Enhancing your Code: Combining R and C++ via Rcpp and RcppArmadillo

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Many researchers rely on simulation studies and complex computations demonstrate properties of their methods. While R is a widely used language for statistical computing, its interpreted nature can limit performance for intensive and repetitive computations. On the other hand, C++, a compiled language, offers faster execution but requires more programming expertise. This tutorial aims to provide basic knowledge to C++ programming and demonstrates how to integrate C++ code into R using the R packages Rcpp and RcppArmadillo. By leveraging C++'s low-level efficiency, researchers can substantially accelerate their computations.

Content:

1. Basics of C++
2. The Armadillo-Library
3. Importing C++ Code into R
4. Practical Examples
5. Parallelization of C++ Code

Requirements:

Participants are required to bring their own notebooks with R, Rtools, and the R-Packages "Rcpp" and "RcppArmadillo" installed. Participants should have a working knowledge of R programming concepts, such as loops, conditional statements, and user-defined functions.