PW SKILLS

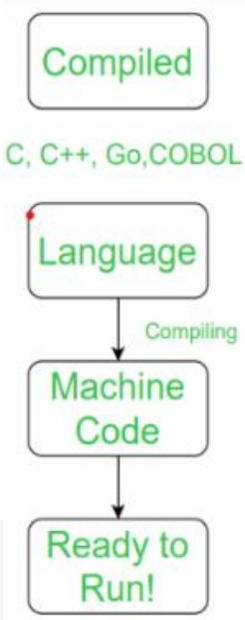
Interpreted vs. Compiled Languages

Lesson Plan

Objective:
By the end of this lesson, students will understand the fundamental differences between interpreted and compiled languages, including how each type processes code, their advantages, disadvantages, and use cases.

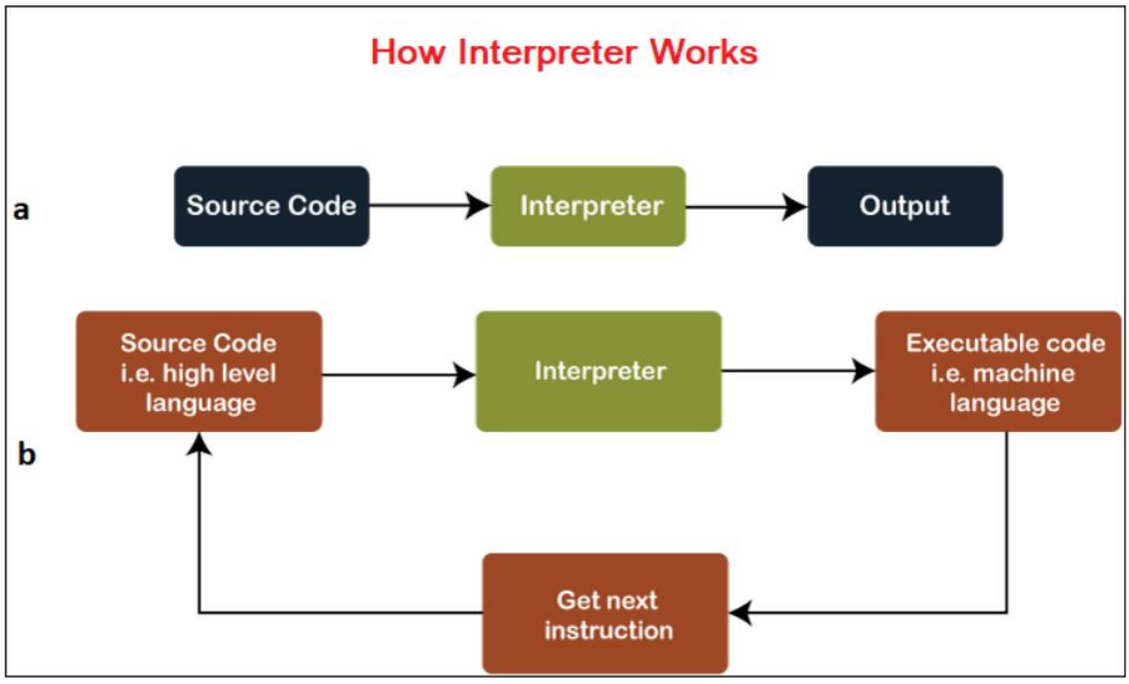
What is Compiled Language?

A compiled language is a programming language that is generally compiled and not interpreted. It is one where the program, once compiled, is expressed in the instructions of the target machine; this machine code is undecipherable by humans. Types of compiled language – C, C++, C#, CLEO, COBOL, etc.



Interpreter

An **interpreter** is also a software program that translates a source code into a machine language. However, an interpreter converts high-level programming language into machine language **line-by-line** while interpreting and running the program.



Difference between Compiled and Interpreted Language

S.NO	COMPILED LANGUAGE	INTERPRETED LANGUAGE
1	A compiled language is a programming language whose implementations are typically compilers and not interpreters.	An interpreted language is a programming language whose implementations execute instructions directly and freely, without previously compiling a program into machine-language instructions.
2	In this language, once the program is compiled it is expressed in the instructions of the target machine.	While in this language, the instructions are not directly executed by the target machine.
3	There are at least two steps to get from source code to execution.	There is only one step to get from source code to execution.
4	In this language, compiled programs run faster than interpreted programs.	While in this language, interpreted programs can be modified while the program is running.
5	In this language, compilation errors prevent the code from compiling.	In this languages, all the debugging occurs at run-time.
6	The code of compiled language can be executed directly by the computer's CPU.	A program written in an interpreted language is not compiled, it is interpreted.
7	This language delivers better performance.	This language example delivers relatively slower performance.
8	Example of compiled language – C, C++, C#, CLEO, COBOL, etc.	Example of Interpreted language – JavaScript, Perl, Python, BASIC, etc

Advantage and disadvantage of compiler

While using a compiler to translate a source code into machine code, the program codes are translated into different object codes. Hence the time of code execution is significantly less. The drawback of using a compiler is that you can only make changes in the program by going back to your source code.

Advantage and disadvantage of an interpreter

The interpreter makes it easier to work with source code. So it is highly preferred, especially for beginners. Interpreted programs can run on only those computers which have the same interpreter.