**ZIYTECHS CALCULATOR PROGRAM**

* Welcome the user
* Inform the user about the available mathematical operations
* List the available operations (Addition, Subtraction, Multiplication, Division, Square, square root, Exit program (Alert, are you sure you want to exit this program?))
* Ask the user the kind of operation they intend to perform and take their response
* Convert the response to float, and save the response in a variable.
* Handle user input errors
* Request for the numbers intended for mathematical operation (num1, num2)
* Handle user input errors
* Save the responses in a variable
* Write a function to perform the operations and display the results. Comment on the function of each **function**.
* For the division function, check for zero denominator error. You can’t perform divide by zero operation. Use conditional statement to handle zero input for denominator.
* Print the result
* Thank the user
* Request if the user intends to perform another operation (If yes, rerun the program, if no Terminate the program safely)
* Exit the program

**Note:** Use line breaks and comments where necessary.

I optimized the calculator I built earlier, and here are the issues I fixed:

1. ISSUE: Programs run continuously.

FIXED: Now, it will prompt the user if they would like to perform another mathematical operation before running the program again.

1. ISSUE: The program will proceed if user input is wrong.

FIXED: Now, if an invalid option is entered, the program will not proceed, rather it will request for a correct option.

1. ISSUE: The program terminates after each operation, and the user has to rerun the program manually after each mathematical operation.

FIXED: Now, the program asks the user if they would like to perform another operation after each operation. If yes, the program runs; if no, it terminates.

1. ISSUE: If a user inputs a zero as the denominator of a division operation, the program displays an error message and terminates abruptly.

FIXED: Now, the zero-division error is fixed. The user is informed of the error, and can try the division operation again with a non-zero input.

1. ISSUE: The user cannot perform power and square root operations.

FIXED: Now, Power and square operations have been successfully integrated into the calculator.

**NOTES:**

* A converted string case does not work in "IF" statements. Therefore, "Y" or "y" and "N" or "n" should be used.
* There is a limit for exponential values in Python. If a value exceeding 4300 is input, the program will return a "ValueError." The recommended solution is to use sys.set\_int\_max\_str\_digits() to increase the limit.
* The program does not multiply numbers that begin with zero, as it throws a syntax error.
  + **FIXED:** SyntaxError for leading zeros in decimal integer literals is resolved. It is now capable of handling numbers starting with zero.