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**Compiler Design**

**Lab - 1**

**What is a Compiler ?**

Compiler is a software which takes as input a program written in a High-Level language and translates it into its equivalent program in Low Level program. Compilers teaches us how real-world applications are working and how to design them.

**High Level Language** – It is a programmer friendly language and easy to understand.

**Low Level Language** - It is machine friendly language and is tough to understand

**Assembly Language**

An assembly language is a programming language that can be used to tell the computer what to do.

It is a low level language, which means it can only be used to do small tasks that a computer can understand directly.

**Assembler**

The Assembler is used to translate the program written in machine language into machine code. The source program is an input of an assembler that combines assembly language instructions. The output generated by assembler is the object code or machine code understandable by the computer.

**Interpreter**

The translation of a single statement of the source program into machine code is done by the language processor and executes immediately before moving on to the next line is called an interpreter.

**Translator**

Translator is a program that takes as input a program written in one language and produces as output a program in another language. Beside program translation, the translator performs another very important role, the error-detection.

**Linker**

Linker is a computer program that links and merges various object files together in order to make an executable file. All these files might have been compiled by separate assemblers. The major task of a linker is to search and locate referenced modules/routines in a program and to determine the memory location where these codes will be loaded, making the program instruction to have absolute references.

**Loader**

A loader is a program that places programs into memory and prepares them for execution.