**Translators(Compiler,Interpreter,assembler)**

**Translator-**Computer understands only binary language.So a program written in high level language needs to be converted into machine code for its execution.A translator is a term that is used in programming to refer to a compiler,interpreter,assembler or anything that converts a high level language to another equivalent high level language or to alow level language.It is a programming processor that helps a programmer to convert the program written in any high level language called the source code to low level language called the object code without losing the semantics of the original code.There are various types of translators depending upon the functions performed by them.

**1)Compiler-**A compiler translates a program written in high level language into machine language.The compiler takes the whole program at a time and produces the equivalent machine code.If errors are present in the program the programmers need to check the source code to correct it.It is recompiled to get the final executable file.Once it gets compiled you can execute the program any number of times without a compiler.

 **compiler**

Source program(high level language)

(

Object code(machine language

**2)Interpreter-** An interpreter also translates a program written in high level language into machine language but it executes one statement at a time and is therefore,slower than a compiler.As the interpreter checks a program line by line,it stops whenever an error is encountered.Here no executable file is produced.So a program needs to be interpreted every time it needs to be executed.

Source program(High Level Language)

Object code(machine language)

 **interpreter**

**3)Assembler**-An assembler is used to translate a program written in assembly language program to machine language.Similarly to a compiler,an assembler produces an executable file and hence a program once assembled need not be re-assembled.

Object code(machine language)

 **assembler**

Source program(assembly language

**Difference between compiler and interpreter**

**1.**Compiler scans the entire program and convert into machine code while interpreter translate the program line by line.

**2**.Compiler is slow for debugging while interpreter is good for fast debugging.  An interpreter is faster than a compiler as it immediately executes the code upon reading the code. It is often used as a [debugging tool](https://en.wikipedia.org/wiki/Debugging_tool) for [software development](https://en.wikipedia.org/wiki/Software_development) as it can execute a single line of [code](https://en.wikipedia.org/wiki/Computer_code) at a time.

**3.**Compiler is very fast because it scan whole program and then convert into machine language ,thus execution times is less while interpreter is very slow because it convert program line by line,thus execution time is more.

**4.**Compiler occupies a large part of memory while interpreter can be used in a small system which has limited memory space.