Difference Between Compiler and Assembler

The difference between compiler and assembler is that a compiler is used to convert high level programming language code into machine language code. On the other hand, an assembler converts assembly level language code into machine language code.

Both these terms are relevant in context to program execution. Compiler considers the entire code and one and converts it at the same time. Whereas, the assembler, converts the code line by line.

In this article, we bring to you a detailed comparison between a compiler and assembler. Candidates can also know more about the various High-Level Computer Languages at the linked article.

Compiler vs Assembler

Both, compiler and assembler are used to convert one type of language coding into another and this is mainly the only similarity between the two. However, the two are different from each other in various other aspects.

Given below is a tabulated comparison between a Compiler and Assembler for the reference of candidates:

Difference Between Compiler and Assembler	
Compiler	**Assembler**
Function: Its main function is to convert high level programming code into machine language code	**Function:** The main function of an assembler is that converts assembly level code into machine level code
The whole code is converted into machine language at the same time	It does not convert the entire code at a single time
There are 7 phases of the compiler: 1. Lexical Analyser 2. Syntax analyser 3. Semantic analyser 4. Intermediate code generated 5. Code optimiser 6. Code generator 7. Error handler	There are only two phases of an assembler: 1. First Phase 2. Second Phase
It inputs source code	It inputs assembly level code

The output is a mnemonic version of machine code	The output is Binary code
Different types of compiler include: 1. Cross-compiler 2. Bootstrap compiler 3. Decompiler 4. Source-to-source compiler	Different types of assembler include: 1. One pass assemblers 2. Load-and-go assemblers

C++ is an example of compiled language and GNU is an example of assembler. The above-mentioned detailed comparison clearly enables one to analyse the difference between the two.

As discussed earlier, computers are a part of the Science and Technology section of the Civil Services Exam syllabus. Thus, candidates can get notes regarding the same at the UPSC Notes: Science & Technology page.

Also, apart from the difference between compiler and assembler, there are various other computer-based articles, which can candidates can refer to simply their concepts and understanding:
- Difference Between Search Engine and Web Browser
- Difference Between RAM and ROM
- Difference Between Hardware and Software
- Difference Between Firewall and Antivirus
- Difference Between WWW and Internet
- Difference Between MS Excel and MS Word
- Difference Between Notepad and WordPad
- Difference Between TCP/IP and OSI Model

Aspirants can also get 100+ difference between articles based on the different sections and syllabus of UPSC exam, at the linked article.