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ASSIGNMENT

**Question**

The Unfortunate thing about low level and high level programming languages is that the computer could not understand them. Hence there is a need for a translator.

1. What do you understand by translators?
2. Make comparative analysis of assemblers, compilers and interpreter
3. Why is there need for high level programming languages.

**Answer**

1. A translator is a programming language processor that converts a computer program from one language to another.  It takes a program written in source code and converts it into machine code. It discovers and identifies the error during translation. There are 3 different types of translators as follows: Compiler, Assembler, Interpreter.
2. (A)Definition

A compiler is a software that converts programs written in a high-level language into machine language. An interpreter is a software that translates a high-level language program into machine language while an assembler is a software that converts programs written in assembly language into machine language.

(B)Functionality

* Compiler converts the whole high-level language program to machine language at a time. Interpreter converts the high-level language program to machine language line by line.

In contrast, assembler converts assembly language program to machine language.

* Interpreter takes less amount of time to analyze the source code but the overall execution time is slower.

Compiler takes a larger amount of time to analyze the source code but the overall execution time is comparatively faster.

* Interpreter No intermediate code is generated, hence are memory efficient.

Compiler Generates intermediate object code which further requires linking, hence requires more memory.

Assembler generates the relocatable codes.

* In interpreters, program can be run before it is completed so you get partial results immediately. So any changes made are easily integrated.

In assembler, a small change in design can invalidate the whole program.

In compiler, the program runs once compilation is done. No partial result

(C)Language

* Languages such as C, C++ use compilers to convert the code.
* Languages such as Ruby, Perl, Python, PHP uses an interpreter
* Assembly language uses an assembler.

GENERALLY:

* They are all translators.
* The all convert to machine language.
* They all have a form of symbol table to understand the commands given and translate it.

3. High level language is needed because they make the creation of computer programs is easier for the programmer. It also allows for re-usability of programs. Programs written in low level languages are writing for one purpose only and cannot be used for solving different problems or similar problems. With the help of high level languages, we can create our programs more easily with fewer bugs and we are able to programming that can relate with real life scenarios and find problems to them. With high level language we can do more complex arithmetic and computation with ease. And also it uses English language making it easier to understand.