Create a simple calculator using uC connected to PC. We need a code for each side, connecting both by serial communication through RS232.

I will use VS code and G++ compiler on the PC side, and Tinkercad virtual simulator as Arduino Uno R3 from uC side.

Some of Libraries and functions included for PC code: iostream, string, windows.h, sendToArduino(const string& data), main(), GetCommState, SetCommState, WriteFile, CloseHandle, these are used for setting proper configurations for serial communication ports, sending data or strings and cleanup.

microcontroller code: use Arduino core library, the functions include Serial.begin(), Serial.available(), Serial.readStringUntil(), pinMode(), digitalWrite(), delay(), and other basic functions.

We must notice the correct same baud rate for serial communication, I will set both to 9600 baud. The previous functions deals with multi jobs, such as, initializing the serial communication, configuring pins, reading the available data, printing messages, calculating and sending results, blinking LED, and handling with errors.

This project needs to test the operations like dividing and multiplying by zero and see the results, also try to use decimals, running the code, search for any possible bugs and the ensure normal connectivity between the uC and the PC.