

High-Level Languages

With the development of High-level languages, programming became easier. With the development of High-level languages, programming became easier. English like words and phrases. English like words and phrases. Current English like words and phrases. Current English like words and phrases. generation languages, many are developed for specific purposes. generation languages, many are developed for specific purposes. a high-level language need to be converted to machine code, a high-level language need to be converted to machine code.

Interpreters, Interpreters, are programs that take the source code of a program and execute it. Interpreters, are programs that take the source code of a program and execute it. execution time to machine code. execution time to machine code. Because of the nature of Interpreters, they are executed in the computer's memory alongside the program to be executed. Because of the nature of Interpreters, they are executed in the computer's memory alongside the program to be executed. code or executable program.

Compilers, Compilers on the other hand do generate object code, an executable form of the source program. Compilers on the other hand do generate object code, an executable form of the source program. written in a high-level language. This is achieved by passing the source program to a compiler. written in a high-level language. This is achieved by passing the source program to a compiler. compiler, when it will convert it to machine code. Again this may only be required to be done once (if no errors occur). There are a number of compilers that allow the 'compiling' of programs to run on other machines. compiler, when it will convert it to machine code. Again this may only be required to be done once (if no errors occur). There are a number of compilers that allow the 'compiling' of programs to run on other machines.

Both methods of running high-level language programs convert the high-level language to many machine code instructions. Both methods of running high-level language programs convert the high-level language to many machine code instructions.

Program Development Aids

The need to increase programmers productivity. The need to increase programmers productivity. The need to increase programmers productivity. The need to increase programmers productivity. tools to help from the initial stages right through to the final stage. tools to help from the initial stages right through to the final stage.

In its simplest form a programming aid may be a text editor used for creating the source code, modern word-processors that allow a programmer to write his program. In its simplest form a programming aid may be a text editor used for creating the source code, modern word-processors that allow a programmer to write his program. that a programmer can write his program. This type of aid is used for creating the initial files for the system. that a programmer can write his program. This type of aid is used for creating the initial files for the system.

More advanced techniques and aids are those that can either take the programmers source code and from it produce a flowchart, this can be useful for comparing flowcharts produced by the programmer prior to coding. More advanced techniques and aids are those that can either take the programmers source code and from it produce a flowchart, this can be useful for comparing flowcharts produced by the programmer prior to coding. Some flowcharts flowcharts produced by the programmer prior to coding. Some flowcharts flowcharts produced by the programmer prior to coding. object code form you flowchart design. Another type of program is an Interpreter or preprocessor. Both of these can be used to generate object code after testing, for running as production program. object code form you flowchart design. Another type of program is an Interpreter or preprocessor. Both of these can be used to generate object code after testing, for running as production program.

A final example of programming aids are the screen painters which can be used to create the screens used in on-line systems. A final example of programming aids are the screen painters which can be used to create the screens used in on-line systems. This has the advantage of being able to design screens used in on-line systems. This has the advantage of being able to design screens used in on-line systems.

Testing Aids

Another set of tools to improve productivity are the those used for testing of programs. These include:

- * Trace and Snapshot, trace software isTrace and Snapshot, trace software isTrace and Snapshot, trace software is
at each statement of the source program print out:
 - the statement or the statement line number
 - the contents of the main registers
 - the contents of the accumulators.

Snapshot software allows the programmer to indicate the point in the program to stop when under test and at the points 'dump' the program to stop and the restart from that point.

- * Test Data Generators, this type of software will produce specific types of test data against which the program can be tested. The type of test data that can be generated includes:
 - Random Numbers; Alpha-numeric strings; fixed formatted data; error case generators.
- * Test Harnesses, these enable the programmer to load test modules and then test them from within the test harness.

Application Packages

Certain application programs vary very little from others. Certain application programs that can be used by a wide variety of users have been written with a specific use in mind. Examples of such programs are Critical Path Analysis (PERT), Stock Control, etc.

Opinions vary as to the usefulness of such generalised software packages. Some are very useful, others require too much modifying or are too inefficient.

When selecting an application package, a number of factors should be considered: cost, user base, maintenance, training, documentation, source reliability, etc. An application package can offer a number of advantages such as, instant implementation, minimum programming effort, etc. remember that you are selecting a package with resistance to their use.