life of society, increases production efficiency and accelerates its growth several times.

Digital transformation is an integral part of the modern economy and requires the provision of business processes, services and products in digital form. Programming languages play an important role in this process, because they serve as the main tools for numbering fields and managing data. With the help of programming languages, various industries can efficiently automate their processes, make decisions based on analytical data and implement digital solutions.

Today, we can see that the process of computerization is developing rapidly in every aspect of social life. Phones are no longer just a talking device, but have the ability to send text, audio and

video messages, as well as communicate through social networks. The need of the times requires our students to know these devices and technologies as well as develop and digitize them through programming.

A computer program is a sequence of instructions for a computer to perform a specific task. Programming is the process of creating programs for a computer, and a programmer refers to a person who develops a program. The computer is the closest assistant to the user in solving various problems, and many applications, such as text, graphic editors, presentation programs, spreadsheets, have been developed for the convenience of people. There are also specialized computer programs for industries such as education, banking, taxation, law, and medicine.

To solve a problem in a computer, first its model and algorithm are created, and then this algorithm is converted into commands and instructions based on certain rules that are understandable for the computer. The generated text is called a program written in a computer language. A computer program is a sequence of instructions that a computer must execute to solve a problem. Computer programming is like a foreign language that can be learned quickly. Like humans, computers communicate in their own language; this language has a limited vocabulary and strict spelling rules. A programming language is a "language" that a computer understands and communicates with. Anyone who knows any programming language can easily create their own program. There are many programming languages, each used to solve specific problems.

Discussion and results.

Types of modern programming languages and their advantages:

- Python, Java, JavaScript, C#, Ruby, etc.
- Easy to read, widely used and supported by a strong community.

The role of programming languages in digital transformation:

- Creation of digital solutions and its application in data management.
- Automation processes and efficiency improvement.

Application of programming languages by fields:

- Finance, health, education, manufacturing and other fields.
- Impact and benefits of programming languages in every field.

All kinds of information resources, including software products, data banks and other products produced in the process of information, are an integral part of information technologies. Humanity is used to using new technologies and ready-made products, without thinking about how these innovations were created. We don't always take into account the long and hard work of developers so that we can use the products developed by them. Scientific research in these areas is the foundation of these products, and modern technologies are created on this basis. Therefore, developed countries and high-tech giants pay great attention to scientific and applied research. Countries with strong scientific communities and laboratories allocate billions of dollars in funding each year. In this area, great attention is paid to improving the regulatory framework, financial, economic and organizational issues, as well as aspects related to personnel. Also, the formation of scientific and technical potential is one of the important factors in this direction. The experience of developed foreign countries shows that the main wealth of each country consists of scientific, technical and intellectual potential. Currently, there is a trend of combining intellectual and scientific and technical potential in economic development in the countries of the world. The Republic of Uzbekistan has a sufficiently qualified scientific, technical and technological production potential for

the development of the software products industry. The uniqueness of the domestic software products industry is distinguished by the high demand for qualified specialists.

Today, our government is taking a number of measures to develop the production of software products and the national market. Special attention is paid to the training of specialists in the field of programming languages. Relying on the achievements of modern scientific thinking and best practices to the national program of fundamental reform of the general secondary education, secondary special and vocational education systems, and the national program of personnel training, the continuous education system will be implemented in all academic lyceums and professions. - basic knowledge of modern programming languages is given during education in vocational colleges.

One of the current urgent problems is the training of highly qualified and competitive specialists in the field of programming, and the improvement of their professional skills.

Mastering the educational material that teaches modern programming languages consists of the following levels:

- Elementary level - represents the student's ability to perform tasks based on what he heard, samples and instructions.

- Algorithmic level — means the ability to apply knowledge and skills, the ability to independently perform tasks according to a given algorithm.

- Heuristic level - determines the ability to independently search for new information to solve educational problems and create new algorithms based on the introduction of changes to solve given educational tasks.

- Creative level — is represented by the ability to create qualitatively new algorithms that are completely different from previously learned algorithms.

Learning modern programming languages is one of the important issues of today. Modern programming languages are classified as follows. Currently, students of the 9th grade of secondary schools are learning the Python programming language in the subject "Informatics and Information Technologies". Python is a programming language that is easy to learn and has a lot of features compared to other languages. It is convenient for beginners to learn the language and can be used for serious practical projects.

Digital Transformation and Importance of Programming Languages

Digital transformation is the digital transformation of processes, services and products. These processes consist of the following steps:

1. Data Collection: Data is collected and stored using programming languages.
2. Data analysis: Using big data, analytical results are obtained.
3. Automation: Processes are automated, which increases efficiency.
4. Service provision: Services are offered to users through digital platforms.

Programming languages are important in these processes with the following aspects:

- Decision support: With the help of programming languages, data is analyzed and decision-making processes are accelerated.

- Increase efficiency: Time and resources can be saved by automating processes.

- Introducing innovations: Programming languages enable the development of new digital solutions.

Types of Modern Programming Languages

Modern programming languages are widely used in various fields. Below are some popular programming languages and their advantages:

- Python:
 - Advantages: Easy learning, powerful libraries, wide application fields (data science, web programming).
 - Applications: Big data, artificial intelligence, automation.
- Java:
 - Advantages: Extensibility, cross-platform, security.
 - Application: Corporate programs, mobile applications.
- JavaScript:
 - Advantages: Basic language for web applications, interactivity.
 - Application: Front-end programming, user interface.
- C#:
 - Advantages: integration with Microsoft platforms, powerful programming.
 - Application: Game programming, desktop applications.
- Ruby:
 - Advantages: Easy to learn, high level syntax.
 - Applicability: Web applications, startups.

Programming Languages and Digital Transformation

The role of programming languages in digital transformation is huge. With their help, the following processes are carried out:

- Data management: Data is collected, stored and processed using programming languages. Languages like SQL, Python and R are widely used in these processes.
- Automation: Processes can be automated with the help of programming languages, which increases efficiency. For example, Python and JavaScript are very useful for automated tasks.
- Innovative solutions: Programming languages help in the development of new digital solutions, which accelerate the processes of digital transformation.

Table 1: The most popular programming languages and their areas of application

Programming language	Fields of application
Python	Data science, web programming
Java	Corporate programs
JavaScript	Web applications, front-end
c#	Game programming, .NET
Ruby	Web applications

Table 2: Contribution of programming languages to digital transformation processes

Programming language	Contribution to digital transformation
Python	Working with big data
Java	Build robust and secure applications
JavaScript	Provide an interactive web experience

Programming language	Contribution to digital transformation
c#	Rapid software development
Ruby	Building extensible web applications

Programming Languages by Fields

Applications of programming languages in different fields and their impact:

- Finance: Programming languages are widely used in financial data analysis and reporting. Python and R are often used for statistical analysis.

- Healthcare: Programming languages play an important role in creating electronic medical records and healthcare systems.

- Education: Programming languages are used to create online educational platforms. Python and JavaScript are widely used for educational applications.

- Production: Automation and control of production processes is carried out with the help of programming languages. C# and Java are often used in this field.

Conclusion. Let's sum up everything, based on the results of the analysis of this article, modern programming languages are important as an indispensable tool in the processes of digitization and digital transformation of industries. Through them, enterprises can automate their processes, increase efficiency and introduce new digital solutions. During the digital transformation, the advantages and influence of programming languages will increase across industries, which will serve to develop business processes in the future.

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