

# Mathematical Science Discovery Week

## Computer Science Day

### Group Project

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#### Part I: Simple Command Line Integer Calculator

For this project, you will start from scratch and implement a complete program. Your program needs to have the following features:

1. Ask the user to enter two integer numbers.
2. Ask the user to enter one math operation symbol (+, -, \*, /).
3. Perform the calculation based on the math operation symbol and the two integers.
4. Print out the result.
5. Exit the program when the user wants to (otherwise, restart the process).

**You have all the freedom to design the program flow any way you want** (for instance, you can have the user enter two integers before the math operation symbol, or, one integer followed by a math symbol followed by the 2<sup>nd</sup> integer). There are **no hard rules** on how your program should proceed. There **are no hard rules** on how your program should look like. You can write your own sentence to communicate with the user. You can prompt out messages at any time during the process if you think it is necessary, as long as it makes sense (I meant, as long as it is understandable, you know, as a calculator).

#### Part II: Simple Command Line Integer Calculator – Upgrade Version

Redesign your program so that it can handle more than one calculation in a long chain of math calculations.

For instance, if the user wants to calculate  $(( ( (3 + 5) * 10) - 2) + 24) / 3$ , your program will be able to ask each number and each math operation in a systematic way, then perform the calculation. And, to make our life easier, **we assume the order of operations is always from left to right, that is, each operation will be by default covered with parentheses.**

The other assumption is that we don't know how many steps the user wants to include in the chain of calculations. The user can simply want to calculate one addition between two numbers. But the user also can pile 100 different numbers and math operations to perform a mixed chain of math calculations.

The same as Part I above, you have all the freedoms to design the program flow any way you want, as long as it makes sense.