

Tutorial (Advanced Programming) Worksheet 2:

Assignment 1: Simple Calculator

The average-calculator assignment from the last worksheet must have given you enough experience with reading and printing text/variables from and to the terminal.

For this assignment, we expect you to create a file called *simpleCalculator.c*. This class should provide 4 functions for the 4 basic arithmetic operations:

- *sum(a, b)*, which returns $a + b$;
- *subtract(a, b)*, which returns $a - b$;
- *multiply(a, b)*, which returns $a * b$;
- *divide(a, b)*, which checks if b is non-zero and returns a/b ;

In addition to these functions, you should add the *averageCalculator* function from the last worksheet to this file. Each of these functions should have a return type of double.

Next, you need to write a main function. In your main function, you need to ask the user to give 2 variables and an operation (+, -, /, *, *avg*) he/she wants to use. At the end you need to print out the result of the operation, and finish the run.

NOTE: Use a for loop to catch the entries by the user in the terminal. Use if-statements to catch the different operations entered from the terminal.

Homework assignment 2: A more sophisticated Calculator

Now, you should improve the Simple calculator you created in the last assignment to do the trigonometric operations (*sin*(πx), *cos*(πx), *tan*(πx)). Create 3 more functions to calculate these values. Apply the necessary changes to the main function!

NOTE 1: For this assignment, use Switch-case to catch the different operations.

NOTE 2: You need to change the order in which the user enters the values and operations (trigonometric functions only need 1 input variables).

Questions:

Answer the following questions:

- Which library files do you need to include to your *simpleCalculator.c*? (think of the trigonometric functions)
- What is the difference between an *if-statement* and a *switch-case*?
- What would you have to do if you would want to implement the main function in another file?