CS6301.005 Homework 02

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Problem 1

When multiplying MxK and KxN matrices we will produce a MxN output matrix where each element was the result of a linear combination of K elements. As such, we must compute M*N sums of K elements. Similarly, for memory operations we must bring in the original matrices and output the resulting matrix, leading to a sum over the dimensions of these matrices.

$$O_{compute}(M, N, K) = M * N * K$$

$$O_{memory}(M, N, K) = M * K + K * N + M * N$$

The proof