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HW 1

We are writing code in C for the multiplication of 2 non-square matrices.

We will read into memory 2 non-square (N x M, M x K) matrices of doubles and output their matrix multiplication products.

Functionality required:

1. Allocate space for each matrix in memory
2. Read the matrices into memory
3. Print the contents of each matrix
4. Multiply the matrices and store the result
5. Free the allocated memory space

Error checking (output error messages to STDOUT):

1. If you’re unable to open the input matrix file (e.g. because it doesn’t exist), output the following: **mm\_read: failed to open file.**
2. If the input matrix file is empty, output the following: **mm\_read: failed to read from file.**
3. If there are no row or column sizes in the input matrix file, output the following: **mm\_read: failed to read matrix dimensions.**
4. If the matrix file doesn’t contain enough values, output the following: **mm\_read: failed to read matrix values.**
5. If allocating space for a matrix fails, possibly from an invalid matrix dimension: **mm\_alloc: allocation failed.**
6. If matrix multiplication is impossible because of a dimension mismatch between the two inputs: **mm\_matrix\_mult: dimension mismatch between matrices.**

If any of the above errors occur, terminate the program immediately. Note that for several of these possible errors, you won’t need to add any explicit program logic - e.g. if your first call to fgets() on a file returns NULL, you’re allowed to assume that means the file is empty. You don’t need to make an additional function call to explicitly check the file size.