**Assignment 2: Syntax, Semantics, and Memory Management**

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**Part 1: Analyzing Syntax and Semantics**

**Python Code Snippet**

            When running the provided code snippet for the Python code, the compiler gave the following error.A screenshot of a computer

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In Python, code is interpreted line by line during execution (Rizwan, 2023). While executing the calculate\_sum function, as the lowercase “o” is used instead of the digit zero while assigning the value to the total variable, the interpreter encounters an undefined variable “o” and throws a NameError. As Python interprets code line by line, it stops at the first error found during the code run.

**JavaScript** **Code Snippet**

            The compiler gave an “Unexpected identifier” error for the provided JavaScript code snippet. A screenshot of a computer screen

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While executing the line “let result = calculate Sum (numbers),” the JavaScript interpreter identifies “calculate” as one identifier and then “Sum” as another identifier. This is not a valid expression, and as “Sum” is neither defined nor a keyword, it throws an unexpected identifier error. The correct expression should have been “calculateSum(numbers)” which has no space between “calculate” and “Sum”. Additionally, while defining the total, letter “o” is not defined, so if we fix the “calculateSum(numbers)”, next, the JavaScript compiler throws a ReferenceError, as “o” has not been defined before. A screenshot of a computer screen

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**C++** **Code Snippet**

            In C++, all syntax issues are reported during compile time. As the "cout << "Sum in C++" << result << endl;" has an extra quotation, it causes a syntax error. Additionally, the digit "0" must have been used instead of the letter "o", or the letter "o" must have been defined as "int o=0" for the code to execute properly. In C++, until all the issues are resolved during the compile time, the Code fails to run.

**A screenshot of a computer screen

AI-generated content may be incorrect.**

**Section 2**