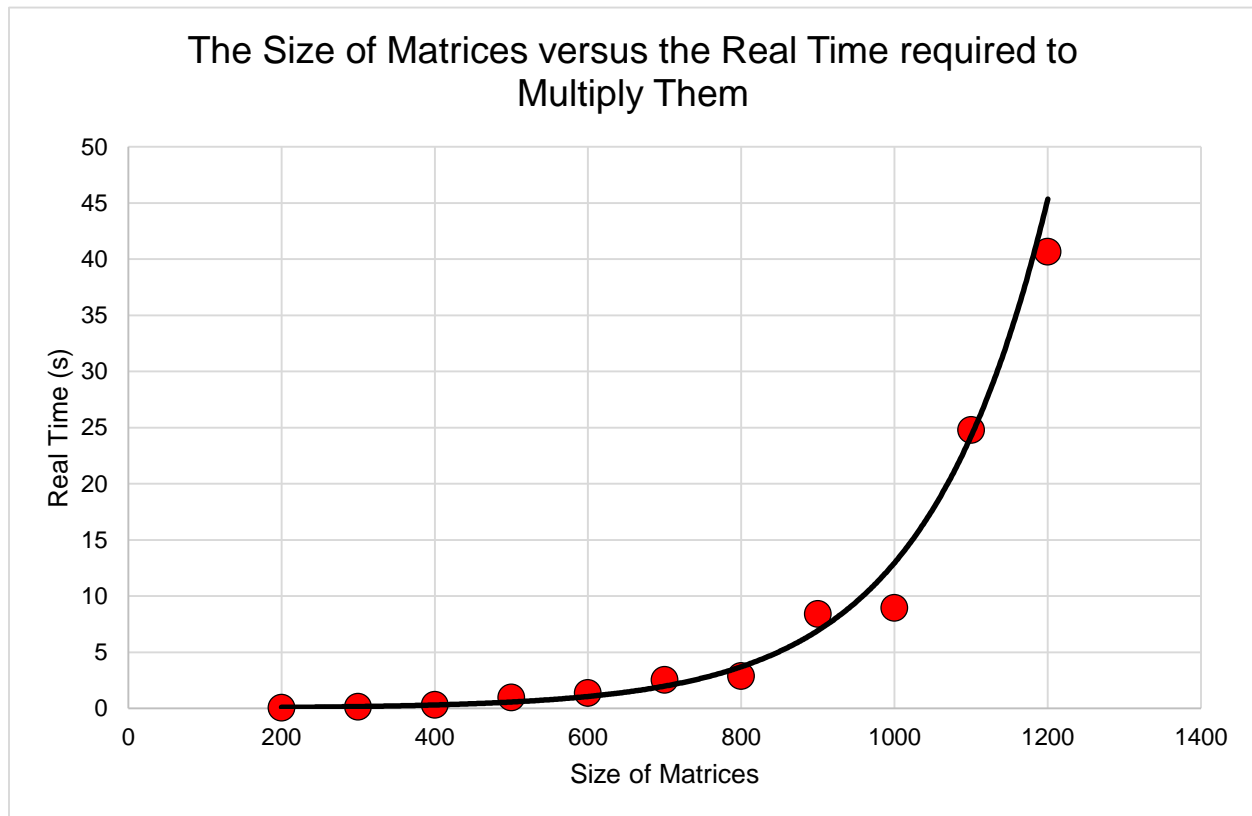Parmvir Chahal

Professor Ahsen Uppal

C Programming

01 April 2016

Performance Analysis

After running this program, which computes the product of two matrices, several times, I discovered that there is an exponential relationship between the size of matrices and the time this program took to compute their product. I increased the size of the matrices by 100 each time and the time that this program took to compute their product increased exponentially as a result. I also know that this relationship is correct because I used approximately 10 different sizes, the majority of which had results in the order of seconds. The exponential relationship is defined by the equation $y = 0.0247e^{0.0063x}$, in which x represents the size of the matrix and y represents the amount of time this program requires to find the product of those matrices. Using this equation, I found out that matrices of the size 10000 would take $1.80 * 10^{18}$ years to compute.

Although this seems like an impossibly large amount of time, it is correct because of the trend displayed in the relationship in the above graph.