REPORT

Abstract:

Design and implement a C library for integers of arbitrary length (`Intal` in short for integers of arbitrary length). It should have functions to read and print `Intal` and mathematical operations on `Intal`. The integer could be positive, negative or zero.

Objectives

The following functions to be implemented on `Intal`.

a) Add two integers of arbitrary length
b) Subtract two integers of arbitrary length
c) Multiply two integers of arbitrary length
d) Division limited to integer division
e) Exponentiation limited to positive power.

Write a demo program to demonstrate the functionalities of the library.

Assumptions:

a) User enters valid digits `^[0-9]+$`

Approach:

The following steps were followed:

a) Creation of a C++ class.
b) Design the structure of the class.
c) Implement the private functions (primarily the helper functions).
d) Implement the public function for access and modification.
e) Overload the operators.
f) Make a main file to test the `Intal` library.
g) Creating a `makefile` to execute the program.
h) Make a python script to automate the testing process.

Learning:

I learnt the following things:

a) To implement basic operations of addition and subtraction.
b) To understand the various methods to implement multiplication and division along with their pros and cons.
c) To follow C++ standards for creating datatypes.
d) To use `subprocess` python packages to test my program.

By,

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