NAME: SIMEON NORTEY

INDEX NUMBER: 4709715

REF. NUMBER: 20382583

SURVEY OF PROGRAMMING LANGUAGES

RESEARCH ON **PREPROCESSOR, ASSEMBLIER AND LOADER**

An assembler is a [program](https://techterms.com/definition/program) that converts [assembly language](https://techterms.com/definition/assembly_language) into machine code. It takes the basic commands and operations from assembly code and converts them into [binary](https://techterms.com/definition/binary) code that can be recognized by a specific type of [processor](https://techterms.com/definition/processor).

Assemblers are similar to [compilers](https://techterms.com/definition/compiler) in that they produce executable code. However, assemblers are more simplistic since they only convert low-level code (assembly language) to machine code. Since each assembly language is designed for a specific processor, assembling a program is performed using a simple one-to-one mapping from assembly code to machine code. Compilers, on the other hand, must convert generic high-level [source code](https://techterms.com/definition/sourcecode) into machine code for a specific processor.

Most programs are written in high-level [programming languages](https://techterms.com/definition/programming_language) and are compiled directly to machine code using a compiler. However, in some cases, assembly code may be used to customize functions and ensure they perform in a specific way. Therefore, [IDEs](https://techterms.com/definition/ide) often include assemblers so they can build programs from both high and low-level languages.

PREPOCESSOR

A preprocessor is a [program](https://en.wikipedia.org/wiki/Computer_program) that processes its input data to produce output that is used as input to another program. The output is said to be a preprocessed form of the input data, which is often used by some subsequent programs like [compilers](https://en.wikipedia.org/wiki/Compiler). The amount and kind of processing done depends on the nature of the preprocessor; some preprocessors are only capable of performing relatively simple textual substitutions and [macro](https://en.wikipedia.org/wiki/Macro_(computer_science)) expansions, while others have the power of full-fledged [programming languages](https://en.wikipedia.org/wiki/Programming_language). An example would be the C preprocessor.

The C preprocessor is a macro processor that is used automatically by the C compiler to transform your program before actual compilation. It is called a macro processor because it allows you to define macros, which are brief abbreviations for longer constructs.

THE LOADER

A loader is a program used by an operating system to load programs from a secondary to main memory so as to be executed. The OS transparently calls the loader when needed. Usually large applications are written into small modules and are then compiled into object codes. A linker is a program that combines these object modules to form an executable.

