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High-Level Programming Languages

High-level programming language is a programming language designed for speed and ease of use by the programmer. The main feature of high-level languages is abstraction, that is, the introduction of semantic structures that briefly describe data structures and operations which are very long and difficult to understand if written in a machine code.

High-level programming languages were developed for the platform independence of the algorithm essence. The dependence on the platform is shifted to instrumental programs – translators compiling text written in a high-level language into elementary machine commands (instructions). Therefore, a platform-unique translator is developed for each platform.

Thus, high-level languages are created not only to facilitate the solution of complex software problems, but also to simplify software porting. The use of various translators and interpreters ensures that programs written in high-level languages communicate with different operating systems, programmable devices and equipment, and do not require modification of the source code for any platform.

But this kind of isolation of high-level languages from the hardware implementation of the computer has some disadvantages. For instance, it does not allow you to create simple and accurate instructions to the equipment used. Programs written in high-level languages are easier to understand by a programmer, but they are less effective than their counterparts created in low-level languages. That was a reason for addition of support for low-level languages (Assembly language) in a number of modern professional high-level programming languages.

High-level languages can work with complex data structures. Most of them have integrated support for string types, objects, file input/output operations, etc. The most popular high-level programming languages are C, C++, Delphi, Fortran, Java, JavaScript, and Pascal.

The first high-level programming language is considered to be Plankalkül computer language developed by a German engineer Konrad Zuse in 1942 – 1946. However, there was no translator for it until 2000. The world's first high-level language translator is PP (Programming Program) successfully tested in 1954. The second version of the translator appeared in 1955 was optimizing and contained its own loader and debugger, a library of standard procedures, while the PP compiler for a computer Strela-4 included the linker of the modules. However, the widespread use of high-level languages began with the emergence of Fortran and the creation of a compiler for this language in 1957.

According to the company TIOBE Software, the Java programming language is a leader in use by programmers nowadays.