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CLASSIFICATION OF PROGRAMMING LANGUAGES

Rapid development of information technology has led to the creation of a multitude of artificial languages aiming at solving the problem of communication between a person and a computer. Language programming is intended for writing computer programs.

So, the purpose of our article is to show the programming languages as a promising subfield of IT development and their use in the modern world, as well as their advantages and disadvantages.

Programming languages are classified into the following basic groups: low-level programming languages (machine-oriented); high level programming languages; object-oriented languages.

Low-level programming languages (machine-oriented) are those in which the principles of control and data structure directly reflect the architecture of the computer. That is, such languages are oriented on a particular type of processor and depend on its features. Low-level languages include machine languages (machine codes), language symbolic coding (Assemblers) and a number of others. Programs written in such programming languages are linear sequences of elementary operations with registers in which data is stored.

In particular, Assembly language represents each command of the machine code in the form of special symbols, called mnemonics, which use symbolic names rather than specific addresses. This helps the programmer memorize the semantic content of the operation more easily and provides a significant reduction in the number of errors in the preparation of programs.

In these languages, relatively small programs that are parts of the system software are usually developed: drivers, utilities, etc.

High-level programming languages reflect the needs of the programmer but not the possibilities of hardware. Programs in these languages represent the sequences of operations structured according to the rules of the language. They operate essences that are closer and clearer to a person, such as variables, functions, etc. The features of specific computer architectures are not taken into account, therefore, the programs developed in these languages can be executed on other computers of the same platform.

Programmers were given the opportunity not to detalize the computational process at the level of machine instructions, but to focus on the main features of the algorithm. The programming languages that are intended to describe the algorithm to be executed using a computer are called algorithmic. Algorithmic programming languages of the high level are the following ones: Fortran; Bass; Racal; C; C++; Javà;C #; Perl; Python; Ruby.

Programming languages can also be divided into universal and specialized languages: universal languages are used to solve various tasks; specialized languages are designed to solve specific tasks. Examples of such programming languages are: PHP – a general-purpose programming language, is used intensively to develop Web applications; ActionScript – the object-oriented programming language that adds interactive functionality to the content.

Today different programming technologies and their corresponding linguistic support tools are available. In general, in terms of functional possibilities there are five generations of programming tools:

1. Assemblers created according to the principle "one instruction – one line".

2. Symbolic assembler, in which the concept of a variable appeared. It became the first full-fledged programming language. The speed of development and reliability of programs has considerably increased.

3. High-level universal languages with which you can solve any application problem. They are characterized by relative simplicity, they do not depend on a particular PC, and they have the ability to use powerful syntactic constructions.

4. Problem-oriented languages are designed to implement large projects, increase their reliability and speed of creation. As a rule, they have built-in powerful operators, which allow one line to describe the functionality of the implementation. In comparison with them, the languages of the younger generations required thousands of lines of code.

5. Systems of automated creation of applications, including visual development tools (RAD-environments). They are characterized by the ability to automatically generate the resulting text in universal programming languages (Delphi, Borland C, MS Visual Studio, etc.).

Nowadays, the number of programming languages is measured in thousands and continues to grow.

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HOW DOES TESLA AUTOPILOT WORK

Nowadays, you can believe in miracles just by looking at new technologies. The new automobile Tesla became one of them. The company was founded in 2003 by a group of engineers who wanted to prove that people did not need to compromise to drive electric – that electric vehicles can be better, quicker and more fun to drive than gasoline cars [2].

So, the aim of our work is to present Tesla autopilot safety features.

Combining safety, performance, and efficiency, Tesla cars reset the world's expectations for the car of the 21st century with the longest range of any electric vehicle, over-the-air software updates that make them better