STAT40780 Data Programming with C (online)

Lab Sheet 4

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This week's lab requires you to write some C++ functions and call them through the .C interface in R. This lab sheet will put into practice the lecture material from this week on operators in C++, as well as using the Rprintf() function.

1 Evaluating a relational expression

(a) Write a C++ function (callable from R through the .C interface) that receives two numeric scalar arguments from R, tests whether they are equal, and returns TRUE if the values are equal and FALSE if the values are not equal. Hint: the function will need to have a total of 3 input arguments - two numeric type arguments that are to be tested for equality, and an integer type argument (logical type values can be also be represented as integer types) through which a return a value of TRUE or FALSE can be passed

(b) Compile this function and call it from R through the .C interface

(c) Write a wrapper function in R for the compiled C++ function, that accepts two numeric scalars as input (and checks that the input is of the correct type), and outputs either TRUE (if its two input arguments are equal) and FALSE (if its input arguments are not equal).

2 Printing output to R

Write a C++ function (callable through the .C interface in R) that accepts as input an integer argument from R, divides it by 3 and prints the output in the R terminal. Compile this function, write a wrapper function in R, and call the function from R.