

# STAT40780 Data Programming with C (online)

## Lab Sheet 5

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This week's lab requires you to pass arrays from R to C++ through the .C interface, and return arguments back to R indirectly through input arguments to .C. This lab sheet will put into practice the lecture material from week 5 on arrays and control structures in C++.

### **1 Evaluating a relational expression**

Write a C++ function (callable from R through the .C interface) that receives a numeric vector from R, squares its elements and returns the vector of squared elements to R. You should loop through the elements of the array using a for loop. Compile this function and call it from R through the .C interface.

### **2 Calculate the minimum value of a vector**

Write a C++ function (callable through the .C interface in R) that accepts as input a numeric vector from R, iterates over its elements, and returns the minimum value to R.

### **3 Using a while loop**

Write a C++ function (callable through the .C interface in R) that accepts as input an integer value and computes and returns its factorial to R. Use a [while](#) loop in your computation. Call the factorial function from R and compare the output with R's built-in factorial function.