Comparison of Matrix Algebra Computational Performance Between Base R and RcppEigen

Costa Stavrianidis

Abstract

In this study, we compare the performance of various matrix algebra computations across functions in base R and functions created using the RcppEigen package.

Introduction

Compiled programming languages have their programs compiled into machine-readable instructions before execution. Examples of compiled languages include C, C++, Rust, and Fortran. Interpreted languages have their programs read and executed by an interpreter rather than translating the program into machine-readable instructions. Examples of interpreted languages include Python, R, and JavaScript.

Both types of languages contain their own advantages and disadvantages. The advantage of creating a compiled program is that it is faster than an interpreted program at execution.