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## **Project Title:** Postfix Expression Calculator

### **Abstract:**

This project presents a simple yet effective calculator that evaluates arithmetic expressions in postfix notation, also known as Reverse Polish Notation (RPN). The calculator is implemented in C and supports the four fundamental arithmetic operations: addition, subtraction, multiplication, and division.

The core of the calculator is a stack data structure, which is used to hold operands and perform operations in the correct order. The calculator reads a postfix expression from the user, evaluates it using the stack, and outputs the result. This approach allows for efficient and straightforward calculation of complex arithmetic expressions without the need for parentheses to indicate operation precedence.

The project demonstrates the practical application of stack data structures in computer science and provides a foundation for further enhancements, such as support for more operators, error handling improvements, and user interface enhancements. The calculator serves as a valuable tool for educational purposes, helping students understand the postfix notation and the use of stack data structures in algorithm design.

This project underscores the importance of data structures in developing efficient algorithms and provides a practical tool for mathematical computations. It is a step towards building more complex calculators and mathematical software. The code is well-documented and can be easily extended, making it a valuable resource for learning and teaching purposes.

Please note that the current version of the calculator only supports integer inputs and basic error handling. Future work includes enhancing the calculator to support floating-point numbers and improving error handling to make the program more robust and user-friendly.

Overall, this project is a testament to the power of simple data structures in creating useful and efficient software solutions. It provides a solid base for anyone interested in learning about data structures, algorithms, or software development in general.