Syntax analysis is a stage or phase within the compilation process that is extremely crucial as it checks if even line of code (or each token to be specific) is adhering to the syntax of the language, C.

The parser (a program within the compiler that is responsible for checking if the source code is following syntax) checks for proper syntax, error messages and determines the overall structure of the program.

To perform a manual syntax analysis, it needs to be performed in steps:

1) Preprocessor directive - #include. The header file or the preprocessor directive “#include <stdio.h>” has been implemented within the source code to allow all inputs/outputs, pre-defined functions, constants and data types.

2) int main () - function declaration. Thanks to the use of the preprocessed directive “#include <stdio.h>”, we are now able to declare the main function for when the source code can be run within the main memory itself (int main() allocates a space of memory for the code to be ran).

3) “int” being a data type, integer, the parenthesis “()” and “main” being the name of the function, all abide by the syntax of the C programming language.

4) The opening curly brace “{“ placed after the parenthesis or the function has also been placed syntactically, printf being the standard function that outputs a message onto the screen is correct and string(s) that follow after are also correct, “Programming is fun \n” “And programming in C is even more fun \n” are syntactically correct. The newline character also abides by the syntax of C. Remember both lines also end with a semicolon.

5) Finally, the “return” keyword that is used to exit out of the source code has been completed and returns a value. The “0” indicates successful execution and the final part of the source code is the closing curly bracket.

Overall, the code fully adheres to the C syntax, meaning it follows the rules of the language, and it is ready to be further processed.

[[1]](#footnote-29667)

By Emmanuel

1. This answer was used by the help of the compilation process pdf, ChatGPT and https://embeddedwala.com/Blogs/embedded-c/c-cpp-pre-processor-directives [↑](#footnote-ref-29667)